BL Companies

353 MCKIBBIN STREET

KINGS COUNTY, NEW YORK
Remedial Action Work Plan

NYSDEC BCP Number: C224102

Prepared for:

Mehadrin Dairy Corporation

BBM, LLC

LFW Dairy Corporation, LLC

Brooklyn, New York

Prepared by:

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JULY 2008

CERTIFICATIONS

I, Guy LaBella, am currently a registered professional engineer licensed by the State of New York. I have primary direct responsibility for implementation of the remedial program for the 353 McKibbin Street Site (New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Agreement (BCA) Index No. W2-1054-05-03 Site No. C224101).

I certify that the Site description presented in this Remedial Action Workplan (RAWP) is identical to the Site descriptions presented in the Brownfield Cleanup Agreement for 353 McKibbin Street and related amendments.

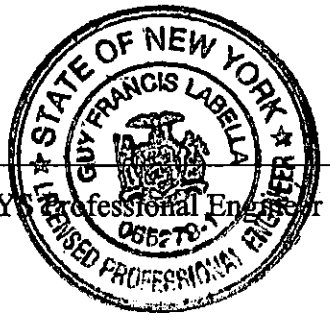
I certify that this plan includes proposed use restrictions, Institutional Controls, Engineering Controls, and plans for all operation and maintenance requirements applicable to the Site and provision for development of an Environmental Easement to be created and recorded pursuant Environmental Conservation Law (ECL) 71-3605. This RAWP requires that all affected local governments, as defined in ECL 71-3603, will be notified that such Easement has been recorded. This RAWP requires that a Site Management Plan (SMP) must be submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls (EC) employed at the Site, including the proper maintenance of all remaining monitoring wells, for approval by the Department.

I certify that this RAWP has a plan for transport and disposal of all soil, fill, fluids and other material removed from the property under this Plan, and that all transport and disposal will be performed in accordance with all Federal, State and local laws and requirements. All exported material will be taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that this RAWP has a plan for import of all soils and other material from off-Site and that all activities of this type will be in accordance with all Federal, State and local laws and requirements.

I certify that that this RAWP has a plan for nuisance control during the remediation and all invasive development work, including a dust, odor and vapor suppression plan and that such plan is sufficient to control dust, odors and vapors and will prevent nuisances from occurring.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.



NYS Professional Engineer #

8/27/08
Date

Signature

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

REMEDIAL ACTION WORK PLAN

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LIST OF ACRONYMS

Acronym	Definition
AMSL	Above Mean Sea Level
AOCs	Areas of Concern
AS/SVE	Air Sparging/Soil Vapor Extraction System
B(a)P	Benzo (a) Pyrene
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
BTEX	Benzene/Tolulene/Ethylbenzene/Xylene
C/D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CD	Compact Disk
CESP	Contractor Erosion and Sedimentation Plan
CFM	Cubic Feet Per Minute
CFR	Code of Federal Regulations
CGS	Current Ground Surface
CLP	Contract Laboratory Protocol
COC	Contaminant of Concern
CP	Citizen Participation
CPAH	Carcinogenic Polycyclic Aromatic Hydrocarbons

CPP	Citizen Participation Plan
CQAP	Contractor Quality Assurance Plan
CSM	Conceptual Site Model
CSOP	Contractors Site Operations Plan
CSWPP	Contractor Storm Water Prevention Plan
DER	Division of Environmental Remediation
DSHM	Division of Solid & Hazardous Materials
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Accreditation Program
ESA	Environmental Site Assessment
ESCP	Erosion & Sedimentation Control Plan
FER	Final Engineering Report
Galli	Galli Engineering
GP	Geoprobe
GPR	Ground Penetrating Radar
HASP	Health and Safety Plan
HCL	Hydrochloric Acid
HNO3	Nitric Acid
HS	Hot Spot
IC	Institutional Control

ID	Identification
MDL	Method Detection Limit
Mg/kg	Micrograms Per Kilogram or PPM
MW	Monitoring Well
NAPL	Non-aqueous Phase Liquid
NE	North East
NW	North West
NYCDEP	New York City Department of Environmental Protection
NYCRR	New York Codes, Rules, and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Protection
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
O & M	Operations and Maintenance
OM&M	Operation, Maintenance, and Monitoring
OSHA	Operational Safety and Health Administration
PAHs	Polycyclic Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PDF	Portable Document Format
PID	Photoionization Detector
PM	Particulate Monitoring

PPB	Parts Per Billion
PPE	Personal Protective Equipment
PPM	Parts Per Million
PSI	Pounds Per Square Inch
PVC	Poly Vinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RSCOs	Recommended Soil Cleanup Objectives
SCGs	Standards, Criteria, and Guidance
SCOs	Soil Cleanup Objectives
SE	South East
SEQRA	State Environmental Quality Review Act
SG	Soil Gas
SHWS	State Hazardous Waste Site
SI	Site Investigation
SMP	Site Management Plan
SoMP	Soil/Materials Management Plan
SPDES	State Pollutant Discharge Elimination System
SSDS	Subslab Depressurization System
STARS	Spills Technology and Remediation Services

STL	Severn Trent Laboratory
SV	Soil Vapor
SVOCs	Semi-Volatile Organic Compounds
SW	South West
SWPPP	Stormwater Pollution Prevention Plan
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TCVOCs	Total Chlorinated Volatile Organic Compounds
TOGS	Technical and Operational Guidance Series
TSVOCs	Total Semi-Volatile Organic Compounds
TVOCs	Total Volatile Organic Compounds
UFPO	Underground Facilities Protective Organization
ug/m3	Micrograms Per Cubic Meter
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

BL Companies Architects Engineers Landscape Architects Surveyors, PC, on behalf of Mehadrin Dairy Corporation, BBM, LLC and LFW Dairy Corporation, LLC (Mehadrin), prepared this Remedial Action Work Plan (RAWP) to address subsurface contamination associated with historic operations at a site located at 353 McKibbin Street, Brooklyn, Kings County, New York (the Site). The RAWP was developed in accordance with the terms of the Brownfield Cleanup Agreement (BCA), dated April 19, 2005, Index W2-1054-05-03, between Mehadrin and the New York State Department of Environmental Conservation (NYSDEC).

Site Description/Physical Setting/Site History

The Site is located in Kings County, Brooklyn, New York and is identified as Block 3083 and Lot 16 and 30 on the Kings County Tax Map. The Site is located in a industrial area and is zoned MI-2 for "Manufacturing District." The Site is currently vacant and situated on an approximately one-acre parcel bounded by Boerum Street and commercial properties to the north; by Bogart Street and commercial properties to the east; by McKibbin Street and a New York City Park and residential property to the south; and by a concrete facility adjacent and to the west. The Site is relatively flat and has an approximate average elevation of 20 feet above mean sea level.

Past uses of the Site have included a chemical works facility, lacquer spraying processes, and an area for paper box storage. In addition, contaminated urban fill material of unknown origin was likely placed on the Site at some time in the past. Subsequent to the implementation of the RAWP to clean up the Site, the property will be redeveloped as a kosher food warehouse and distribution facility. Mehadrin is a Volunteer in the Brownfield Cleanup Program (BCP Identification Number C224102).

Summary of the Remedial Investigation

The remedial investigation (RI) of the Site was conducted between November 2005 and February 2007. The RI was submitted to NYSDEC on March 8, 2007 and approved by NYSDEC

on April 4, 2007. Remedial investigation activities included a Ground Penetrating Radar (GPR) Survey, the collection and analysis of soil, ground water, and soil gas samples throughout the Site and off-Site, the delineation of detected regulated compounds, and the characterization of geologic, hydrogeologic, and contaminant data, to aid in the selection of the most effective clean up measures consistent with the contemplated redeveloped of the Site as a kosher food warehouse and distribution facility. The following are some of the major findings and recommendations presented in the RI Report.

- Subsurface soil, soil gas and ground water at the Site contained chemical substances likely related to filling and former on-Site industrial operations.
- Two contaminant release areas, designated as Hotspots (HS) HS-1 and HS-2 have been identified on the Site.
- Volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals were identified at concentrations that exceed applicable screening standards in on-Site subsurface soils.
- VOCs and metals have been detected at concentrations that exceed applicable screening standards in on-Site ground water.
- VOCs have been detected in soil gas samples collected from the Site.
- Remediation of the Site is necessary, and data collected during the RI activities will be used to aid in the selection of the most effective long-term remedial measures consistent with the contemplated commercial redevelopment of the Site.

Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment was completed for the Site to make a preliminary assessment of the potential for human health exposures to on-Site contaminants of concern (COCs) that exceed applicable screening standards. Subsurface soil, ground water, and soil vapor contain detectable levels of regulated compounds and are considered potential media of concern.

A complete human exposure pathway exists if there is a potential for a receptor to be exposed through one or more exposure routes (i.e., dermal contact, ingestion, inhalation of

fugitive dust) to the specific contaminated media of concern. The Site is currently not in use and there are no potential current on-Site human receptors to on-Site contamination. The current and future land uses for the Site indicate that the primary potential human receptors for soil, ground water, and indoor air via vapor intrusion include Mehadrin Dairy employees and construction workers. Therefore, subsurface soils and ground water located on-Site represents a complete exposure pathway to future Mehadrin Dairy employees and construction workers. On-Site soil vapor may also represent a complete exposure pathway to future on-Site Mehadrin Dairy employees.

Ground water data suggest that detectable levels of regulated compounds are not migrating beyond the Site boundary. In addition, ground water is not withdrawn for public water supply or any other purpose. Therefore, ingestion of site-related contaminants in groundwater is not likely.

Off-site exposure to potential VOC vapors is not likely because there are no buildings contiguous to the Site and a significant reduction in contaminant levels is common as vapors move through the subsurface and potentially into an indoor space. Therefore, a complete exposure pathway to potential off-site human receptors for site-related contaminated soil vapor is unlikely.

The proposed Site-specific remedial actions (summarized in the following Section) will address identified complete exposure pathways as follows:

- The excavation and off-Site disposal of soil containing COCs above Site-specific clean-up levels will eliminate the potential for human receptor to be exposed to the soil.
- A composite cover system consisting of the building structural foundation slab and/or a minimum of one foot of clean fill/clean subbase gravel cover will minimize direct contact exposure pathways for Mehadrin Dairy Site users with any impacted soils left in place (after remedial excavation).

- The installation of a subslab depressurization system (SSDS) and soil vapor barrier will mitigate the potential for soil vapor intrusion into the building. This eliminates the potential inhalation pathway for soil vapor.
- Institutional controls (IC) will prohibit ground water use without proper treatment rendering it safe for the intended use and the approval of the NYSDOH and/or the New York City Department of Health and Mental Hygiene (NYCDHMH).
- Potential direct contact and/or inhalation exposure to any residual contamination left in place (after excavation) will be appropriately managed by following a Site Management Plan (SMP) and a Site-Specific Health and Safety Plan (HASP).
- An in-situ air sparging system in conjunction with soil vapor extraction (collectively, an AS/SVE) will be installed at the Site induce volatilization and promote biodegradation of any VOCs dissolved in ground water saturated zone, sorbed to saturated soils, or trapped in soil pores in the saturated zone, and to collect and treat any vapors generated by the process.
- The AS/SVE system in conjunction with the SSDS and vapor barrier beneath the proposed building will prevent soil vapor (if present) from penetrating into the building.

The proposed remedial actions will also include the implementation of institutional controls, which include maintenance of the composite cover system, a moratorium on use of Site ground water, and Site use restrictions to properly manage and minimize potential exposures to residual contamination at the site.

Summary of the Remedy

Mehadrin Dairy has proposed a Site-specific use-based cleanup in accordance with the approach identified under the BCP as Track 4 Restricted Use with Site-Specific Soil Cleanup Objectives. The proposed Site-specific restricted use-based remedy will include, to the extent practicable, excavation and off-site disposal of soils impacted by contaminants of concern and

installation of a composite cover system consisting of the building structural foundation slab, and/or a minimum one foot clean fill/clean subbase gravel cover. The proposed remedy will achieve a cleanup that is appropriate for the anticipated future commercial use of the Site, and ensure that the resulting Site conditions are protective of human health and the environment.

The proposed remedy includes the following components:

- Excavation of and off-site disposal of soil/fill exceeding Track 4 SCOs listed in Table 11. During remedial activities, all soil will be handled according to the Soil/Materials Management Plan (SoMP) presented in Section 5.4.
- Screening of indications of contamination (by visual means, olfactory evidence and monitoring with a PID) of all excavated soil during all intrusive Site work to facilitate removal and appropriate disposal of contaminated material.
- Appropriate off-Site disposal of all material excavated and removed from the Site in accordance with all Federal, State and local rules and regulations for handling and transport of material.
- Collection and analysis of post-excavation documentation samples for all contaminants of concern (VOCs, SVOCs, metals) to determine if any soils remain on Site that exceed the Track 4 Site-specific cleanup objectives.
- Installation of a composite cover system across the entire Site. The cover system will consist of the building structural foundation slab, and/or a minimum one-foot clean fill/clean subbase gravel cover. A demarcation barrier will be placed below the clean fill cover layer in all on-Site areas outside the Mehadrin Dairy building footprint boundary where soils exceed Track 4 Site-specific clean up objectives.
- Installation of a soil vapor barrier under the building foundation slab, installation of a subslab depressurization system (SSDS) beneath the foundation slab, and installation of an air sparging/soil vapor extraction system (AS/SVE) beneath the entire Site.

- Implementation of post-remediation ground water monitoring to assess ground water quality during and after implementation of the remedy.
- Import of materials to be used for backfill and cover in compliance with: (1) 6 NYCRR Part 375-6.7(d)(1)(ii)(b); and (2) all Federal, State and local rules and regulations for handling and transport of material;
- Implementation of a NYSDEC-approved Site Management Plan (SMP) that would include the following institutional and engineering controls: (a) management of the composite cover system to restrict excavation below the demarcation barrier or buildings foundation slab. Soils excavated from below the demarcation barrier or building foundation slab would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed and disposed of in accordance with all Federal State and local rules and regulations; (b) identification of any use restrictions on the Site; and (c) provisions for the continued proper operation, maintenance and monitoring of the components of the remedy. The SMP will also include details for the operation of the AS/SVE, the SSDS and the post-remedial ground water-monitoring program.
- Imposition of an institutional control in the form of an Environmental Easement that would: (a) limit the use and development of the property to restricted-commercial use; (b) require compliance with the approved SMP; (c) restrict the use of ground water as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH; and (d) require the property owner to complete and submit to the NYSDEC an annual certification of institutional and engineering controls.
- Preparation of a Final Engineering Report (FER) which describes the remedial activities, certifies that the remedial requirements have or will be achieved, defines the Site boundaries, and describes any institutional or engineering controls to be implemented at the Site.
- The property owner will provide annual certification of institutional and engineering controls, prepared and signed by a professional engineer or such other expert acceptable

to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the Site; and (c) certify that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the SMP unless otherwise approved by the NYSDEC. The institutional controls will apply to the area within the boundary of the Site being remediated under the BCA between Mehadrin and the NYSDEC.

The proposed remedy would remove the potential sources of contamination as well as soils that exceed Track 4 Site-specific SCOs. Any residual contaminated soil would be managed by institutional/engineering controls, which would include the construction of a building structural foundation slab (employing a vapor barrier and a subslab depressurization system (SSDS), an air sparging/soil vapor extraction system (AS/SVES) and a minimum one-foot thick clean fill/clean clean subbase gravel in all areas not covered by the building foundation. The clean fill/clean subbase gravel will meet the chemical requirements established in 6 NYCRR Part 375-6.7(d)(1)(ii)(b).

All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

Mehadrin Dairy Corporation, BBM, LLC, and LFW Dairy Corporation, LLC (Mehadrin) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in April 2005, to investigate and remediate an approximate one-acre property located at 353 McKibbin Street, Brooklyn, Kings County, New York (the Site). Mehadrin is a Volunteer in the Brownfield Cleanup Program (BCP). Commercial use is proposed for the property. When completed, the Site will contain a kosher food warehouse and distribution facility. Refer to the BCP application for additional details.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between November 2005 and February 2007. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in the NYSDEC Draft Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation (December 2002) and complies with all applicable standards, criteria and guidance (SCG). The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that this Site does pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources at the Site.

This RAWP represents the detailed plan for Site remediation and with the addition of the Site-specific technical plans discussed in Section 4, serves to provide the documentation and control for the project. The Site-specific technical plans (i.e., bid-ready design drawings and

specifications) will be submitted as part of the Remedial Design Report to the NYSDEC for review and approval prior to the start of Site remediation.

1.1 SITE LOCATION AND DESCRIPTION

The Site is located in Kings County, Brooklyn, New York and is identified as Block 3083 and Lot 16 and 30 on the Kings County Tax Map. A United States Geological Survey (USGS) topographical quadrangle map of Brooklyn, New York (Figure1) shows the Site location. The Site is located in a industrial area and is zoned MI-2 for "Manufacturing District." The Site is situated on an approximately one-acre parcel bounded by Boerum Street and commercial properties to the north; by Bogart Street and commercial properties to the east; by McKibbin Street, and a New York Public Park and residential property to the south; and by a concrete facility adjacent and to the west (see Figure 2). A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419. The approximate one-acre property is fully described in Appendix A –Meets and Bounds. A global positioning system coordinate for the starting point is included.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment. However, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The contemplated use of the Site is intended to be commercial. Specifically, the Site will be the location of a kosher dairy food warehouse and distribution facility. The proposed remedial actions will be conducted in conjunction with the construction of the food warehouse and distribution facility. The development includes a building, loading areas, and a trailer parking area. The features shown on Figure 3 are based on Mehadrin Dairy's conceptual plan of the food warehouse and distribution facility. For purposes of clarity, the future grade of the Site

(established after the completion of the remediation and building construction) will be referenced as the "redevelopment grade."

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The majority of the land use in the immediate area of the Site is commercial and industrial. The Justice Gilbert Ramirez Park is located to the south of the Site (on the South side of Boerum Street).

Twelve Schools are located within 0.5 miles of the Site. Four are located northwest (NW) of the Site as follows: Trinity High School (0.17 miles NW), Public School 250 (0.23 miles NW), Junior High School 49 (0.35 miles NW) and Saint Mary's School (0.45 miles NW). Two schools are located Southeast (SE) of the Site as follows: Public School 147 (0.14 miles SE) and Public School 120 (0.38 miles SE). The remaining six schools are located southwest (SW) or northeast (NE)) of the Site as follows: Public School 57 (0.17 miles SW), Public School 196 (0.25 miles NW), Public School 36 (0.35 miles NE), Public School 168 (0.37 miles SW), Junior High school 148 (0.47 miles SW) and Public School 18 (0.48 miles NW).

Two hospitals are located within 0.5 miles of the Site. The Alvarez Medical Center is located approximately 0.5 miles west of the Site, and Woodland Hospital is located approximately 0.5 miles north of the Site.

English Kill/Newtown Creek, a tributary to the East River, is located approximately 1000 feet northeast of the Site.

collected from soil-vapor probes SV-1, SV-2, and SV-4. Soil vapor probe SV-3 was inaccessible during the second round of soil vapor sample collection.

2.1.4 Chemical Analytical Work Performed

Chemical data were collected to identify specific contaminant concentrations throughout those media potentially impacted by Site operations. Chemical data were generated from subsurface soil, ground water, and soil gas samples.

The number of samples collected, the analyses conducted, and the quality assurance/quality control (QA/QC) samples are summarized in Table 2. Samples were handled in accordance with QA/QC protocols presented in the NYSDEC-approved work plans. Severn Trent Laboratory (STL) in Shelton, Connecticut, a New York State (NYS)-certified laboratory, analyzed all the samples.

2.1.4.1 Soil Chemical Analyses

Soil samples were collected from selected borings for laboratory analyses and transported to STL for analysis for the presence of one or more of the following: VOC Target Compound List (TCL) by United States Environmental Protection Agency (USEPA) Method 8260B, Semi-VOC TCL by USEPA Method 8270, Target Analyte List (TAL) metals by USEPA Method 6010B, and Polychlorinated Biphenyls (PCBs) by USEPA Method 8082 and/or Pesticides by USEPA Method 8081.

2.1.4.2 Ground Water Chemical Analyses

The ground water samples were analyzed for some or all of the following chemical constituents depending on the requirements for the particular sampling event: TCL VOCs by USEPA Method 8260B, TCL Semi-VOCs by USEPA Method 8270, TAL Metals by USEPA Method 6010B, and PCBs by USEPA Method 8082.

2.1.4.3 Soil Vapor Chemical Analyses

All soil vapor analyses were performed in general accordance with Section 2.7.1 (b) in the NYSDOH Draft Soil Vapor Intrusion Guidance (February 2005). Soil vapor samples, were

submitted under proper chain of custody protocols for analysis of VOCs by USEPA Method TO-15 plus Helium (QA/QC tracer gas).

2.1.5 Quality Assurance/Quality Control

BL Companies conducted the sampling in accordance with the quality assurance project plan (QAPP) prepared for this investigation as well as BL Companies Standard Operating Procedures, which are included as Appendix E of the approved RI Work Plan. Soil samples were collected and preserved with ice for transport to the analytical laboratory. Ground water samples analyzed for VOCs were preserved with hydrochloric acid (HCL). Metals were preserved with nitric acid (HNO_3) and SVOCs were not preserved. Ground water samples were placed on ice for laboratory transport. The time of collection, location, sample size, and the sample depth was recorded on field sheets produced by BL Companies and/or in field books. The Chain of Custody for each sample batch included the following information, Project Name, Project Location, BL Companies Job Number, Analysis Status, Sample ID, Sample Matrix, Preservation, Analysis Requested, Date, Time, Containers, and Reporting Requirements. Duplicate samples, field blank samples, and trip blank samples were collected for QA/QC purposes.

2.1.6 Geophysical Work

BL Companies conducted a GPR survey on the Site to aid in identifying possible underground objects including underground storage tanks and utility pipes. Specific underground objects were not found during the GPR survey; however, four anomalies were found. These anomalies were designated as AOC #8 to AOC #11 (see Figure 5). These areas of concern were investigated during subsurface RI activities.

2.1.7 Documentation

Soils at the Site were compared to the NYSDEC Recommended Soil Cleanup Objectives (RSCOs) for individual compounds (Technical and Administrative Guidance Memorandum (TAGM) #4046). It is important to note that these criteria are used in the remedial investigation process to make a preliminary qualitative assessment of the potential exposure from compounds

to human health and the environment and do not necessarily represent the final concentrations that must be achieved through remediation. The Soil Cleanup Objectives defined in 6NYCRR Part 375 were not in effect at the time the RI report was prepared and therefore were not available for use during the remedial investigation process. Soil analytical data for soil samples collected for test borings are summarized in Tables 3 and 4. The ground water analytical results are compared to the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 ground water standards for Class GA water in Tables 5 and 6. Table 7 presents the soil gas analytical results. Below is a summary of RI findings.

- Two release areas, designated as Hotspots HS-1 and HS-2, have been identified. VOCs, trichloroethene (TCE), tetrachloroethene (PCE) and benzene/tolulene/ethlybenzene/xylene (BTEX) in particular, have been identified at the Site.
- The exact release mechanisms associated with HS-1 and HS-2 are unknown, but likely are associated with the historical industrial uses of the property or uncontrolled dumping when the Site was vacant and uncontrolled.
- The predominant contaminant of concern (COC) in subsurface soils in the area of HS-1 is TCE that is limited to 5 to 10 feet bgs. The vertical extent of the contamination is this area is approximately 10 feet bgs.
- The predominant COC in subsurface soils in the area of HS-2 are VOCs (e.g., ethylbenzene, total xylene, TCE, trimethylbenzene). The vertical extent of the contamination in this area is approximately 12 feet bgs.
- Physical evidence collected during the sampling of deep borings within HS-2 indicate that slight petroleum-related staining and faint petroleum-like odors are present to a depth of approximately 72 feet bgs in the area of HS-2. The analytical sample collected between 70-72 feet bgs contained no VOCs or SVOCs above laboratory method detection limits. Additional soil analytical data will be collected in the area of HS-2 prior to the implementation of the remedy presented in this RAWP.

- Subsurface soil samples collected from deep soil locations within HS-2 and that exhibited physical evidence of petroleum-like staining and/or odors do not exhibit VOCs or SVOCs at concentrations above TAGM # 4046 RSCOs.
- Individual SVOC compounds are widespread across the Site and at off-Site locations, and predominantly located within urban fill material.
- Shallow soils in HS-1 are most likely a continuing source of ground water VOC impacts (including TCE) to the shallow and deep portions of the overburden aquifer.
- Shallow soils in HS-2 are most likely a continuing source of ground water VOC impacts (including trimethylbenzene) in the shallow overburden aquifer and PCE impacts in the deeper potion of the overburden aquifer.
- Ground water flow direction of the shallow overburden aquifer is to the north/northwest.
- Ground water flow direction of the deep overburden aquifer is to the north.
- The absence of dissolved-phase VOC that exceed ground water standards in samples collected from Site boundary monitoring wells suggests that ground water impacts are not migrating beyond the hydraulically downgradient Site boundary
- Soil vapor concentrations have been detected in the soil beneath the Site and the perimeter of the Site. The highest concentrations of TCE and PCE were detected in soil gas samples collected from an off-Site soil gas probe that suggest the possibility of an off-Site source(s), and/or that Hotspot #2 is a potential source of off-Site soil vapor. TCE and PCE vapor have the potential to migrate through soil toward any future building foundation(s) and intrude into future building(s) constructed in areas of identified soil vapor contamination

- Based on the nature and extent of contaminants on the Site and the current and planned land uses in the area, there are no complete contaminant exposure pathways posed to the public..

The RI report recommended that a RAWP be prepared and submitted to the NYSDEC based upon the RI findings. Additionally, the RI report recommended that the following remedial alternatives be considered:

- No Action
- Excavation of soils that exceed Track 1 Unrestricted Use SCOs.
- Removal of impacted soil at Hotspots HS-1 and HS-2 that exceed Track 4 Site-specific SCOs.
- Utilize in-situ remediation (i.e., bio/chemical remediation techniques) in shallow subsurface soils.
- Encapsulation of contamination beneath buildings and other impermeable surfaces, in conjunction with the use of institutional and environmental controls.
- Construction of a vapor barrier and sub-slab depressurization system beneath proposed building to prevent any potential soil vapor from penetrating into the building
- Installation of an in-situ air sparging and vapor extraction system for the remediation of potential VOCs dissolved in ground water, sorbed to the saturated zone soils, and trapped in soil pores in the saturated zones. Monitor ground water for natural attenuation.

Remedial action items will be further discussed in detail in later sections of this report.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have determined that this Site poses a significant threat to human health and the environment. Notice of that determination has been provided for public

review in the form of a Fact Sheet that was mailed to the site contact list. A copy of the Fact Sheet is included in Appendix B.

2.3 SITE HISTORY

The usage history of the Site has been reconstructed from information obtained from previous reports, review of topographic maps, and Sanborn™ Fire Insurance Maps.

2.3.1 Past Uses and Ownership

Past use of the Site has included the operation of a chemical works facility (1907), lacquer spraying processes (circa 1951), and an area for paper box storage (1951-1995). In addition, urban fill material of unknown origin was likely placed on the Site at some time in the past.

The one-acre Site is currently undeveloped and covered with grass/shrubs and domestic litter, see attached Site Plan (Figure 2). On-Site locations with the potential to have been used for the storage, use, and/or disposal of solvents and metals were not identified. However, the Site has been vacant and unsecured for many years and evidence of dumping of unknown materials, including drums, has been observed.

The ownership history of the Site was compiled from a review of City of New York land records. The available land records for Lots 16 and 30 go back to 1982. Thames Operation Corporation sold the two lots to Thames Trading Company, Inc, in 1982. In 1983, Thames Trading Company, Inc. sold the lots to Richard L. Penzer, and Mr. Penzer transferred the lots to 307 McKibbin Street Realty Corporation. The lots were sold to the New York City Industrial Development Agency in 1984, which transferred the lots to Harry J. Rashti & Company, Inc. in 1991. The current owner of the lots, Mehadrin Dairy Corporation BBM LLC, purchased the properties from Harry J. Rashti & Company, Inc. in 1996.

2.3.2 Phase I and Phase II Reports

A Phase I Environmental Site Assessment (ESA) was completed by Public Service Testing Laboratories, Inc in March 2003. The Phase I ESA recommended a Phase II

Investigation of the Site based on the past industrial use of the property and waste dumping. Copies of the Phase I and II reports were submitted with the BCP application.

Galli Engineering (Galli) completed a Phase II Site Investigation (SI) in October 2003. VOCs, SVOCs/PAHs, and metals were identified in soils beneath the Site.

A Phase II SI was completed by BL Companies in May 2006. During completion of the Phase II SI, VOCs, SVOCs, metals and PCBs were identified in the soil beneath the Site. VOCs, metals and pesticides were detected in the ground water beneath the Site

2.3.3 Sanborn Maps

All Sanborn™ Fire Insurance Maps available for this Site were reviewed prior to preparation of the RAWP. Sanborn™ Fire Insurance Maps are presented in Appendix C. Notable structures depicted on Sanborn™ Maps are summarized in this section of the RAWP.

Prior to the early 1900's, as depicted by the 1888 Sanborn™ Fire Insurance Map, the Site was undeveloped land.

The 1907 Sanborn™ Fire Insurance Map depicts the Site as occupied by a portion of the F.H. Kalfleisch Chemical Works. A dwelling is depicted at the northeast corner of the Site. Two small buildings are depicted along the northern property boundary and one large building is depicted along the southern property boundary.

The 1933 Sanborn™ Fire Insurance Map depicts the Site as developed with two loft buildings. The dwelling and other buildings previously depicted in the 1907 Sanborn™ Fire Insurance Map do not exist at this time. Increased commercial/industrial development of the surrounding properties is evident at this time.

The 1951 and 1990 Sanborn™ Fire Insurance Maps depict the Site as developed with the same two loft buildings shown on the 1933 map. According to the 1951 and 1990 maps, lacquer spraying was conducted in the northern building. Paper box storage was located outside at the southwestern corner of the Site, west of the southern loft building.

The 1995 Sanborn™ Fire Insurance Map depicts the Site as undeveloped. Most of the Bogart to White Street block is depicted as undeveloped land except for the northwestern corner, which is depicted as having a loft of unknown use.

The 1954, 1966, and 1975 aerial photographs depict the Site developed with a square-shaped building at the northeast section of the Site and a rectangular-shaped building along the southern boundary of the Site.

The 1984 aerial photograph depicts the Site developed with only the rectangular-shaped building on the southern portion of the Site. The area north of the building appears to be undeveloped.

The 1994 aerial photograph depicts the Site as undeveloped land.

Based on the historical information described above, past Site uses that are of environmental concern include:

- Occupancy by a chemical manufacturer
- Occupancy by a lacquer spraying operation
- Uncontrolled access and dumping
- Possible placement of contaminated urban fill

2.4 GEOLOGICAL CONDITIONS

2.4.1 Topographic Setting

According to the USGS topographic quadrangle of Brooklyn, New York, the topography in the area of the Site slopes to the southwest. The Site is relatively flat and has an approximate average elevation of 20 feet above mean sea level (AMSL). However, Site topography has been disturbed by partially completed construction activities. Mehadrin excavated footing trenches and installed concrete building foundation footings along portions of the northern, eastern, and southern property boundary. The Site improvement work was conducted prior to entering into the BCP.

2.4.2 Geologic Setting

Geologically, the Site is located in the Atlantic Coastal Plain Physiographic Province. Bedrock beneath the Site consists of Pre-Cambrian Age crystalline metamorphic and igneous rock. No bedrock outcrops exist at the Site. Depth to bedrock at the Site is unknown, but is likely greater than 200 feet below ground surface (bgs).

Surficial materials have been mapped as Pleistocene Age deposits of the Upper Glacial Aquifer, Gardiners Clay and Jameco Formation. Soils mantling the Site have been identified as Urban Fill. Urban fill consists of construction debris, rock, and ash.

Based on information obtained from fifty-seven environmental exploration soil borings advanced by BL Companies during the RI: the Site is underlain by approximately 7 feet of urban fill. Glacial deposits underlie the urban fill and consist predominantly of varying percentages of sand and silt. The stratigraphy of the Site is illustrated on Figure 6 (Geologic Cross-Section A-A'). The location of the cross-section is presented in Figure 4.

2.4.3 Hydrogeologic Setting

2.4.3.1 Regional Hydrogeology

Hydrogeologic literature for Kings County, New York indicates that ground water levels in the northern region of Brooklyn (in the area of the Site) fluctuated significantly through the mid 1800s and 1900s. These changes in ground water levels changed the demands to the water supply throughout the years. Due to these great fluctuations in the ground water table, dilution and dispersion of saline and contaminated water occurred. According to the literature, various organic compounds, including PCE and TCE were detected in the shallow aquifer in the northern region of Brooklyn.

2.4.3.2 Site-Specific Hydrogeology

Shallow ground water is present under unconfined conditions in the fill material and/or the glacial deposits present beneath the Site, depending on the location within the study area. Depth to ground water is approximately 9 feet to 15 feet bgs. Confining deposits were not

identified within the overburden aquifer during the RI. Ground water is not used for drinking in the area.

Four rounds of ground water measurements were collected during the RI field activities. The depth to ground water and the ground water elevation measurements for the shallow and deep portions of the overburden aquifer are listed in Table 8. Depths to ground water level measurements were collected on the following dates: November 23, 2005, December 14, 2005, November 16, 2006, and January 3, 2007.

Non-aqueous phase liquid was not detected in any of the monitoring wells during any of the ground water level measurement events.

Water levels measured were used to construct water-table elevation contour maps (four shallow ground water maps and two deep ground water maps) to define the direction of ground water flow and hydraulic gradient across the Site. Ground water flow maps are shown in Figures 7A through 7D and 8A through 8B. The predominant ground water flow in the shallow portion of the overburden aquifer is north-northwest. The ground water flow in the deeper portion of the overburden aquifer is to the north.

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

Based upon field observations during the subsurface investigation and laboratory analytical data, two "hotspots" were identified at the Site (Figure 9).

The primary COC in Hotspot HS-1 is TCE. TCE was observed in shallow unsaturated soils, suggesting a former on-Site release of TCE to subsurface soils. The distribution of TCE detected at concentrations that exceed TAGM # 4046 RSCOs is limited to shallow soils between 5 and 10 feet bgs. The distribution of TCE detected at concentrations that exceed Track 2 Restricted-Commercial Use SCOs is limited to one shallow soil location between 7 and 8 feet bgs.

Hotspot HS-2 is impacted predominantly with ethylbenzene, trimethylbenzene and total xylene and individual VOC detected in subsurface soils above TAGM # 4046 RSCOs defines its

lateral extent. Heavy to moderate black stained soils and strong to moderate petroleum odors were observed in soil samples collected from approximately 6 to 12 feet bgs in HS-2. Non-aqueous phase liquid (NAPL) was observed in one discrete sample (GP-10, 8-12 ft bgs) within HS-2. Subsurface-soil samples did not exceed Track 2 Restricted-Commercial Use SCOs.

Physical evidence collected during the sampling of deep borings within HS-2 (GP-33, GP-43) indicate that slight petroleum-related staining and faint petroleum-like odors are present to a depth of approximately 70 feet bgs in the area of HS-2. The physical evidence of subsurface soil staining and odors observed to depth of 70 feet bgs within the overburden aquifer are likely a result of the historical water table drawdown that occurred in northern Brooklyn in the early to mid twentieth century. The water table was depressed more than 45 feet during the 1930's and 1940's which most likely mobilized a historic shallow source of petroleum contamination. Expecting 2-methylnapthalene at a concentration of 45,000 ppb (exceeding the TAGM # 4046 criteria of 36,400 ppb), the analytical sample collected between 15-17 feet bgs that exhibited staining and odors contained no VOCs or SVOCs at concentrations above TAGM #4046 criteria. Expecting acetone at an estimated concentration of 300 ppb (exceeding the TAGM # 4046 criteria of 200 ppb), the analytical sample collected between 40-45 feet bgs that exhibited staining and odors contained no VOCs or SVOCs at concentrations above TAGM #4046 criteria. The analytical sample collected between 70-72 feet bgs that exhibited staining and odors contained no VOCs or SVOCs above laboratory method detection limits. Based on the physical and chemical evidence, the vertical extent of the contamination in this area is approximately 12 feet deep. The soil data collected as part of the RI will be supplemented with additional soil analytical data to be collected between 45 and 70 feet bgs prior to the implementation of the remedy presented in this RAWP.

Off-Site facilities located hydraulically up gradient or cross gradient of the Site, based on the inferred direction of ground water flow and proximity to the Site, may have the potential to impact the Site. The former Jayer Plating/Milhaw Realty Corporation, 2 Ingraham Street, was identified on the State Hazardous Waste Site (SHWS), state spills, and registered underground storage tank (UST) lists. This facility is located across the street from the Site to the east and is potentially hydraulically cross gradient of the Site. According to an electronic database search of

Federal and State files, the facility was occupied by a nickel and chromium plating company and an umbrellas company between 1946 and 1990. The database report states that past operations have led to the contamination of soil beneath the building. Ground water beneath the property was impacted with chromium, mercury, and nickel. The database also states that the building was closed due to 20 violations and a petroleum spill. 2 Ingraham Street is also listed as having a spill on 12/31/97. The material and cause of the spill are unknown. The status of the spill is listed as "active." Milhaw Realty Corporation also located at 2 Ingraham Street was identified on the registered UST list. According to the database report, four USTs were removed from the facility in 1998. The RI did not include the investigation of off-Site facilities nor did it determine the extent of on Site impacts to groundwater and soil vapor resulting from off Site contamination sources.

2.5.2 Description of Areas of Concern

The initial CSM developed as part of the RI Work Plan is described below. The CSM has evolved with the generation of additional data and is discussed in detail in the RI report.

Development of the initial CSM was based on a review of the existing and historical uses of the Site and a GPR survey completed at the Site by BL Companies. The locations of specific activities/operations/storage areas were identified as preliminary AOCs to be investigated. The CSM identified eleven AOCs that include:

- AOC #1: Former use of the Site as a portion of a chemical works facility,
- AOC #2: Area of former lacquer spraying activities,
- AOC #3: Drum Disposal Area,
- AOC #4: Drum Disposal Area,
- AOC #5: Drum Disposal Area,
- AOC #6: Presence of SVOCs/PAHs identified in the Phase II Site Investigation,

- AOC #7: Existence of a concrete pad for unknown use,
- AOC #8: Ground Penetrating Radar Anomaly,
- AOC #9: Ground Penetrating Radar Anomaly,
- AOC #10: Ground Penetrating Radar Anomaly, and
- AOC #11: Ground Penetrating Radar Anomaly.

AOCs are illustrated in Figure 5.

2.5.3 Identification of Standards, Criteria and Guidance

2.5.3.1 Standards Criteria and Guidance (SCGs)

The following is a list of major SCGs that apply to the Site characterization and RI for the Site:

- TAGM #4046 – Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994)
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Ground Water Effluent Limitations (June 1998)
- NYSDOH Final Guidance for Evaluation Soil Vapor Intrusion in the State of New York dated October 2006 (NYSDOH Air Instruction Guidance).
- Draft BCP Guide (May 2004)
- 6NYCRR Part 375 – Environmental Remediation Programs (December 2006)
- 6NYCRR Parts 700-706 – Water Quality Standards (June 1998)
- 29 Code of Federal Regulations (CFR) Part 1910.120 – Hazardous Waste Operations and Emergency Response

2.5.4 Soil/Fill Contamination

The distributions of compounds that exceed the NYSDEC TAGM # 4046 RSCOs for individual compounds and specific groups of compounds in soils are summarized in this section.

2.5.4.1 Summary of Soil/Fill Data

Soil laboratory analytical results for selected individual compounds and specific groups of compounds are ranked in order of concentrations (highest concentration to lowest concentration) in Table 9. The individual compounds and groups of compounds presented in the Table were selected based on NYSDEC comments on the Draft RI report dated May 5, 2006. The ranked compounds include: TCE, PCBs, lead, mercury, arsenic, and chromium. The ranked compound groups include: BTEX, Total Chlorinated VOCs (TCVOCs), Total VOCs (TVOCs), Total SVOCs (TSVOCs), carcinogenic PAHs (CPAHs), non-carcinogenic PAHs (non-CPAHs), and benzo (a) pyrene (B(a)P) equivalents. The individual compounds and compound groups (when applicable) are compared to the NYSDEC TAGM # 4046 RSCOs. Site background concentrations for metals, listed in TAGM #4046, are derived from chemical background studies completed in the region.

The concentrations of lead, mercury, arsenic, and chromium in soils are within the same order of magnitude as background concentrations for eastern United States Urban soil, with one exception, mercury found in MW-7 (10-12 feet bgs), which is one order of magnitude greater than background concentrations (11.6 parts per million (ppm)). MW-7 is an off-site boring located downgradient of the Site and is not representative of metals on-Site. The metals detected in on-Site soils are considered naturally occurring and/or background and not indicative of a release.

As presented in TAGM #4046, the maximum recommended soil cleanup objective for total VOCs is 10 milligrams per kilogram (mg/kg) and 500 mg/kg for SVOCs. The analytical results indicate that very few soil samples (i.e., seven of 86 samples) exceed the cleanup objective for total VOCs, while no samples exceed the objective for total SVOCs. Six of the seven samples that exceed the total VOC maximum recommended soil cleanup objectives are in

the area of Hotspot HS-1. The remaining sample (GP-33, 5-10 feet bgs) that exceed the total VOC maximum recommended soil cleanup objective is in the area of Hotspot HS-2.

TCE exceeded the TAGM #4046 RSCOs in eight of the 86 samples submitted for laboratory analysis. The distribution of TCE detected at concentrations that exceed the TAGM #4046 RSCOs are limited to shallow soils (5 to 10 feet bgs) in the areas of Hotspot HS-1 and Hotspot HS-2. 1,1,2,2-Tetrachloroethane was detected at a concentration of 1.1 ppm (i.e., exceeded the TAGM #4046 RSCO of 0.6 ppm) in sample GP-10 (18-20').

PCBs were not detected at concentrations above TAGM #4046 RSCOs in any of the 51 samples submitted for laboratory analysis.

2.5.4.2 Comparison of Soil/Fill with SCGs

Concentrations of contaminants of concern that exceed RSCOs were observed at varying degrees in subsurface soil samples collected across the Site and along the off-Site perimeter. Figure 10 is a spider map that shows the location and summarizes exceedances of TAGM 4046 SCOs and also illustrates the locations of Track 4 Site-Specific SCOs for all soil/fill. Tables 3 and 4 shows exceedances from Track 4 Unrestricted SCOs for all soil/fill at the Site. The concentration of VOCs and SVOCs for each subsurface sample location and the corresponding sample depth are presented in a box adjacent to each sample location on Figure 9. VOC concentrations greater than TAGM #4046 RSCOs are present predominantly in the areas identified as Hotspot HS-1 and Hotspot HS-2.

In Hot Spot HS-1, TCE was detected at concentrations of one to two orders of magnitude above RSCOs (TAGM #4046) in the soil samples collected from GP-21 (99,000 ppb) at a depth of 7-9' bgs, GP-22 (6,000 ppb) at a depth of 7-9' bgs, GP-23 (3,000 ppb) at a depth of 5-10' bgs, GP-24 (69,000 ppb) at a depth of 7-10' bgs, GP-27 (8,200 ppb) at a depth of 5-10' bgs, and GP-39 (44,000 ppb) at a depth of 7-9' bgs. TCE was also detected at a concentration of three orders of magnitude above RSCOs in soil sample GP-2 (250,000 ppb at a depth of 7-8' bgs and soil sample SB-1 (191,750 ppb) at a depth of 4-8' bgs collected by Galli during the Phase II SI completed in October 2003. Other VOCs detected above RSCOs included acetone (740 to 2,600

ppb), methylene chloride (290 to 4,600 ppb) and 1,2-dichloroethene (28,000 ppb), and trans-1,2-dichloroethene (520 to 28,000 ppb).

VOCs were detected above the RSCOs in the following soil samples analyzed from HS-2: GP-4, GP-10, GP-33, and GP-40. Ethylbenzene and total xylenes were detected above RSCOs in the soil sample collected from GP-33 at a depth of 5-10 feet bgs at concentrations of 6,300 parts per billion (ppb) and 2,700 ppb, respectively. 1,1,2,2-Tetrachloroethane was detected above the RSCOs in soil samples collected from GP-4 (10-11 feet bgs) at a concentration of 1,500 ppb, and GP-10 (18-20 feet bgs) at a concentration of 1,100 ppb. Other VOCs detected above RSCOs included acetone (230 ppb to 800 ppb), methylene chloride (110 ppb to 480 ppb), TCE (1,300 ppb), methyl ethyle ketone (330 ppb), and 4-methyl-2-pentanone (1,400 ppb).

Trimethylbenzene was detected in subsurface soil collected from boring GP-33 (5-10 feet bgs) and SB-8 (8-12 feet bgs, collected by Galli) in Hotspot HS-2 above the NYSDEC Track 1 Unrestricted Use Soil Cleanup Objectives. The comparison of trimethylbenzene to the NYSDEC Track 1 Unrestricted Use Soil Cleanup Objective is presented in this section of the RAWP because a TAGM #4046 RSCO has not been established by the NYSDEC. No samples for trimethylbenzene were collected or analyzed below this depth in HS-2.

The extent of SVOCs detected at concentrations that exceed the individual TAGM #4046 RSCOs in subsurface soils is widespread across the Site and off-Site locations and predominantly located in the urban fill deposits.

The concentrations of lead, mercury, arsenic, and chromium in soils are within the same order of magnitude as background concentrations for eastern United States Urban soil, with one exception, mercury found in MW-7 (10-12' bgs), which is one order of magnitude greater than background concentrations (11.6 ppm). MW-7 is an off-site boring located downgradient of the Site and is not representative of metals on-Site. The metals detected in on-Site and off-Site soils are considered naturally occurring and/or background and not indicative of a release.

PCBs were not detected at concentrations above TAGM #4046s in any of the samples submitted for laboratory analysis.

Based upon field observations during the subsurface investigation and laboratory analytical data, two "hotspots" were identified at the Site. One hotspot area (HS-1), in the vicinity of GP-2, is defined by TCE detected in shallow subsurface soils at concentrations above TAGM #4046 RSCOs. The second hotspot area (HS-2), in the vicinity of GP-33, is impacted predominantly with ethylbenzene, trimethylbenzene and total xylene and its lateral extent is defined by individual VOC detected in subsurface soils above TAGM #4046 RSCOs. A direct correlation could not be made between the hotspots and potential source areas on the Site although the presence of toluene and xylenes can most likely be attributed to activities of the former lacquer business operated on part of the Site. In addition, the presence of TCE may be the result of on-Site dumping from the former chemical manufacturing business, and/or from uncontrolled dumping at the Site.

2.5.5 On-Site and Off-Site Ground Water Contamination

The distributions of compounds that exceed the NYSDEC Class GA ambient ground water quality standards (TOGS 1.1.1) for individual compounds and specific groups of compounds in are summarized in this section.

2.5.5.1 Summary of Ground Water Data

Ground water samples were collected for laboratory analyses from the thirteen on-Site and off-Site monitoring wells to characterize ground water quality. The collection of ground water samples from each well allowed for the characterization of ground water chemistry from the uppermost portion of the overburden aquifer (i.e., shallow wells screened at the water table) and from a deeper portion of the overburden aquifer (i.e., deep wells screened approximately 27 feet below the water table). The locations of the monitoring wells are illustrated in Figure 4. Monitoring wells MW-1 and MW-8 are located along the hydraulically upgradient Site boundary. Monitoring wells MW-6 and MW-7 are located along the hydraulically downgradient Site property boundary. MW-9 is located along the eastern property boundary. Monitoring wells MW-2, MW-3, MW-4, MW-5, MW-5D, MW-10, and MW-11 are located within the interior of the Site between the hydraulically upgradient and downgradient Site boundaries.

Monitoring Wells MW- 5D, MW-10, and MW-11 were installed in the interior of the Site within the deep portion of the overburden aquifer.

PCBs were not detected at concentrations above laboratory method detection limits in the ground water samples analyzed (MW-1 to MW-5). One or more of the following compounds were detected in all of the ground water samples collected from the on-Site monitoring wells: VOCs, SVOCs, metals, and pesticides.

SVOCS were detected in ground water samples collected from MW-3, MW-4, MW-5, and MW-5D. Acenapthene was detected in ground water samples collected from MW-3, MW-4 and MW-5 at concentrations of 12 ppb, 4 ppb and 4 ppb, respectively. Fluorene was detected in samples collected from MW-3, MW-4 and MW-5 at concentrations of 10 ppb, 3 ppb, and 3 ppb, respectively. SVOCs were not detected at concentrations above the laboratory method detection limits in ground water samples collected from MW-1, MW-2, and MW-6 to MW-12.

VOCs were detected in all of the ground water samples. Methylene chloride was detected in the sample collected from MW-12 at a concentration of 9.6 ppb. TCE was detected in samples collected from MW-1, MW-2, MW-5D, MW-6, and MW-8 to MW-12 at concentrations ranging from 0.85 ppb (MW-8) to 1600 ppb (MW-12). 1,2,4-trimethylbenzene was detected in ground water samples collected from MW-3 and MW-5. 1,3,5-trimethylbenzene was detected at concentrations above the laboratory-method detection limit in a ground water sample collected from MW-5. PCE was detected in ground water samples collected from monitoring wells screened in a deeper portion of the overburden aquifer (MW-5D, MW-10, MW-11). PCE concentrations ranged from 46 to 56 ppb.

Metals were detected in all of the ground water samples. Chromium was detected in samples collected from MW-3, MW-5, MW-7, and MW-10 at concentrations of 3.8 ppb, 2.0 ppb, 19.7 ppb, and 2.1 ppb, respectively. Lead was detected in samples collected from MW-1, MW-3, MW-5, MW-6, MW-7, MW-8, and MW-10 at concentrations ranging from 3.3 ppb (MW-8) to 28.3 ppb (MW-7).

Pesticides were detected in all of the ground water samples analyzed for these compounds (MW-1 through MW-5). Dieldrin was detected in two ground water samples (MW-3 at 0.018 ppb and MW-5 at 0.016 ppb.

Ground water laboratory analytical results for selected individual compounds and specific groups of compounds are ranked in order of concentrations (highest concentration to lowest concentration) in Table 10. The ranked compounds include: TCE, PCE, and 2,4-Trimethylbenzene. The ranked compound groups include: TCVOCs and TVOCs). The individual compounds are compared to NYSDEC Class GA ambient ground water quality standards (TOGS 1.1.1).

TCE exceed the standard in six of the 13 samples submitted for laboratory analysis, and PCE exceed the standard in three of the 13 samples submitted for laboratory analysis. The distributions of TCE detected at concentrations that exceed TOGS 1.1.1 are limited to the central and western portion of the Site. 1,2,4-Trimethylbenzene exceeds the standard in two of the 13 samples submitted for laboratory analysis, and 1,3,5-Trimethylbenzene exceed the standard in one of the 13 samples submitted for laboratory analysis.

2.5.5.2 Comparison of Ground Water with SCGs

The ground water analytical results prior to the implementation of the remedy are compared to the NYSDEC TOGS 1.1.1 ground water standards for Class GA water in Tables 5 and 6. These tables present the sample identification, analytical result, and applicable data qualifier for any detection of VOCs, SVOCs, pesticides/PCBs, and metals. Figure 11 illustrates the distribution of VOCs and SVOCs detected above ground water standards. The concentration of each organic compound that exceeds the ground water standards is presented in a box adjacent to each sample location.

2.5.5.2.1 *VOCs-Shallow Wells*

One or more VOCs were detected at concentrations that exceed TOGS for Class GA ground water in samples collected from five of the ten shallow wells (MW-1, MW-2, MW-3, MW-5, and MW-12). These compounds included total xylene, acetone, cis-1,2,-dichloroethene, methylene chloride, trans-1,2-dichloroethene, TCE, and vinyl chloride. TCE was detected above

ground water standards in three of the ground water samples collected from the shallow wells: MW-1 (50 ppb), MW-2 (30 ppb), and MW-12 (1,600 ppb). Cis-1,2-Dichloroethene was also detected in these samples at concentrations of 5.2 ppb, 33 ppb, and 1,000 ppb, respectively. Vinyl chloride was detected in ground water samples collected from MW-3 and MW-12, at a concentration of 3.3 ppb and 25 ppb, respectively. Total xylenes were detected in MW-3, and MW-5 at concentrations of 7.2 ppb and 18 ppb, respectively. Acetone (80 ppb), trans-1,2-dichloroethane (20 ppb), and methylene chloride (9.6 ppb) were also detected in MW-12. 1,2,4-trimenthylbenzene was detected in ground water samples collected from MW-3 and MW-5 at concentrations of 53 ppb and 67 ppb, respectively. 1,3,5-trimenthylbenzene was detected in a ground water sample collected from MW-5 at a concentration of 5.43 ppb.

2.5.5.2.2 *VOCs-Deep Wells*

TCE was detected above ground water standards in the ground water samples collected from each of the three deep monitoring wells: MW-5D (8.4 ppb), MW-10 (8.7 ppb) and MW-11 (13 ppb). PCE was detected in the ground water samples collected from MW-5D, MW-10, and MW-11 at concentrations of 55 ppb, 56 ppb and 46 ppb, respectively.

2.5.5.2.3 *SVOCs, Metals, Pesticides and PCBs in all Monitoring Wells*

SVOCs were not detected at concentrations above the ground water standards in any of the ground water samples collected from the 13 monitoring wells.

Metals were detected at concentrations above ground water standards in all samples analyzed. Iron was detected at concentrations ranging from 538 ppb to 39,900 ppb. Lead was detected at concentrations above ground water standards in MW-7 at a concentration of 28.3 ppb. Magnesium was detected in ground water samples collected from MW-2 through MW-5, MW-5D, MW-7, and MW-12, and ranged from 37,300 ppb to 93,400 ppb. Manganese was detected at concentrations above ground water standards in samples collected from MW-2, MW-3, MW-4, MW-5, MW-5D, MW-6, MW-7, MW-8, MW-9, MW-11, and MW-12, and ranged from 498 ppm to 17,300 ppm. Sodium was detected above ground water standards in samples collected from MW-2, MW-3, MW-4, MW-5, MW-5D, MW-6 to MW-12 at concentrations ranging from 44,200 ppm to 245,000 ppb.

Dieldrin was detected at a concentration above ground water standards in two samples collected from MW-3 and MW-5 at concentrations of 0.018 and 0.016.

PCBs were not detected in the five shallow ground water samples for which PCB analysis was conducted.

2.5.5.3 Extent of Ground Water Impacts

VOCs were detected at concentrations that exceed ground water standards in five of ten samples collected from the shallow overburden aquifer, and each of the three samples collected from the deep portion of the overburden aquifer. Hydraulically upgradient monitoring well MW-8 did not exhibit VOC detections above ground water standards. On the Site's northern property boundary, MW-6 and MW-7 represents hydraulically downgradient monitoring wells, and VOCs were not detected above ground water standards in samples collected from these downgradient wells. The ground water sample collected from monitoring well MW-12 contained the greatest number of VOCs detected above ground water standards and the highest concentrations of VOCs. The location of MW-12 is near and hydraulically cross gradient of Hotspot #1 where shallow subsurface soil samples exhibited TCE concentrations three orders of magnitude above TAGM #4046 RSCOs. Trimethylbenzene detected at concentrations above the ground water standards of 5 ug/l is limited to shallow ground water collected from MW-3 and MW-5. The location of MW-5 is near the boundary of Hotspot HS-2.

The laboratory analytical data from the December 2005 ground water-sampling round suggests that the shallow soils in HS-1 are a continuing source of ground water VOC impacts to (including tetrachloroethene and trichloroethene) to the shallow and deep portions of the overburden aquifer. The laboratory analytical data from the November 2006 ground water-sampling round suggests that the shallow soils in HS-2 are a continuing source of ground water VOC impacts (including trimethylbenzene) to the shallow overburden aquifer.

Ground water movement within the overburden aquifer is toward the northern property boundary. The absence of dissolved-phase VOC that exceed ground water standards in samples collected from MW-6 and MW-7 suggests that ground water impacts are not migrating beyond the hydraulically downgradient Site boundary.

2.5.6 On-Site and Off-Site Soil Vapor Contamination

VOCs (including TCE and PCE) were detected in each of the soil gas samples collected from the four temporary soil vapor wells (SG-1, SG-2, SG-3, and SG-4). TCE was detected in SG-2 (1.1 ug/m^3) and SG-4 (11 ug/m^3). PCE was detected in SG-2, SG-3, and SG-4 at concentrations of 3.3 ug/m^3, 1.5 ug/m^3, and 1.4 ug/m^3, respectively.

VOCs were detected in samples collected from each of the four permanent soil vapor monitoring points, SV-1, SV-2, SV-3, and SV-4. The highest concentration of TCE was detected in samples collected from monitoring point SV-4 at concentrations of 1300 micrograms per cubic meter (ug/m^3 and 3000 ug/m^3). TCE was also detected in samples collected from monitoring point SV-3 at a concentration of 12 ug/m^3. TCE was detected in samples collected from monitoring point SV-2 at concentrations of 220 ug/m^3 and 3.5 ug/m^3. TCE was detected above the method detection limit in one sample collected from monitoring point SV-1 (3.1 ug/m^3 collected on 2/9/07). PCE was detected in each sample collected from SV-2 (370 and 6.6 ug/m^3) and SV-4 (880 and 2,500 ug/m^3). PCE was detected in one sample collected from SV-1 (12 ug/m^3). Benzene was detected in samples collected from SV-1 (1.7 and 1.4 ug/m^3), SV-2 (4.5 and 1.6 ug/m^3), and SV-3 (21 ug/m^3). Benzene was not detected in the samples collected from SV-4. Soil vapor data are summarized in Table 7.

2.5.6.1 Comparison of Soil Vapor with SCGs

Soil gas samples were collected at temporary sample locations SG-1 through SG-4 and permanent sample locations SV-1 through SV-4 to characterize soil gas within the boundary of the Site and along the perimeter of the Site (see Figure 4), and to evaluate potential effects of soil gas on indoor air. Table 7 presents the soil gas analytical results collected prior to the implementation of the remedy. The VOCs listed on the table are the compounds identified in soil gas. There are no guidance values for soil vapor published by the NYSDEC or the NYSDOH. However, the soil gas results are compared to background indoor air values, expressed as 99th percentile values, presented in Tables C1, C2 and C3 of the NYSDOH Final Guidance for Evaluation Soil Vapor Intrusion in the State of New York dated October 2006 (NYSDOH Air Instruction Guidance). These guidance values and the NYSDOH guidelines for

volatile chemicals in indoor air (Table 3.1 of the NYSDOH Air Intrusion Guidance) are used as general screening tools to determine how the concentrations of VOCs in on-Site and off-Site soil vapor compare to typical indoor air background concentrations. The comparison is not used to estimate the concentration of contaminants expected in indoor air, or identify soils that require mitigation.

Subsurface soil above the water table in Hotspot # 2 and/or off-Site impacts are potential sources of chlorinated hydrocarbons in off-Site soil gas. A spider map that indicates the locations of soil vapor sampling points and summarizes soil vapor data prior to the remedy is shown in Figure 12.

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

2.6.1.1 Potential Exposure Points and Screening Criteria

In the RI report, potential exposure pathways and receptors were identified and evaluated for each of the contaminants above the applicable screening criteria identified for each media of concern. A potential point of exposure exists if one or more contaminant(s) exceeds the screening criteria for a media. The following media contain contaminants above applicable screening levels within the study area and are considered potential media of concern.

- **Subsurface soil** results were compared against individual compound RSCOs presented in TAGM #4046. The Soil Cleanup Objectives defined in 6NYCRR Part 375 were not in effect at the time the RI report was prepared and therefore were not available for use during the remedial investigation process.
- **Ground water** results were compared against NYSDEC TOGS 1.1.1 per PART 703.
- Soil vapor was also identified as a potential media of concern and was evaluated as part of the qualitative exposure assessment.

It is important to note that these criteria are used to make a preliminary qualitative assessment of the potential exposure from compounds to human health and the environment and do not necessarily represent the final concentrations that must be achieved through remediation.

2.6.1.2 Potential Receptors and Routes of Exposure

The Site is currently vacant. An eight-foot high chain-link fence surrounds the Site rendering it inaccessible to all unauthorized personnel (e.g., the general public). Ground water is not withdrawn for public water supply or any other purpose. The potential human receptors for each contaminant above the applicable screening level in each media were determined based on current land use and foreseeable potential future land uses.

The Site is currently not in use and there are no potential current on-Site human receptors to on-Site contamination. The contemplated redevelopment of the Site includes the construction of a Mehadrin Dairy warehouse and distribution facility with associated loading areas and trailer parking. The current and future land uses for the Site indicate that the primary potential human receptors for soil, ground water, and indoor vapors include Mehadrin Dairy employees and construction workers. As discussed in the RI report, a complete human exposure pathway exists if there is a potential for a receptor to be exposed through one or more exposure routes (ingestion, dermal contact, or inhalation fugitive dust) to the specific exposure point based on the specific land use and impacted media.

Subsurface soils that underlie the Site contain VOCs, PAHs, and metals at concentrations above individual TAGM #4046 RSCOs and represent a complete exposure pathway.

Ground water located on-Site contains VOC, PAH, and metal concentrations above TOGS 1.1.1 and represents a complete exposure pathway. Ground water is not withdrawn for public water supply or any other purpose.

On-Site soil gas contains VOCs at concentrations above typical background indoor air values and may represent a complete exposure pathway.

Off-Site exposure to potential VOC vapors is not likely because there are no buildings contiguous to the Site and a significant reduction in contaminant levels is common as vapors

move through the subsurface and potentially into an indoor space. Therefore, a complete exposure pathway to potential off-Site human receptors for contaminated soil vapor is currently unlikely. However, TCE and PCE vapor have the potential to migrate through soil toward any future building foundation(s) and intrude into future building(s) constructed in areas of identified soil vapor contamination

2.7 REMEDIAL ACTION OBJECTIVES

2.7.1 Remedy Selection Goals

The May 2004 Draft BCP Guide and December 2002 Draft DER 10 Technical Guidance for Site Characterization and Remediation identify two general goals for remedy selection under the Brownfield Cleanup Program:

> "Select a remedy for a site that is fully protective of public health and the environment, taking into account the current, intended and reasonable anticipated future use of the site," and
>
> "Sources of contamination should be removed or eliminated, to the extent feasible, regardless of presumed risk."

The Site's contemplated redevelopment is a commercial food warehouse and distribution facility. The proposed redevelopment includes the construction of an enclosed warehouse and distribution building, loading areas, and outside trailer parking. Based on the general goals for remedy selection and the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

2.7.2 Ground Water

RAOs for Public Health Protection

- Prevent ingestion of ground water containing contaminant levels exceeding drinking water standards. Prevent contact with, or inhalation of, volatiles emanating from contaminated ground water.

RAOs for Environmental Protection

- Restore ground water aquifer, to the extent practicable, to pre-disposal/pre-release conditions.
- Prevent the discharge of contaminants to surface water. Remove the source of ground water contamination.

2.7.3 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil. Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in ground water or surface water contamination. Prevent impacts to biota due to ingestion/direct contact with contaminated soil that would cause toxicity or bioaccumulation through the terrestrial food chain.

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 COMPARATIVE ANALYSIS OF ALTERNATIVES

3.1.1 Remedial Alternatives

The remedial alternatives considered for detailed engineering evaluation include the following:

Alternative 1: No Action

Alternative 2: Excavation –Track 4 Site-Specific Compliance

Alternative 3: In-Situ Bio/Chemical Remediation

Alternative 4: Encapsulation of In-Situ Contamination
Alternative 5: Ground Water Remediation via Monitored Natural Attenuation
Alternative 6: Air Sparging/Soil Vapor Extraction
Alternative 7: Full Soil Excavation – Track 1 Unrestricted Use Compliance
Alternative 8: Combination of Alternative. 2, 4, and 6

A brief description of each of the above-mentioned remedial alternatives is presented below.

Alternative 1: No Action

The no action alternative provides a basis for comparison. The Site would remain in its current state without any further development. All current safety and security measures would be abandoned with the exception of any New York City Department of Buildings requirements for fencing, etc., and no additional protection to public health or the environment would be provided.

Alternative 2: Excavation –Track 4 Site-Specific SCO Compliance

This alternative includes the removal of soils that contain physical evidence of non-aqueous phase liquid (NAPL) and/or exceed the Track 4 Site-specific SCOs. This alternative would also include the off-Site disposal of the excavated impacted soil. Based on the most recent earthworks calculations (with a 10% contingency), approximately 3,800 cubic yards of impacted soil would be excavated and sent for off-Site disposal. Figure 13 illustrates the

proposed remedial excavation limits (in feet below the current ground surface (cgs)) for specific areas of the Site that are required for the construction of the redevelopment plan. The figure includes the areas of excavation for the removal of soil that contain physical evidence of NAPL and/or exceed the Track 4 Site-specific SCOs.

Alternative 3: In-Situ Bio/Chemical Remediation

In-situ biological or chemical remediation techniques would be employed in the capillary fringe and below the water table across the Site. The implementation of this alternative would aim to enhance the natural attenuation process. Several applications may be required to achieve Site-specific clean-up goals.

Alternative 4: Encapsulation of In-Situ Contamination

Encapsulation of in-situ (unexcavated) contamination via institutional/engineering controls would be utilized under this alternative. These controls are integrated into the design plan for the planned Site construction, and therefore do not add to the overall construction budget (i.e., covering the Site with concrete/asphalt clean fill/clean subbase gravel to be used in loading areas and a trailer parking lot, and the construction of an approximately 27,500 ft^2 building structural foundation slab). A figure showing the latest proposed Site development plan is presented in Figure 3. The current plan is to have an approximate 27,500 ft^2 building that occupies a majority of the Site. The uppermost portions of soils that exceed Track 4 Site-specific SCOs excavated to construct the building would be removed under this alternative. Unexcavated areas beneath the building, loading areas, and a trailer parking area will occupy the remaining portion of the Site. Controls not related to general construction, but necessary to achieve remedial goals, include the installation of a soil vapor barrier and SSDS beneath the building to prevent potential indoor vapor migration.

Alternative 5: Ground Water Remediation Via Monitored Natural Attenuation

This alternative allows for monitored natural attenuation (MNA) of contaminants present in the ground water, and requires the periodic monitoring and analysis of ground water to establish that Site conditions are appropriate to support MNA, and to determine trends and

conditions. Installation of six monitoring wells across the Site, periodic ground water sample collection, and laboratory analyses of ground water samples would be required.

Alternative 6: Air Sparging/Soil Vapor Extraction

In situ air sparging would be used for the remediation of VOCs dissolved in ground water, sorbed to the saturated zone soils, and trapped in soil pores in the saturated zones. Contaminant removal would be achieved through a combination of volatilization and biodegradation. Air sparging would be used in conjunction with a soil vapor extraction system to remove the stripped VOCs. The SVE system effluent would be tested to determine if treatment of the vapors is required.

Alternative 7: Full Soil Excavation - Track 1 Unrestricted Use Compliance

This alternative would involve the excavation and off-Site disposal of all fill and, in some areas, native soils to a minimum depth of 22 feet below the current ground surface. This alternative removes all unsaturated Site soil and a significant quantity of saturated Site soil, thus achieving Track 1 Unrestricted Use compliance. Based on the most recent earthworks calculations (with a 10% contingency), approximately 42,000 cubic yards of impacted soil would be excavated and sent for off-Site disposal.

Alternative 8: Excavation –Track 4 Site-Specific SCO Compliance Combined with Encapsulation of In-Situ Contamination, and Air Sparging/Soil Vapor Extraction

This alternative includes a combination of the activities described in Alternatives 2, 4, and 6.

3.1.2 Selection of Remedial Alternatives for Detailed Engineering Evaluation

This section contains an engineering evaluation that supports Mehadrin Dairy's selection of the proposed remedial remedy as presented in Section 3.4. Selected remedial alternatives have been evaluated in accordance with the factors set forth in Section 4 of the NYSDEC *Draft DER-10 Technical Guidance for Site Investigations and Remediation*, 6 NYCRR 375, and *NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4030, Selection of Remedial Actions at Inactive Hazardous Waste Sites*. The goal of the evaluation is to explain

how the proposed remedy will be protective of human health and the environment as compared to other potential remedies. Three remedial alternatives for the Site were selected for detailed engineering evaluations:

1. Alternative 1: No Action.
2. Alternative 7: Excavation of all soils that exhibit contaminant concentrations greater than individual Track 1 Unrestricted Use SCOs listed in 6 NYCRR Part 375-6 (December 2006).
3. Alternative 8: A Site-specific use-based cleanup in accordance with the approach identified in NYCRR Part 375-3 as Track 4 Restricted Use with Site Specific SCOs. This alternative includes removal of soil that contains physical evidence of NAPL and/or exceeds the Track 4 Site-specific SCOs, encapsulation of any in-situ soils above Track 4 Site-specific SCOs that remain on Site (as determined by documentation sampling), installation of a vapor barrier, and a SSDS beneath the proposed building; an air sparging system/soil vapor extraction system beneath the Site; and ground water monitoring.

The remedial alternatives selected for detailed evaluation are based on experience at similar sites and the requirements for future Site use. Only excavation and off-Site disposal options in conjunction with ground water and soil vapor treatment are considered for detailed evaluation. The removal or isolation of potential sources of contamination (i.e., NAPL and/or exceeds the Track 4 Site-specific SCOs) is vital to achieving the RAOs. Natural Attenuation only (Alternative 5) is not a proactive remedial measure and, therefore, is not considered for detailed evaluation. The in-situ biological/chemical remediation alternative (Alternative 4), requiring longer timeframes and offering less certain degrees of effectiveness, was not considered applicable for the Site due to the incompatibility of the treatment infrastructure with the Site's use as a warehouse and distribution facility. Encapsulation of contamination via institutional/engineering controls with no soil removal is not considered applicable due to the presence of a discrete area of free-phase product and planned excavation activities needed to construct the warehouse and distribution facility. The air sparging vapor extraction alternative only (Alternative 6), although an effective technology for the remediation of source zone and

dissolved-phase VOC, was not considered due to the uncertainty of the timeframe required to remove source material from shallow subsurface soils. However, encapsulation of in-situ contamination via institutional/engineering controls and an air sparging vapor extraction system are integrated into each of the remedial excavation alternatives selected for detailed engineering evaluation.

The three remedial alternatives selected for detailed engineering evaluation were evaluated according to the following criteria as specified in the Draft BCP Guide:

- ***Protection of Human Health and the Environment.*** To what degree does each remedy achieve the remedial action objectives?
- ***Standards, Criteria and Guidance*** (SCGs). Identify major SCGs applicable to the Site and the degree to which the proposed remedies comply with the SCGs.
- ***Short-Term Effectiveness and Impacts***. Identify risks to the community, workers and environment that would result from implementing the remedy. Discuss how the risks will be controlled and the reliability of the controls.
- ***Long-Term Effectiveness and Permanence.*** Is the remedy permanent, or does it rely on containment or other factors that may reduce the ability to achieve RAOs over time? Discuss any uncertainty. After completion, will there be any significant remaining threats, exposure pathways, or risks to the public or environment from the remaining wastes or treated residuals?
- ***Reduction of Toxicity, Mobility, or Volume.*** How much contamination will be removed from each media? If treatment is used, will the process be complete or partial, and is the process reversible? Will the mobility of contaminants be reduced?
- ***Implementability***. Are there potential construction difficulties? Are the required materials and services readily available? Are there potential problems obtaining permits or other approvals?

- ***Cost.*** Capital, operation, maintenance and monitoring costs.
- ***Community Acceptance.*** Summarize public participation program that will be followed for the project.
- ***Land Use.*** Summarize why the proposed remedy is appropriate for the anticipated future use of the Site

Based on these considerations, the combination of excavation, encapsulation and in-situ treatment of any in-situ soils that exhibit contaminant concentrations greater than the Track 4 Site-specific SCOs was selected as the preferred alternative because it provides a similar level of protection to the larger unrestricted SCO excavation, but has fewer short-term impacts, is more cost-effective, and is more implementable. A detailed evaluation of the three alternatives is presented in the following sections.

3.1.2.1 No Action

This option is included as a baseline for comparison. It does not include any remedial activity other than continued ground water monitoring. This option does not reduce risk to human health and the environmental or achieve any of the other standards, criteria or guidance specified above. No Action is not an acceptable approach and is not considered further.

3.1.2.2 Soil Excavation – Track 1 Unrestricted Use Compliance

Achievement of Track 1 standards would require a full scale excavation of fill and native soil down to a minimum depth of 22 feet below the current ground surface, and post-remediation ground water monitoring to identify the effects, if any, of the excavation on ground water conditions. Because the urban fill found at the Site typically exceed individual SCOs for one or more chemicals, the urban fill will likely not be suitable for reuse as backfill. An environmental easement prohibiting development of water supply or irrigation wells on the Site would be required for this option until ground water constituent concentrations are equal to or below applicable New York State ground water quality standards.

The area of the excavation would correspond to the entire Site footprint, or about 1 acre. Estimated remedial excavation volumes are as follows:

- The total excavation volume is approximately 42,000 cubic yards.
- The estimated backfill volume is approximately 43,000 cubic yards (assuming building as currently proposed).
- Reused subsurface soil/urban fill would not be used as backfill.

The 1,000 cubic yard difference between the total excavation volume and the backfill volume is due to the higher redevelopment grade planned for a portion of the Site. The assumed average excavation rate is 360 cubic yards per day (18 truckloads per day). The average backfill placement is assumed to be about 50% faster, or 480 cubic yards per day (27 truckloads per day). The excavation may require sidewall support and dewatering below the water table. The total estimated time for remediation is 9 months, including mobilization, excavation support and post-remediation grading. Estimated time does not include construction of the building (including foundation) or loading and parking surface(s). This alternative also includes the installation of an air sparging system beneath the proposed building and post-remediation ground water monitoring to identify any effects of the excavation and active air sparging system on ground water conditions. Any volatilized VOCs would be collected by an active SSDS/venting system and vented to air treatment system (if needed) prior to discharge to the atmosphere.

3.1.2.3 Track 4 Site-Specific SCO Compliance

This Site-specific (Track 4) remedial alternative includes the excavation, removal and encapsulation of in-situ soils that exceed Track 4 Site-specific SCOs institutional and engineering controls, and post-remediation ground water monitoring to track the effects of the remedy. This alternative includes the installation and maintenance of a composite cover system in any areas of the Site where post-excavation documentation sampling identifies soils that exceed Track 4 Site-specific SCOs.

The area of the excavation would correspond to all areas needed for the proposed construction and soils identified in Hotspots HS-1 and HS-2 as containing NAPL and/or

exceeding the Track 4 Site-specific SCOs. The depth of excavation would range from approximately 0 to 12 feet below the current grade. The greater excavation depths correspond to the locations where soil has been identified as containing NAPL and/or exceeding the Track 4 Site-specific SCOs.

The estimated excavation volume is approximately 3,800 cubic yards, of which approximately 500 cubic yards is associated with the removal of soil exceeding Track 4 Site-specific SCOs. The estimated backfill volume is approximately 4,800 cubic yards to establish the redevelopment grade.

The excavations would be backfilled with subsurface soil excavated from the Site that does not exceed the draft Track 4 Site-specific SCOs (i.e., soils excavated for the proposed construction) and/or imported clean fill, as necessary. The Site will be capped with the proposed clean subbase gravel composite cover system. Institutional and engineering controls would also be required to control potential exposure to any soils exceeding Track 4 Site-specific SCOs and ground water below the composite cover system. The proposed institutional controls include:

- Implementation of a NYSDEC-approved Site Management Plan (SMP) that would include the following institutional and engineering controls: (a) management of the composite cover system to restrict excavation below the demarcation barrier or building foundation slab. Soils excavated from below the demarcation barrier or building foundation slab would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be property managed and disposed of in accordance with all Federal, State and local rules and regulations; (b) identification of any use restrictions on the Site; and (c) provisions for the continued proper operation, maintenance and monitoring of the components of the remedy. The SMP will also include details for the operation of the AS/SVES, the SSDS and the post-remedial ground water monitoring program.

- Imposition of an institutional control in the form of an Environmental Easement that would: (a) limit the use and development of the property to restricted-

commercial use; (b) require compliance with the approved SMP; (c) restrict the use of ground water as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH; and (d) require the property owner to complete and submit to the NYSDEC an annual certification of institutional and engineering controls.

- Provision, by the property owner, of an annual certification of institutional and engineering controls, prepared and signed by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal would:
    - contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certifications or are compliant with NYSDEC approved modifications;
    - allow the NYSDEC access to the Site; and
    - certify that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the SMP unless otherwise approved by the NYSDEC.

The total estimated time for remediation (excavation and installation of AS/SVE system) is two to three months, including mobilization and post-remediation grading. Estimated time includes the installation of a minimum of one-foot clean fill/clean subbase gravel cover and the construction of the building foundation, but does not include construction of loading areas or parking lot.

Figure 13 illustrates the proposed remedial excavation limits (in feet below the current grade). The proposed building foundation design and the location of the soil vapor barrier is presented in Figure 14. The technical design drawings and specifications for the air sparging system and SSDS/venting system are presented in Appendix D.

3.2 EVALUATION OF REMEDIAL ALTERNATIVES

3.2.1 Comparative Evaluation of Review Criteria

3.2.1.1 Protection of Public Health and the Environment

As previously indicated in Section 2.7, the general goals for remedy selection under the Brownfield Cleanup Program are:

> "To remediate the Site to a level that is protective of public health and the environment under the conditions of the Site's Contemplated Use," and
>
> "Sources of contamination should be removed or eliminated, to the extent feasible, regardless of presumed risk."

Both Alternative 7 and Alternative 8 remove the sources of contamination at the Site. Both Alternative 7 and Alternative 8 are also similarly protective of public health and the environment assuming final use as a warehouse and distribution facility. Specifically, the Alternative 8 Track 4 Site-specific Clean up option will eliminate potential exposure pathways to contaminants with a combination of source removal, removal of soils that exhibit contaminants above Track 4 Site-specific SCOs, an air sparging system/soil vapor extraction system to remediate ground water, a SSDS/vapor barrier to prevent any potential soil vapor from penetrating the building, encapsulation of residual contaminated soil by the clean subbase gravel composite cover system and institutional controls. The Alternative 7 Track 1 Unrestricted Use option will eliminate exposure pathways to contaminants with removal of all contaminants to a depth of approximately 22 feet below the ground surface, remediate ground water with an air sparging/soil vapor extraction system, and prevent any potential soil vapor from penetrating the building using a vapor barrier.

The No Action option is not protective of public health and the environment because it does not address the source, and does not provide for control of exposure pathways.

3.2.1.2 Standards Criteria and Guidance (SCGs)

The following is a list of major SCGs that apply to the Site Remediation:

Remedy Selection:

- TAGM #4030 – Selection of Remedial Actions at Inactive Hazardous Waste Sites (May 1990).
  - NYCRR Part 375 – Environmental Remediation Program (December 2006).
  - 6NYCRR Parts 700-706 – Water Quality Standards (June 1998)
  - Draft Brownfield Cleanup Program Guide, May 2004.
  - Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook (June 1998)
  - Air Guide 1 - Guidelines for the Control of Toxic Ambient Air Contaminants
  - USEPA Office of Solid Waste and Emergency Response Directive 9355.047FS Presumptive Remedies: Policy and Procedures (September 1993)
  - USEPA Office of Solid Waste and Emergency Response Directive 9355.048FS Presumptive Remedies:

Remedy Implementation:

- 6NYCRR Part 371 – Identification and Listing of Hazardous Wastes (November 1998)
- 6NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities (November 1998)
- 6 NYCRR Part 376 – Land Disposal Restrictions.
- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response.
- 6 NYCRR Part 750 through 758 – Implementation of NPDES Program in NYS ("State Pollutant Discharge Elimination System (SPDES) Regulations").
- TAGM #4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites.
- Draft Brownfield Cleanup Program Guide, May 2004.
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYS Waste Transporter Permits – 6 NYCRR Part 364;

- NYS Solid Waste Management Requirements – 6 NYCRR Part 360 and Part 364;
- 6 NYCRR Part 608 - Use and Protection of Waters
- 6 NYCRR Parts 700-706 - Water Quality Standards (June 1998)
- TAGM #4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites.
- Draft Brownfield Cleanup Program Guide, May 2004.
- NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation (December 2002)

Both Alternative 7 and Alternative 8 comply with the remedy selection SCGs and would comply with the remedy implementation SCGs if selected. In particular, the Draft BCP Guide specifies the two alternative cleanup criteria considered in this evaluation: Track 1-Unrestricted Use and Track 4-Restricted Use Site-Specific Evaluation criteria.

The No Action option does not comply with any applicable criteria.

3.2.1.3 Short-Term Effectiveness and Impacts

The primary risks to the community during implementation of Alternative 7 and Alternative 8 include inhalation of fugitive dust and vapors from the Site and additional truck traffic (including potential spills). Primary risks to Site workers include inhalation and direct contact with fugitive dust and vapors and equipment accidents. The primary risk to the environment is a release of excavated material containing Site contaminants through direct discharge.

These risks will be mitigated with a variety of Site controls implemented during construction, including security fencing, erosion control barriers, implementation of an approved Community Air Monitoring Plan, vapor and dust suppression, personal protective equipment (PPE), decontamination and training.

While the general reliability of the Site controls is similar for both Alternative 7 and Alternative 8, the significantly longer duration of the Alternative 7 option (approximately 9 months vs. 2 to 3 months) increases the probability that one of more of the controls will fail during some portion of the remedial work. Alternative 7 also includes approximately ten times the excavated soil volume, substantially increasing truck traffic, the associated nuisance, accident potential, and risk of a release to the environment.

The excavations and institutional controls associated with both Alternative 7 and Alternative 8 will likely achieve all the RAOs presented in Section 2.7.

The No Action option would maintain the current no risk conditions in the short term (as long as the Site access remains restricted) but would not remove the sources of contamination.

3.2.1.4 Long-Term Effectiveness and Permanence

Both Alternative 7 and Alternative 8 are permanent remedies, irreversible, and do not rely on containment of sources. However, Alternative 8 relies on the maintenance of institutional controls to control potential exposures to contamination above Track 4 Site-specific SCOs that may remain below the composite cover system. There is a minimal degree of uncertainty related to future enforcement of the institutional controls. The controls apply to subsurface work below the footprint of the proposed Mehadrin Dairy building and below the demarcation barrier, which could occur as infrequent, discrete, planned events, and not as the result of regular maintenance activities. These are circumstances that favor enforcement of the institutional controls with a reasonable amount of diligence by current and future property owners.

The No Action option does not reduce Site risks over the long term.

3.2.1.5 Reduction of Toxicity, Mobility, or Volume

Both Alternative 7 and Alternative 8 would remove the source area and soil that exceed Track 4 Site-specific SCOs from the Site, which is estimated to include most of the total mass of

contamination identified in soils at the Site. Alternative 7 would remove most of the remaining mass not excavated under the Alternative 8 Track 4 Site-specific clean up option.

In both instances, source removal and removal of soils that exhibit contaminants above Track 4 Site-specific SCOs is expected to reduce contaminant dissolution into ground water and volatilization into soil gas. An air sparging/soil vapor extraction system will remove VOCs from soil and ground water and along with a vapor barrier/SSDS will prevent any potential soil vapor from migrating into the proposed building and off-Site. This, in conjunction with the composite cover system after redevelopment, will reduce any leaching of any contaminants from the vadose zone to the water table. The potential for the air sparging system to mobilize soil vapors off-Site will be prevented by the installation and operation of the SVE.

The No Action option does not reduce the toxicity, mobility, or volume of the contamination at the Site.

3.2.1.6 Implementability

Both Alternative 7 and Alternative 8 could be implemented using conventional excavation equipment and procedures. However, the greater area and depth of the excavation for Alternative 7 would require a more complicated excavation support system and would generate a significant amount of dewatering effluent. In contrast, Alternative 8 will not require as extensive an excavation and thus will be less disruptive to the community and may be more easily implemented.

3.2.1.7 Cost Effectiveness

Costs of Alternative 7 and Alternative 8 are approximate and are based on average industrial standard costs, plus a 20% contingency for work completed in the New York City area. The following table presents an estimate of present worth (total cost), capital cost (initial expenditure), and annual operations and maintenance (O & M). The present worth value enables direct comparisons to be made between the two alternatives. It represents the total amount of money to be spent on that particular alternative from beginning to end to complete the remedial actions and would be adequate to cover all present and future costs stemming from the

alternative. A time period of five years was used as an estimate for Annual Operation and Maintenance calculation. The OM&M costs for the SSDS, which would remain in operation after the air sparging system is turned off, is not included in the Annual OM&M. Capital cost represents the initial cost to implement the alternative.

Alternatives	Present Worth	Capital Costs	Annual OM&M
Alternative 7, Track 1 Unrestricted Use	$7,400,000	$7,200,000	$40,000
Alternative 8, Track 4 Restricted Use	$850,000	$650.000	$40,000

3.2.1.8 Community Acceptance

Community acceptance will be evaluated following the public release of this RAWP and the 45-day review period.

3.2.1.9 Land Use

Both Alternative 7 and Alternative 8 would remove impacted soils from the Site to allow for the anticipated future commercial use of the Site. The Site is located in an industrial area with a municipal water supply, and is zoned MI-2 for Manufacturing District. Alternative 8 allows for continued use of the Site that is consistent with the current zoning. Alternative 7 would allow development of the Site for any use but would require a change in existing zoning designations for proposed uses other than commercial or industrial. Alternative 8 will also require the property owner to implement a Site Management Plan and enter into an Environmental Easement that restricts future use of the Site.

3.3 SELECTION OF THE PREFERRED REMEDY

- Based on the evaluation of remedial option presented in Section 3.2, both Alternative 7 and Alternative 8 provide a similar level of protectiveness of human health and the environment and meet applicable SCGs.

- Alternative 8 involves fewer short-term risks to the community, Site workers and the environment due to its substantially shorter duration, reduced disruption to the surrounding community and less expansive area of excavation and depth.
- Alternative 7 has less uncertainty regarding long-term effectiveness due to its lack of institutional controls and results in a slightly greater reduction in the mass of contamination on-Site.
- Alternative 8 is more implementable due to its smaller size and depth.

Given that both Alternative 7 and Alternative 8 meet the two threshold criteria (protection of human health and the environment and compliance with SCGs), the final remedy selection is based on an evaluation of the benefits and drawbacks associated with the remaining balancing criteria. The benefits associated with Alternative 8 (i.e., fewer short-term risks to the community and significantly greater implementability) significantly outweigh the potential risks associated with enforcement of institutional controls and the marginal increase in contaminant mass removed. Alternative 8 is also significantly less expensive than the Alternative 7 , and is more cost effective.

A land use factor evaluation was completed to determine the acceptability of the selected remedy based on criteria set forth in Article 27, Title 14 of the Environmental Conservation Law 27-1415. The evaluation of each criterion is discussed separately in the following sections.

3.3.1 Zoning

The Site is located in an industrial area with a municipal water supply, and is zoned MI-2 for Manufacturing District. Alternative 8 allows for continued use of the Site that is consistent with the current zoning. The selected remedy would not require a change in existing zoning laws. An Environmental Easement would be required to ensure continued compliance with a Site Management Plan.

3.3.2 Applicable Comprehensive Community Master Plans or Land Use Plans

The Site is not located in an area of Strategic Planning Initiatives designated by the City of New York Department of City Planning. The redevelopment of the Site as a warehouse and distribution facility would not interfere with any known City development planning.

3.3.3 Surrounding Property Uses

The selected remedy and proposed redevelopment of the Site as a warehouse and food distribution facility is consistent with the commercial and industrial property uses that surround the Site.

3.3.4 Citizen Participation

A NYSDEC-approved Citizen Participation Plan (CPP) that describes the citizen participation activities that have already occurred and are planned during the remediation of the Site is being implemented. Specifically, the CPP presents the methods that Mehadrin Diary and the NYSDEC are using to provide interested parties with information about the investigation and remediation of the Site. The CPP is presented in Appendix E. Community acceptance to the selected remedy will be evaluated following the submittal of this RAWP to the community and the 45-day review period.

3.3.5 Environmental Justice Concerns

There are no known environmental justice concerns related to the Site.

3.3.6 Land Use Designations

As previously discussed, the contemplated redevelopment of the Site is intended to be commercial use. The remedial action portion of the project will be conducted in conjunction with the construction of the food warehouse and distribution facility.

3.3.7 Population Growth Patterns

Brooklyn covers an area of approximately 90 square miles, and has a population of 2, 465,326. In the area of the Site, there are between 0 and 21,894 persons per square mile. The population of Brooklyn has grown approximately 5% between the year 1990 and 2000 (NYC

Department of City Planning, 2000 Census Summary). The selected remedy is not expected to result in a change to the population growth patterns in the area of the Site.

3.3.8 Accessibility to Existing Infrastructure

There is currently no exiting infrastructure on the Site. Electrical service, water service, and sewers are present in the immediate area of the Site. McKibbin Street, Bogart Street, and Boerum Street are contiguous to the Site.

3.3.9 Proximity to Cultural Resources

There are no known cultural resources in the area contiguous to the Site.

3.3.10 Proximity to Natural Resources

There are no known natural resources in the area contiguous to the Site.

3.3.11 Off-Site Ground Water Impacts

Off-Site facilities located hydraulically up gradient or crossgradient of the Site, based on the known direction of ground water flow and proximity to the Site, may have the potential to impact Site ground water. As discussed in Section 2.4 of this RAWP, ground water at the former Jayer Plating/Milhaw Realty Corporation, 2 Ingraham Street, was identified as impacted with chromium, mercury, and nickel. In addition, 2 Ingraham Street is also listed as having a petroleum spill on 12/31/97. The status of the spill is listed as "active." Milhaw Realty Corporation also located at 2 Ingraham Street was identified on the registered UST list. According to the database report, four USTs were removed from the facility in 1998. The selected remedy is not designed to remediate any present or future off-Site source of ground water contamination that is or may impact Site ground water.

3.3.12 Proximity to Floodplains

The Site and surrounding properties are located in a Zone X floodplain area. A Zone X floodplain is defined as areas of 500-year flood; areas of 100-year flood with average depths less than 1 foot, or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flooding.

3.3.13 Geography and Geology of the Site

The Site is located in the Atlantic Coastal Plain Physiographic Province and is underlain by Pre-Cambrian age crystalline metamorphic rocks and igneous rocks. Depth to bedrock is unknown, but is likely greater that 200 feet bgs.

3.3.14 Current Institutional Controls.

There are no known institutional controls at the Site.

3.4 PROPOSED REMEDY

Contaminants of concern are present on the Site as a result of both historic releases and the presence of urban fill, which is ubiquitous in the neighborhood. Mehadrin Dairy has proposed a Site-specific use-based cleanup in accordance with the approach identified under the BCP as Track 4 Restricted Use Site Specific Evaluation. The proposed Site-specific restricted use based remedy will entail, to the extent practicable, the excavation and off-Site disposal of soils impacted by identified on-Site releases, and will achieve a cleanup appropriate for the anticipated future, commercial use of the Site. Contaminated subsurface soil will remain on-Site after the remedy is completed, as it is impracticable to remove all soil containing levels of contaminants above unrestricted use limits (i.e., remove all soils that exhibit chemical concentrations above draft Track 1 Unrestricted Use Soil Cleanup Objectives). Mehadrin Dairy has proposed utilizing the Part 375 Track 4 Site-specific SCOs, which are reflective of the anticipated future use of the Site for commercial purposes. Documentation samples will be collected from the excavations and tested to confirm that the cleanup criteria have been met (see Section 5.2.1). Documentation sampling may reveal areas of urban fill that exceed Track 4 Site-specific SCOs that do not appear to be the result of an on-Site release. The removal of these areas (if present) to concentrations below the draft Track 4 Site-specific SCOs may not be practicable. Therefore, if soils above Track 4 Site-specific SCOs remain on Site a composite cover system consisting of the building structural foundation slab, and/or a minimum one foot clean fill/subbase ground cover will further ensure that the resulting Site conditions are protective of human health and the environment.

Based on the RAOs, the proposed Site-specific remedial actions are:

- Removal and off-Site disposal of soils that contain concentrations of VOCs, SVOCs, or metals greater than Track 4 Site-specific SCOs within the Site boundary.
- Installation and maintenance of a composite cover system for the entire Site. In some areas, the clean fill layer may be thicker than one foot to accommodate deeper infrastructure, such as the venting system.
- Installation of a vapor barrier and SSDS to minimize soil vapor migration into the proposed building.
- Installation and operation of an air sparge/soil vapor extraction system beneath the Site to induce volatilization and promote biodegradation of any VOCs dissolved in the saturated zone, sorbed to saturated soils, and trapped in soil pores in the saturated zone.
- Implementation of post-construction ground water treatment and monitoring, and institutional controls.

The proposed Site-specific remedial actions will address the RAOs as follows:

Mehadrin Dairy Site Users: The composite cover system will minimize direct contact exposure pathways for Mehadrin Dairy Site users with any impacted soils left in place with concentrations above the Track 4 Site-specific SCOs. Results from the soil vapor sampling event indicate that current Site conditions have the potential for indoor exposure from vapor migration. However, the remedial action will include the excavation of VOC-impacted soils within the area of identified Track 4 exceedances, and the installation of a SSDS and soil vapor barrier (see Section 8.0) to minimize any potential soil vapor from migrating into the building. Institutional controls will restrict ground water use.

Construction Workers: Potential direct contact and/or inhalation exposure to contaminated soils containing VOCs, SVOCs, and/or metals above the Track 4 Site-specific

SCOs may occur during future excavation activities in areas beneath buildings, or outside building footprints and below the composite cover system. These potential exposures will be appropriately managed using a Site Management Plan and a Site-Specific Health and Safety Plan.

Ground Water/Surface Water Migration: It is anticipated that ground water quality will improve through natural processes as a result of the removal of soils containing NAPL and constituents greater than the Track 4 Site-specific SCOs. Regardless, an in-situ air sparging/soil vapor extraction system will be installed at the Site to induce volatilization and promote biodegradation of any VOCs dissolved in the saturated zone, sorbed to saturated soils, and trapped in soil pores in the saturated zone. Periodic post-remediation ground water monitoring will be performed to evaluate ground water quality.

Soil Vapor Mitigation: Soil vapor has the potential to migrate through soil toward any future building foundation(s) and intrude into future building(s) constructed in areas of identified soil vapor contamination. Air sparging/soil vapor extraction in conjunction with the SSDS and vapor barrier beneath the proposed building will prevent any potential soil vapor from penetrating into the building and migrating off-Site. Periodic post-remediation soil vapor monitoring will be performed to evaluate the effectiveness of the remedy. The proposed remedial actions will also include the implementation of institutional controls, which include maintenance of the composite cover system, and some Site use restrictions to properly manage and minimize exposures to residual contamination at the site during future excavation activities. The proposed institutional controls and use restrictions that may be implemented are described in Section 9.0 of this RAWP.

3.5 SUMMARY OF SELECTED REMEDIAL ACTIONS

Mehadrin Dairy has proposed Alternative 8, a Site-specific use-based cleanup in accordance with 6NYCRR Part 375-3.8(e)(4) Track 4 Restricted Use with Site-Specific Soil Clean Up Objectives. The proposed Site-specific restricted use based remedy will, to the extent practicable, excavate and dispose of soils impacted by identified on-Site releases, and install a cover system consisting of the proposed on-Site building structural foundation slab and/or a

minimum one-foot clean fill/ clean subbase gravel. The proposed remedy will achieve a cleanup that is appropriate for the anticipated future commercial use of the Site, and ensure that the resulting Site conditions are protective of human health and the environment.

The proposed remedy includes the following components:

1. Excavation of and off-site disposal of soil/fill exceeding Track 4 SCOs listed in Table 11. During remedial activities, all soil will be handled according to the Soil/Materials Management Plan (SoMP) presented in Section 5.4.
2. Screening for indications of contamination (by visual means, olfactory evidence and monitoring with a PID) of all excavated soil during all intrusive Site work to facilitate removal and appropriate disposal of contaminated material.
3. Appropriate off-Site disposal of all material excavated and removed from the Site in accordance with all Federal, State and local rules and regulations for handling and transport of material.
4. Collection and analysis of post-excavation documentation samples for all contaminants of concern (VOCs, SVOCs, metals) to determine if any soils remain on Site that exceed the Track 4 Site-specific cleanup objectives.
5. Installation of a composite cover system across the entire Site. The cover system will consist of the building structural foundation slab, and/or a minimum one-foot clean fill/clean subbase gravel cover. A demarcation barrier will be placed below the clean fill cover layer in all on-Site areas outside the Mehadrin Dairy building footprint boundary where soils exceed Track 4 Site-specific clean up objectives.
6. Installation of a soil vapor barrier under the building foundation slab, installation of a subslab depressurization system (SSDS) beneath the foundation slab, and installation of an air sparging/soil vapor extraction system (AS/SVE) beneath the entire Site.
7. Implementation of post-remediation ground water monitoring to assess ground water quality during and after implementation of the remedy.

8. Import of materials to be used for backfill and cover in compliance with: (1)NYCRR Part 375-6.7(d)(1)(ii)(b); and (2) all Federal, State and local rules and regulations for handling and transport of material;

9. Implementation of a NYSDEC-approved Site Management Plan (SMP) that would include the following institutional and engineering controls: (a) management of the composite cover system to restrict excavation below the demarcation barrier or buildings foundation slab. Soils excavated from below the demarcation barrier or building foundation slab would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed and disposed of in accordance with all Federal State and local rules and regulations; (b) identification of any use restrictions on the Site; and (c) provisions for the continued proper operation, maintenance and monitoring of the components of the remedy. The SMP will also include details for the operation of the AS/SVE, the SSDS and the post-remedial ground water-monitoring program.

10. Imposition of an institutional control in the form of an Environmental Easement that would: (a) limit the use and development of the property to restricted-commercial use; (b) require compliance with the approved SMP; (c) restrict the use of ground water as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH; and (d) require the property owner to complete and submit to the NYSDEC an annual certification of institutional and engineering controls.

11. Preparation of a Final Engineering Report (FER) which describes the remedial activities, certifies that the remedial requirements have or will be achieved, defines the Site boundaries, and describes any institutional or engineering controls to be implemented at the Site.

12. The property owner will provide annual certification of institutional and engineering controls, prepared and signed by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing

that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the Site; and (c) certify that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the SMP unless otherwise approved by the NYSDEC. The institutional controls will apply to the area within the boundary of the Site being remediated under the BCA between Mehadrin and the NYSDEC.

The proposed remedy fully achieves the remedial goals set forth above. Its implementation would remove soils that exceed Track 4 Site-specific SCOs. Any remaining contaminated soil would be managed by institutional/engineered controls, which would include the construction of a building structural foundation slab (employing a soil vapor barrier and SSDS under its foundation), an AS/SVES beneath the Site and minimum one-foot thick clean fill/clean subbase gravel in all areas that is not covered by a building foundation.

All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. All deviations from the RAWP will be promptly reported to NYSDEC for approval and fully explained in the Final Engineering Report (FER).

4.0 REMEDIAL ACTION PROGRAM

4.1 GOVERNING DOCUMENTS

The remedial design process for this project includes two stages of remedial document preparation: (1) Remedial Action Work Plan; and (2) final remedial design document. This RAWP provides documentation and control for the project. The final remedial documents will be incorporated into the construction design documents being developed for the Mehadrin Dairy redevelopment project. The final remedial design documents consist of the RAWP and its appendices (HASP, QAPP, CAMP, SoMP, CPP), as well as the following documents which are not included as part of this RAWP.

Bid-Ready design/engineering drawings for the AS/SVES, vapor barrier and SSDS

- A Stormwater Pollution Prevention Plan (SWPPP)
- An Erosion and Sedimentation Control Plan (ESCP)
- Construction Quality Assurance Plan (CQAP)
- The estimated construction schedule (provided in critical-path format broken down by major activities).

Collectively, these documents will represent the complete, detailed plan for Site remediation. The SWPPP, ESCP, CQAP and estimated construction schedule will be submitted for NYSDEC and NYSDOH review and approval prior to the start of construction. General descriptions of the governing remedial design documents for the project are discussed in the following section.

The Remedial Engineer will review all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and confirm that they are in compliance with this RAWP. The Remedial Engineer is responsible to ensure that all later document submittals (e.g., SWPP, ESCP, CQAP, estimated construction schedule) for this remedial project, including contractor and sub-contractor document submittals,

are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

A detailed remedial design document that includes all of the items listed in this section will be submitted to NYSDEC for review and approval prior to the start of work.

4.1.1 Site Specific Health & Safety Plan (HASP)

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The Volunteer and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan (HASP) and for the appropriate performance of work according to that plan and applicable laws. The HASP and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion. All Site personnel will be required to read, sign, and comply with the requirements of the project HASP. The HASP is presented in Appendix F.

The Site Safety Coordinator will be assigned to the remedial and invasive work prior to the start of the Site remediation. A resume will be provided to NYSDEC prior to the start of remedial construction.

Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses.

4.1.2 Quality Assurance Project Plan (QAPP)

The Quality Assurance Project Plan (QAPP), presented in Appendix G, specifies analytical methods to be used so that data from the proposed remediation is precise, accurate, representative, comparable, and complete. The QAPP includes sampling protocols, glassware requirements, test parameters, test methods, quality assurance/quality control requirements, and reporting requirements. Samples collected for chemical characterization during remediation

activities will be submitted to a laboratory approved by the NYSDOH Environmental Laboratory Accreditation Program. The QAPP is based on NYSDEC requirements and guidance.

4.1.3 Community Air Monitoring Plan (CAMP)

A Site-specific Community Air Monitoring Plan (CAMP) is presented in Appendix H. The CAMP will be implemented at the Site in accordance with the provisions of the NYSDOH Generic CAMP. The CAMP will provide real-time monitoring for VOCs and particulates at the down gradient perimeter of each designated work area when ground intrusive activities are in progress at the Site. Periodic monitoring for VOCs will be conducted during non-intrusive activities such as the collection of surface soil samples or ground water samples from existing monitoring wells. A copy of the CAMP is presented in Appendix H.

4.1.4 Soil/Materials Management Plan (SoMP)

Excavated soils will be managed according to the Soil/Materials Management Plan (SMP) included in Section 5.4 of this RAWP. In general, excavated soil will be stockpiled, tested, and transported to a designated disposal facility. A secured stockpile location will be constructed in an effort to provide proper isolation of the stockpiled material. If possible, based on approval from the selected disposal facility, excavated soil to be transported off-Site will be live loaded into trucks. Excavated soil will be handled in accordance with Federal, State and local regulations in a manner protective of public health and the environment. Proper protocols will be implemented to prevent the migration of soil beyond the boundaries of the Site.

4.1.5 Citizen Participation Plan (CPP)

The Citizen Participation Plan (CPP) developed for this Site requires citizen participation (CP) activities to occur at throughout implementation of the remedial program. The Volunteer will work with NYSDEC and NYSDOH to accomplish the CP activities described in the CPP and any additional CP activities as required by the NYSDEC during the course of the remedial program. The approved CPP for this project is presented in Appendix E.

As part of the CPP process the following documents will be placed into the document repository as soon as they become available: Final RAWP; Final Engineering Report (FER); Site Management Plan (SMP); each NYSDEC comment and/or approval letter for each of these reports; and each project Fact Sheet.

A Site Contact List has been generated that contains the names of required contacts, additional contacts as found appropriate by either NYSDEC or the Applicant, and others who have requested to be placed on the list. The Volunteer will keep the Site Contact List up-to-date.

A certification of mailing will be sent by the Volunteer to the NYSDEC project manager following the distribution of all Fact Sheets and notices that will include: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

A document repository has been established at the following location and contains all applicable project documents released to date:

Brooklyn Public Library

Bushwick Branch
340 Bushwick Avenue
Brooklyn, NT 11206
(718) 602-1348
Monday: 1 to 8 pm
Tuesday and Wednesday: 10 am to 6 pm
Thursday and Friday: 1 to 6 pm
Saturday: 11 am to 3 pm

4.1.6 Design/Engineering Drawings

The technical specification and design/engineering drawings for the air sparging, soil vapor extraction/subslab depressurization system, and vapor barrier have been included as part of

the RAWP. Prior to the start of the remediation of the Site, an air sparging/soil vapor extraction pilot test will be conducted at the Site. Based on the results of the pilot test, the design of the air sparging/soil vapor extraction will be modified. The technical specification and design/engineering drawings will be resubmitted for NYSDEC and NYSDOH review and approval.

4.1.7 Storm-Water Pollution Prevention Plan (SWPPP)/Erosion & Sedimentation Control Plan (ESCP)

The Contractor, prior to mobilization to the Site, will complete a Storm-Water Pollution Prevention Plan (SWPPP) and Erosion & Sediment Control Plan (ESCP). The plans will discuss the means and methods to be used to minimize off-Site sediment transport during storm events and by wind, and the physical methods to control/or divert surface water flows.

The erosion and sediment controls will be in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control.

The SWPPP/ESCP will be submitted to NYSDEC for approval prior to the start of remediation.

4.1.8 Construction Quality Assurance Plan (CQAP)

The Contractor, prior to mobilization to the Site, will complete a CQAP. The CQAP will provide a detailed description of the observation and testing activities that will be used to monitor construction quality and confirm that remedy construction is in conformance with the RAWP. The CQAP will include:

- Responsibilities and authorities of the organizations and key personnel involved in the design and construction of the remedy.
- Qualifications of the quality assurance personnel that demonstrate that they possess the proper training and experience necessary to fulfill project-specific responsibilities.

- The observations and tests that will be used to monitor construction and the frequency of performance of such activities.
- The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for implementing corrective measures as addressed in the plans and specifications.
- Requirements for project coordination meetings between the Applicant and its representatives, the Construction Manager, Excavation Contractor, remedial or environmental subcontractors, and other involved parties.
- Description of the reporting requirements for quality assurance activities including such items as daily summary reports, schedule of data submissions, inspection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.
- Description of the final documentation retention provisions.

The CQAP will be submitted to NYSDEC for approval prior to the start of the remediation.

4.1.9 Construction Schedule

An estimated construction schedule (provided in critical-path format broken down by major activities) will be submitted to the NYSDEC prior to the start of the remediation.

4.2 GENERAL REMEDIAL CONSTRUCTION INFORMATION

4.2.1 Project Organization

The primary parties in the remediation are:

Volunteer:	Mehadrin Dairy Corporation, BBM, LLC, and LFW Dairy Corporation. LLC
Property Owner:	Mehadrin Dairy Corporation, BBM, LLC, and LFW Dairy Corporation. LLC

Regulatory Oversight:	New York State Department of Environmental Conservation
	New York State Department of Health
Remedial Engineer:	Guy F. LaBella, P.E.
	BL Companies Architects Engineers Landscape Architects Surveyors PC
Contractor:	Albert Lieberman Construction

An organization chart is included in Figure 15.

Resumes of key personnel involved in the Remedial Action are included in Appendix I.

4.2.2 Project Communication

Successful project implementation will include regular communication between the project participants and external communication with the community and public officials at important milestones.

The main mechanism for internal communication during the remediation will be weekly on-Site progress meetings. At a minimum, participates in these meetings will include the Mehadrin project manager, the Contractor's project manager, and the remedial engineer/qualified environmental professional. Representatives from the NYSDEC and NYSDOH may participate in weekly meetings when appropriate.

Important external communication milestones (beyond regular public participation activities) include:

- Pre-construction meeting
- Start of on-Site work
- Significant work shutdowns (more than one day) due to air monitoring criteria above standards
- Start of excavation and backfilling

- Completion of subsurface installation of SSDS and AS/SVE system
- Completion of environmental excavation and backfilling
- Completion of remedial construction activities

The milestones will be communicated using letters and/or telecommunication as appropriate. Daily and monthly reports will be submitted to NYSDEC and NYSDOH project managers throughout the remedial construction phase. Mehadrin will address any questions or concerns that are raised by the public during remedial activities.

4.2.3 Project Management

Overall management of the project will be the responsibility of the Mehadrin project manager, Mr. Josheph Weinberger. He will be supported by the Remedial Engineer from BL Companies Architects Engineers Landscape Architects Surveyors PC, and other environmental and engineering professional as required. The project manager will also be the primary point of contact for the state agencies and local public officials.

4.2.4 Remedial Engineer

The Remedial Engineer for this project will be Guy F. LaBella. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Mehadrin Dairy Site (NYSDEC BCA Index No. W2-1054-05-03 Site No. C224102). The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import

of back fill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer will review all pre-remedial plans submitted by contractors for compliance with this Remedial Action Work Plan and will certify compliance in the Final Remediation Report.

The Remedial Engineer will provide the certifications listed in Section 10.1 in the Final Engineering Report.

4.2.5 Remedial Action Construction Schedule

A preliminary schedule of major construction submittals, remedial implementation and post-construction reports is contained in Table 12. The schedule is referenced in months from RAWP approval through the NYSDEC review of the Final Engineering Report. Based on the schedule the total estimated projected duration from RAWP approval to NYSDEC review of the FER is 11 months. An estimated construction schedule will be provided to the NYSDEC prior to the start of construction.

4.2.6 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Applicant of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.7 Site Security

The current fence that surrounds the perimeter of the Site will be maintained during the duration of the remedial construction activities. Only properly trained (i.e., OSHA HAZWOPER) and equipped personnel will be allowed on the Site during the remedial construction activities. All vehicles and/or equipment left in the work area will be secured at the end of each working day. Essential equipment that must run overnight and/or on non-working

days will be designed and managed with appropriate automatic shutoffs and/or alarms to prevent unsafe operation. All personnel working at or visiting the Site will be required to sign in and out on a daily basis. The gates to the Site will be closed during working hours except to allow vehicle traffic to pass in and out of the Site.

4.2.8 Traffic Control

All traffic is expected to enter and leave the Site via the existing gates or new gates to McKibbin Street, Bogart Street, and/or Boerum Street. The Contractor's personnel will direct the arrival or departure of construction vehicles and provide flag services as needed to maintain safe travel on surrounding streets. Trucks will not be allowed to idle while queued. The complete haul route(s) will be identified following the selection of an off-Site disposal facility(s). The haul routes and staging of clean, empty dump trucks waiting to be loaded with excavated material for off-Site disposal will be designed to minimize or eliminate the time trucks will be on local streets. Site personnel will be required to park on-Site or in legal all-day on-street parking spaces, if available.

4.2.9 Worker Training and Monitoring

Prior to the initiation of remediation operations on the Site, employees and subcontractors will receive a pre-entry briefing based on the contents of the Health and Safety Plan provided in Appendix F. The briefing will include at a minimum the following items:

- Verbal description of the Site and hazards present.
- A chemical hazard briefing.
- The location of the nearest emergency communications, emergency facilities and emergency telephone numbers.
- Emergency procedures.
- The identification of hazards associated with anticipated tasks of the day.

- Hazards specific to the Site, their chemical nature, concentrations present or expected, exposure limits, symptoms of overexposure, and emergency first response first aid.
- The inspection and use of personal safety equipment.
- A discussion of the location of safe areas if emergency evacuation is necessary.
- How to detect/eliminate/prevent hazards through the use of monitoring and control measures.

All on-Site personnel who will be actively involved in the remedial activities must have completed hazardous waste operations-related training, as required by Operational Safety and Health Administration (OSHA) Regulations 29 CFR 1910.120 and/or 29 CFR 1926.65. Personnel who completed this training more than 12 months prior to the start of the project must have completed an 8-hour refresher course within the past 12 months. Documentation of OSHA training for the project personnel must be provided to BL Companies prior to starting work.

The purpose of the training is to ensure that workers are aware of potential hazards they may encounter, provide knowledge and skills in order to complete tasks with minimal risk to health and safety, provide knowledge of the purpose and limitations of personal protective equipment, develop safe work practices, and inform workers of the requirements of a medical surveillance program, including the recognition of symptoms and signs that might indicate exposure to a hazard.

4.2.10 Agency Approvals

The Volunteer has addressed all State Environmental Quality Review Act (SEQRA) requirements for the Site.

All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with the current zoning for the property as determined by New York City Department of Planning. A Certificate of Completion

will not be issued for the project unless conformance with zoning designation is demonstrated by the Volunteer.

A complete list of all Federal, State and local governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work will be provided by the Volunteer to the NYSDEC prior to the start of remedial construction activities. This list will include a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency. This list will be updated in the FER.

4.2.11 NYSDEC BCP Signage

A project sign will be erected by the Volunteer at the main entrance to the Site prior to the start of any remedial activities. The sign will indicate that the project is being performed under the New York State Brownfield Cleanup Program. The sign will meet the detailed specifications provided by the NYSDEC Project Manager and contained in Appendix J.

4.2.12 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the HASP. The HASP lists the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.13 Remedial Action Costs

As presented in Section 3.3 of this RAWP, the total estimated cost of the Remedial Action is approximately $850,000. An itemized and detailed summary of estimated costs for all remedial activity is attached as Appendix K. This will be revised based on actual costs and submitted as an Appendix to the FER.

4.3 SITE PREPARATION

This section describes the criteria and procedures that will be used to perform the various Site preparation elements of the proposed remedy.

4.3.1 Mobilization

Prior to mobilization, the Contractor will prepare and submit all required documents for review and approval by Mehadrin Dairy and the NYSDEC, as appropriate. Contractor submittals typically include a SWPPP/ESCP, Construction QAP, and construction schedule and permits that the Contractor is responsible for obtaining. Submittals may also include some detailed designs for specialty items, such as an excavation support system.

The Contractor will apply for and obtain all necessary Federal, State, and local permits associated with remediation for which Mehadrin Dairy is not responsible. These permits may include, but are not limited to, traffic routing, stormwater discharge, wastewater discharge, construction/ zoning, and noise.

Prior to mobilization, NYSDEC will also conduct a pre-construction Site meeting with the Contractor and remedial engineer or qualified environmental professional to review the construction sequence, confirm the responsibilities of each of the parties, and establish formal lines of communication for the project. NYSDEC and the public will be notified prior to conducting any on-Site work.

After the pre-construction Site meeting, the Contractor will mobilize all necessary labor, equipment, supplies and materials to perform the remedial work in accordance with the plans and specifications. Initial activities will consist of establishing temporary site facilities, project controls, equipment laydown areas, truck/equipment decontamination areas, and material stockpiling areas.

During mobilization, a licensed surveyor will establish a temporary baseline grid and benchmarks for the remedial work. The grid and benchmarks will be established in English Units (feet). The surveyors will return as needed to establish other reference points, layout work and survey record information. (See Section 5.4.8 Demarcation)

4.3.2 Erosion and Sedimentation Controls

The Remedial Engineer, prior to contractor mobilization to the Site, will complete an Erosion and Sedimentation Control Plan (ESCP). The plan will discuss the means and methods

to be used to minimize off-Site sediment transport during storm events. Generally, a continuous line of silt fence and hay bales will be established around the perimeter of the work area to minimize off-site sediment transport during storm events. Silt fences and hay bales will also be used to protect any storm drains outside the excavation areas. The silt fences will be inspected by the Contractor and the start and end of each workday and repaired immediately as needed.

Within areas disturbed by remedial excavation, the ground surface surrounding the excavation will be sloped to drain toward the excavation. In this way, any precipitation that comes in contact with potentially contaminated soil will be directed into the excavation.

4.3.3 Stabilized Construction Entrance(s)

All materials and equipment used to complete the remedial excavation and manage Site soils (except disposable items) will be decontaminated on specially constructed "pads" located at exit points from the exclusion zone. At a minimum, the pads will consist of a layer of crushed stone underlain by an impervious plastic liner that has been graded to drain to a collection sump. The pad will be sized to accommodate the largest piece of equipment used on the project. The equipment will be "dry" decontaminated using a broom and/or brushes unless a wet wash is deemed necessary due to Site conditions. Continuity will be maintained between the truck wash area and the egress point to ensure that trucks do not become re-contaminated before leaving the Site.

4.3.4 Utility Markout and Easements Layout

The Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Applicant and its contractors must obtain any Federal, State or local permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site will be confirmed by the Contractor. It will be determined if a risk or impediment to the planned work under this RAWP is posed by utilities or easements on the Site. Prior to the start of any excavation work, the Contractor will be responsible for contacting the Underground Facilities Protective Organization (UFPO) to request that all utilities on the Site are located and marked as appropriate.

4.3.5 Sheeting and Shoring

Except for the area of Boring GP-10, remediation depths are not anticipated to extend below the water table. Therefore, the use of remedial excavation support is not anticipated. However, if excavation support is required to maintain vertical sidewalls in excavations below the water table, the Contractor will determine the type of excavation support that will be used. The excavation support stabilizes the sidewall soils, which would likely collapse into the excavation in an open excavation scenario, and cuts off much of the ground water that would otherwise enter the excavation and require treatment. Upon completion of backfilling the excavation, any excavation support would be removed, if feasible.

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities (including excavation) is the sole responsibility of the Volunteer and its contractors. The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Volunteer and its contractors must obtain any Federal, State or local permits or approvals that may be required to perform work under this Plan. Further, the Volunteer and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved Plan.

4.3.6 Equipment and Material Staging

Temporary Site facilities may include office trailers, storage trailers, portable toilets, material storage, and equipment lay down areas. After installation, the Contractor will establish temporary electric, water, telephone, and other services as required. The office space will be sized to accommodate, at a minimum, the Contractor's staff and one Mehadrin Dairy representative, and the consulting engineer. The remedial Contractor, prior to the

implementation of the selected remedy, will determine the exact areas for equipment and material staging.

4.3.7 Decontamination Area

The Contractor will establish decontamination areas for the following activities.

- Personnel decontamination
- Equipment decontamination

A personnel decontamination station will be set up at a designated exit from the exclusion zone where workers can drop equipment and remove PPE. It will be equipped with basins for water and detergent, and trash bags or cans for containing disposable PPE and discarded materials. Once personnel have decontaminated at this station and taken off their PPE, they will, if necessary, proceed to an adjacent wash facility as a secondary means of personal hygiene (e.g., hands, face, etc.). The specific personnel decontamination procedures and requirements are provided in the consulting engineers' HASP (Appendix F).

Wastewater from equipment decontamination will be collected in a sump, characterized, and transported off Site for appropriate off-Site disposal.

Soil collected from the decontamination pads will be combined with the excavated impacted material for off-Site disposal.

Disposable items will be containerized within the exclusion zone and transported for appropriate off-Site disposal.

4.3.8 Site Fencing

The current fence that surrounds the perimeter of the Site will be maintained during the duration of the remedial Construction activities. The gates to the Site will be closed during working hours except to allow vehicle traffic to pass in and out of the Site.

All traffic is expected to enter and leave the Site via the existing gates or new gates to McKibbin Street, Bogart Street, and/or Boerum Street.

An exclusion zone will be established for the Site during remedial excavation and backfilling activities. The exclusion zone is the area within the Site where all worker activity is subject to the monitoring, work procedures, and PPE requirements set out in the Site-specific HASP (see Appendix F) and any health and safety requirements specified by the Contractor. For this project, the exclusion zone will include the remedial excavation areas and any areas used to temporarily store, handle, or treat any of the impacted soil and ground water removed from the excavation. The exclusion zone will be separately and clearly delineated from the rest of the Site and the perimeter security fencing. All personnel and equipment leaving the exclusion zone will be subject to the decontamination requirements described in Section 4.3.7 of this RAWP.

4.3.9 Demobilization

Demobilization from the Site may include, but not be limited to the following:

- Restoration of areas that may have been disturbed to accommodate remedial support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management area[s], and access area);
- Removal of temporary access areas (whether on-Site or off-Site) and restoration of disturbed access areas to pre-remediation conditions;
- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations;
- Equipment decontamination;
- General refuse disposal.

4.4 REPORTING

During the preparation and execution of the selected remedy, the remedial engineer or his representative will provide daily and monthly progress reports to the NYSDEC summarizing the status of ongoing activities and the anticipated schedule of future activities. Within 90 days of the conclusion of remedial activities and construction activities, a FER will be prepared and submitted to NYSDEC documenting the implementation of the remediation. The report will

include: a summary of the work conducted, noting any deviations from the RAWP; as-built drawings; disposal records; air monitoring records; documentation sampling results; water treatment testing results; other testing results; documentation that the institutional controls are in place; a copy of the executed Environmental Easement; and a final SMP for post-remediation activities.

All daily and monthly Reports will be included in the FER.

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by the end of each day following the reporting period and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to an alphanumeric map for the Site that identifies work areas. These reports will include a summary of air sampling

results, odor and dust problems and corrective actions, and all complaints received from the public.

A Site map that shows a predefined numeric grid for use in identifying locations described in reports submitted to NYSDEC is attached in Figure 16.

The NYSDEC assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e. tons of material exported and imported, etc.);
- Waste transport manifests;
- Weight tickets for bulk materials transported to or from the Site;
- As built locations of excavation limits and documentation samples
- Backfill sampling records;
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be submitted to NYSDEC on compact disk (CD) or other acceptable electronic media and will be sent to NYSDEC's Project Manager (2 copies) and to NYSDOH's Project Manager (1 copy). CD's will have a label and a general file inventory structure that separates photos into directories and sub-directories according to logical Remedial Action components. A photo log keyed to photo file identification (ID) numbers will be prepared to provide explanation for all representative photos. For larger and longer projects, photos should be submitted on a monthly basis or another agreed upon time interval.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

The remedial engineer or qualified environmental professional and the Mehadrin Project Manager will discuss all complaints received from the public regarding nuisance or other Site conditions. The remedial engineer or qualified environmental professional will communicate all complaints to the NYSDEC Project Manager, and (if necessary) corrective actions will be implemented.

4.4.5 Deviations from the Remedial Action Work Plan

In the event that the selected remedy cannot be implemented as presented in this RAWP due to unforeseen conditions, the project manager will consult with the NYSDEC and NYSDOH. The Remedial Engineer will prepare a justification as to why the selected remedy cannot be implemented or why further remediation is not feasible, describe the modification(s) to

the selected remedy, and any additional controls that will be needed to ensure that the RAOs are meet. Under no circumstances shall and contingencies be implemented without NYSDEC approval.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

As discussed in Section 3.5, the selected remedial action for the Site includes the excavation and off-Site of in-situ soils that exceed Track 4 Site-specific SCOs, institutional and engineering controls, and post-remediation ground water monitoring to track the effectiveness of the remedy. A description of the procedure for handling and testing material removed from the Site is presented in this section.

5.1 SOIL CLEANUP OBJECTIVES

The Soil Cleanup Objectives for this Site are the NYSDEC Track 4 Site-specific SCOs listed in Table 11. Tables 3 and 4 list the Site-specific SCOs, and summarize all soil samples that exceed the SCOs proposed for this Remedial Action. Compounds detected at the Site that exceed the Site-specific SCOs and each compounds Track 4 Site-specific SCO are as follows.

Trichloroethene	200,000 ppb
Benzo (a) pyrene	1,000 ppb
Dibenzo (a,h) anthracene	560 ppb
Mercury (elemental)	2.8 ppm

Soil and materials management on-Site and off-Site will be conducted in accordance with the Soil/Materials Management Plan as described below.

A spider map that shows all soil samples that exceed the SCOs proposed for this Remedial Action is shown in Figure 10.

Underground storage tanks (USTs) have not been identified on the Site and it is not anticipated that any USTs will be unearthed during remedial activities. However, if USTs are unearthed during the remediation, UST closures will, at a minimum, conform to criteria defined in DER-10.

5.2 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION END-POINT SAMPLING)

5.2.1 End-Point Sampling Frequency

End point sampling, including bottom and sidewall sampling, will be performed in accordance with DER-10 sample frequency requirements. Sidewall samples will be collected a minimum of every 30 linear feet. Bottom samples will be collected at a rate of one for every 900 square feet.

In addition, one sidewall sample (collected a minimum of every 30 linear feet) and one bottom sample (collected at a rate of one for every 900 square feet) will be collected from the excavations identified as exceeding Track 4 Site-specific SCOs (i.e., from the smaller non-construction (remediation) excavations (HS-1 and HS-2) completed within the larger excavations needed for the construction of the building and subsurface engineered controls). End point samples will be tested for VOCS by EPA Method 8260B, PAHs by EPA Method 8270, and mercury by EPA Method 6000/7000 Series to characterize the soils encapsulated by the composite cover system. Samples will be collected when the excavation limits required for construction and non-construction (remediation) have been achieved.

5.2.2 Methodology

The analytical methods used will conform to the NYSDEC Analytical Services Protocol (ASP). Category B laboratory deliverables as defined in the NYSDEC ASP will be submitted for all samples.

The data shall be reviewed for contractual compliance in accordance with the requested methodologies, and qualifications shall be applied as specified in Appendix 2B of DER-10 (Guidance for the Development of Data Usability Summary Reports).

5.2.3 Reporting of Results

For each sample, any positive detection reported for the analyses shall be confirmed via visual review of chromatograms and ion spectra. Quality control indicators, where applicable,

shall be used to evaluate the usability of the analytical data within each data package: Sample Integrity, Holding Times, Blank Contamination, Calibration information, Laboratory Control Sample and/or Blank Spike, Matrix Spike Analysis, Dilutions Performed, Laboratory Duplicate Analyses, Chromatogram Evaluation, and Calculations. In addition, a verification of the reporting limits, method detection limits (MDLs), and units used to report all data shall also be assessed.

5.2.4 QA/QC

A NYSDOH Environmental Laboratory Accreditation Program (ELAP) Contract Laboratory Protocol (CLP) certified laboratory will be selected to perform all laboratory analyses on the soil and ground water samples collected as part of future remediation activities. Laboratory analyses will include chlorinated and non-chlorinated VOCS by EPA Method 8260B, PAHs by EPA Method 8270, and mercury by EPA Method 6000/7000 Series.

During all sampling events, appropriate field and laboratory QA/QC methods will be employed. Field blanks, trip blanks, method blanks, and duplicate samples will be run on a routine basis, as specified in the QAPP.

5.2.5 DUSR

A Data Usability Summary Report (DUSR) will be prepared in order to provide a thorough evaluation of the analytical data collected at the Site. The primary objective of the DUSR is to determine if the data meet the project specific criteria for data quality and data use. The DUSR will comply with Appendix 2B of DER-10.

5.2.6 Reporting of End-Point Data in FER

Within 90 days of the conclusion of the remedial activities, a FER will be submitted to the NYSDEC documenting the implementation of the remediation. At a minimum, the FER will include the following sections.

- Background
- Description of RI findings

- Description of approved RAWP
- Description of remedial action performed

The FER will provide a tabular and map summary of all end-point sample results and exceedances of SCOs.

5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

The area of the excavation would correspond to all areas needed for the proposed construction and shallow soils identified in Hotspots HS-1 and HS-2 as containing NAPL and/or exceeding the Track 4 Site-specific SCOs. The depth of excavation would range from approximately 0 to 12 feet below the cgs. The estimated remedial excavation volume is approximately 3,800 cubic yards of which approximately 500 cubic yards is related to areas that exceed Track 4 Site-specific SCOs. The estimated backfill volume is approximately 4,800 cubic yards to establish the redevelopment grade. Figure 9 illustrates the location of all contaminants in soils that exceed Track 4 Site-specific SCOs. The proposed remedial excavation and fill limits needed for the construction of footings, foundation and building slab, and the AS/SVE system are presented in Figures 13 and 16.

The estimated quantity of soil/fill to be excavated from the Site is 3,800cubic yards. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 2,000 cubic yards. The estimated quantity of soil/fill expected to be reused/relocated on Site is 2,800 cubic yards.

5.4 SOIL/MATERIALS MANAGEMENT PLAN (SoMP)

The purpose of this SoMP is to define a program for handling, testing, reuse and/or disposing of certain soils encountered during the remediation of the Site. Specifically, the SoMP outlines the handling requirements for soils excavated during Site redevelopment that will be displaced by Site remediation and/or construction activities, and that are unsuitable for re-use on-Site due to exceeding Track 4 Site-specific SCOs or other considerations (geotechnical). Excavated soils from areas of the Site identified by Remedial Investigations as exceeding Track 4 Site-specific SCOs and requiring remediation will be removed from the Site for off-Site

disposal. Soils required to be excavated strictly for the construction of the building that contain contaminants at levels at or below Track 4 Site-specific SCOs may be re-used on-Site. Soil proposed for on-Site reuse will not be placed in areas subject to erosion, in areas above the demarcation barrier (i.e., within one foot of the composite cover system) or in other areas that are not permitted by Federal, State, or local laws. The implementation of this SoMP will minimize impacts to the environment and the potential for human exposure during construction activities.

Based on information obtained from environmental exploration borings, the Site is underlain by approximately 7 feet of urban fill. Glacial deposits underlie the urban fill and consists of varying percentages of silt, sand and gravel. Exploration borings were advanced to a depth of approximately 70 feet below grade. The urban fill and native soils extending to a depth of approximately 22 ft bg contain COCs at concentrations above the Track 4 Site-specific SCOs and/or NYSDEC TAGM #4046 Recommended Soil Clean-up Objectives.

This SoMP is not intended to provide detail with regard to Site-specific health and safety procedures. For the purposes of this SoMP, at all times, work shall be conducted in a manner that safeguards the health, safety and welfare of Site workers, the general public, and the environment. A HASP has been prepared by BL Companies for the excavation and movement of impacted soil and will apply to personnel involved in activities related to the RAWP (see Appendix F). This SoMP is also not intended for use to manage potential future human exposure to soils or ground water left in place below the composite cover system that will be installed at the Site as part of the Site remediation. These topics are or will be addressed in other documents relating to Site management.

The specific details and logistics of implementing this SoMP shall be developed by the Contractor and certified by the Remedial Engineer or the Owners Project Manager.

5.4.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional during all remedial and construction development excavations into known or potentially contaminated material. Soil screening will be performed regardless of

when the invasive work is done and will include all excavation and invasive work performed during the remedy and during construction development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

All primary contaminant sources (including, but not limited to hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the FER.

Screening will be performed by qualified environmental professionals. Resumes will be provided for all personnel responsible for field screening (i.e. those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.4.2 Stockpile Methods

During excavation activities, subsurface soils will be segregated into potential reuse or off-Site disposal stockpiles. All soil characterization testing and disposal authorizations will be the responsibility of the Remedial Engineer or the qualified environmental professional. Excavated subsurface soils stockpiled on-Site will be characterized for reuse and/or acceptance at a disposal facility.

If approved by the NYSDEC and the disposal facility, soil from areas exceeding Track 4 Site-specific SCOs and/or containing NAPL and soils excavated in areas required for construction only may be directly loaded for transportation and off-Site disposal, and will not be stockpiled on-Site. The primary mechanism to determine whether or not soils should be considered for direct loading will be the existing laboratory data from numerous borings advanced across the Site, and soil screening conducted in the field during excavation activities. Additional laboratory characterization data may be required for direct loaded soils.

All soils disturbed during Site construction activities will be managed in a way to minimize dust and fugitive emissions. The Contractor is required to provide a Site Operations Plan (see Section 4.1.7) for review and approval by the Remedial Engineer. The primary dust

construction of the Mehadrin Dairy facility. The construction excavation areas include all areas associated with the proposed construction of the warehouse and distribution facility, including the building, outside trailer parking lot, and loading areas. The remediation excavation areas include identified remediation areas (HS-1 and HS-2) below the elevation needed solely for construction. The Contractor, prior to the implementation of the selected remedy, will determine the exact sequence of excavation.

The Remedial Engineer or a qualified environmental professional under his/her supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Remedial Engineer is not responsible for execution of construction activities by contractor nor is the Remedial Engineer responsible for selection of means and methods to accomplish completion of RAWP.

The presence of utilities and easements on the Site will be confirmed by the Contractor. It will be determined if a risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State (including New York State Department of Transportation (NYSDOT), and local requirements (and all other applicable transportation requirements).

A truck wash will be operated on-Site. The Remedial Engineer will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the remedial construction is complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking.

The Remedial Engineer will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the

Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site -derived materials.

The Volunteer and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Remedial Engineer or qualified environmental professional will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this Remedial Action Work Plan.

Each hotspot, contaminated area and structure to be remediated (USTs, vaults and associated piping, transformers, etc.) will be removed and end-point remedial performance sampling completed before excavations related to Site development (construction excavation) commence proximal to the contaminated area or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill and contaminated soil on-Site is prohibited.

All primary contaminant sources (including but not limited to hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. The survey information will be shown on maps to be reported in the FER.

5.4.4 Materials Transport Off-Site

All impacted soil or unusable soil (e.g., soil that does not meet building geotechnical requirements) that is to be disposed of off-Site must be loaded within the Site limits. Trucks must be covered before leaving the Site to prevent debris from spilling from the trucks, or being tracked off-Site. Additional measures will be taken to assure that soils are not removed from the

Site on truck tires (see Sections 4.3.3 and 4.3.7). Soils should be kept moist in order to keep dust under control and limit exposure to the workers on the Site.

Uncontrolled off-Site reuse of impacted soil or unusable soil is prohibited. The Contractor shall maintain project documentation including material shipping records, bills of lading, manifests and/or waste disposal receipts, and final destination certifications for the Remedial Engineer.

All transport of materials will be performed by licensed haulers in accordance with appropriate Federal, State (including 6NYCRR Part 364), and local regulations. Haulers will be appropriately licensed and trucks properly placarded.

The Contractor will be required to document truck permits prior to transporting waste from the Site.

All traffic is expected to enter and leave the Site via a gate to McKibbin Street and/or a gate to Boerum Street. The Contractor's personnel will direct the arrival or departure of construction vehicles, and provide flag services as needed to maintain safe travel entering and leaving the Site. All truck traffic, except trucks of local origin, will be required to arrive and leave the Site via McKibbin Street and/or Boerum Street. All truck traffic, except trucks of local origin, is expected to use the Brooklyn-Queens Expressway (Route 278). In-bound and out-bound truck transport routes between the Site and the Brooklyn-Queens Expressway are expected to be limited to the Streets contiguous to the Site, Bushwick Avenue, and Humbolt Street.

Proposed in-bound and out-bound truck routes to the Site are shown in Figure 17. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) minimizing off- Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

The complete haul route(s) will be identified and approved by the NYSDEC following the selection of an off-Site disposal facility. Site personnel will be required to park on Site or in legal all-day on-street parking spaces, if available.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

If possible, queuing of trucks will be performed on-Site in order to minimize off-Site disturbance.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All truck tires will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

5.4.5 Materials Disposal Off-Site

Disposal locations will be established at a later date and will be reported to the NYSDEC Project Manager.

The total quantity of material expected to be disposed off-Site is 1,000 cubic yards of non-hazardous contaminated soils. All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed in accordance with all Federal, State (including 6NYCRR Part 360) and local regulations. If disposal of soil/fill from this Site is proposed for unregulated disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to NYSDEC's Project Manager. Unregulated off-Site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer or BCP Applicant to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2

Historical fill and contaminated soils from the Site are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the Division of Solid & Hazardous Materials (DSHM) in NYSDEC to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DSHM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project

identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

The FER will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

Bill of Lading system or equivalent will be used for off-Site movement of non-hazardous wastes and contaminated soils. This information will be reported in the Final Engineering Report.

Hazardous waste has not been identified at the Site. However, if hazardous waste is encountered on-Site during the implementation of the remedial actions, the waste will be characterized, transported, and disposed of in full compliance with applicable Federal, State, and local regulations.

Appropriately licensed haulers will be used for material removed from this Site and will be in full compliance with all applicable Federal, State and local regulations.

Waste characterization will be performed for off-Site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

5.4.6 Materials Reuse On-Site

The Remedial Engineer or qualified environmental professional will conduct sampling and laboratory analyses of all soil stockpiled for off-Site disposal or on-Site reuse. The testing frequency will include the collection of two composite samples for SVOCs and metals per 600 cubic yards of soil, and five composite plus five grab samples for VOCs per 500 cubic yards of soil. For soil/fill stockpiles of more than 1,000 cubic yards, the sample collection frequency will

be reduced to two composite for SVOCs/metals and five composites plus five grab samples for VOCs per 500 cubic yards of soil for every 2,500 cubic yards of additional soils (up to 5,000 cubic yards), if and only if COCs are detected in the first 1,000 cubic yards at concentrations at or below the draft Track 4 Site-specific SCOs. Analytical results will be submitted to NYSDEC to obtain written authorization prior to on-Site reuse. Soils excavated from distinctive geologic strata (fill vs. organic layer) or from different contaminant areas (determined by field screening) will not be mixed together in a stockpile.

Composite samples consisting of grab samples will be collected from five locations within each stockpile. PID measurements will be collected from the individual locations with duplicate samples collected in accordance with the Site Specific QAPP. One grab sample will be collected from the five individual locations (either the sample with the highest PID reading or if no PID readings are obtained, a randomly selected sample). The composite samples will be analyzed by a NYSDOH ELAP-certified laboratory for pH (EPA Method 9045C), Target Compound List (TCL) SVOCs, and TAL metals, and the grab sample will be analyzed for TCL VOCs. Any modifications to the above-mentioned sampling and analyses procedures must be approved by the NYSDEC prior to implementation.

Chemical criteria for on-Site reuse of material have been approved by NYSDEC. These criteria are the Track 4 Site-specific SCOs presented in Table 12. The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site unless encapsulated by the composite cover system.

Concrete crushing or processing on-Site is prohibited.

Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on-Site.

Contaminated on-Site material, including historic fill and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressed in the final Site Management Plan.

5.4.7 Fluids Management

All liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable Federal, State, and local regulations. Liquids discharged into the New York City sewer system will be addressed through approval by New York City Department of Environmental Protection (NYCDEP).

A majority of the excavation activities for construction and remediation activities will not extend below the water table. Therefore, the need for excavation dewatering is not anticipated. If needed, any liquid wastes or dewatering fluid will be collected in fractionation (frac) tanks or other sealed containers, characterized and transported to an appropriate off-Site treatment/disposal facility. Dewatered fluids will not be recharged back to the land surface or subsurface of the Site.

Discharge of water generated during remedial construction to surface waters (i.e. a local pond, stream or river) is prohibited without a SPDES permit.

5.4.8 Demarcation

After the completion of soil removal and any other invasive remedial activities and prior to backfilling, a land survey will be performed by a New York State licensed surveyor. The survey will define the top elevation of soil exceeding the Track 4 Site-specific SCOs. A physical demarcation layer, consisting of orange snow fencing material or equivalent material will be placed below the clean subbase gravel composite cover system in all areas outside the Mehadrin Dairy building footprint to provide a visual reference. This demarcation layer will constitute the top of the 'Residuals Management Zone,' the zone that requires adherence to special conditions for disturbance of contaminated residual soils defined in the Site Management Plan. The survey will measure the grade covered by the demarcation layer before the placement of cover soils, pavement and sub-soils, structures, or other materials. This survey and the demarcation layer placed on this grade surface will constitute the physical and written record of the upper surface of the 'Residuals Management Zone' in the Site Management Plan. A map showing the survey results will be included in the FER and the SMP.

5.4.9 Backfill from Off-Site Sources

The remedial excavations will be backfilled with a combination of on-Site excavated subsurface soils and imported clean fill/clean subbase gravel for the soil cover. If backfill is required to establish the redevelopment grade, the bottom of the remedial excavations will be backfilled with stockpiled subsurface soils that do not exceed the Track 4 Site-specific SCOs. Imported clean fill will be used for the upper one foot of soil cover (minimum) in all areas not covered by the Mehadrin Dairy building structural foundation slab. Prior to transporting borrow material to the Site, a background check will be conducted on each borrow source site to identify past uses of the site and if there have been any reported Federal, State and local environmental violations. Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site. Each borrow source of clean fill will be tested to ensure that chemical concentrations are below applicable criteria defined in 6 NYCRR Part 375-6.7(d)(l)(ii)(b) and listed in Table 375-6.8(b). The fill material proposed for the area of the proposed parking lot will consist of gravel and processed aggregate placed as a subbase for the overlying bituminous concrete.

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site.

All imported soils will meet NYSDEC-approved backfill or cover soil quality objectives listed in 6NYCRR Part 375-6.8(b). Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved Remedial Action Work Plan or its approval by NYSDEC should be construed as an approval for this purpose.

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this Remedial Action Work Plan should be construed as an approval for this purpose.

Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers.

The FER will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan."

5.4.10 Stormwater Pollution Prevention

The Remedial Engineer, prior to contractor mobilization to the Site, will complete a Stormwater Pollution Prevention Plan (SWPPP), and Erosion and Sedimentation Control Plan (ESCP). The plans will conform to the requirements of NYSDEC Division of Water guidelines and all other applicable Federal, State and local regulations. The plans will include, at a minimum, the following information.

- Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.
- Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.
- All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.
- Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.
- Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

- Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

5.4.11 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs). These analyses will not be limited to Spills Technology and Remediation Services (STARS) parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic electronic media reports.

5.4.12 Community Air Monitoring Plan

The Site-specific Community Air Monitoring Plan (CAMP) is presented in Appendix H. The Site-specific CAMP will be implemented at the Site in accordance with all provisions of the NYSDOH Generic CAMP contained in Appendix 1A of DER-10, Generic Community Air Monitoring Plan. Continuous monitoring at fixed stations will be conducted for all ground intrusive remedial activities. Ground intrusive activities include remedial excavation, remedial backfilling, impacted soil handling, installation of any clean cover fill in areas of the proposed trailer parking lot and loading areas, and the installation of monitoring wells. Roving monitoring will be performed near remediation activities that are likely to generate dust and/or vapor. The locations of the fixed stations and roving sampling stations are presented in Figure 18. The exact locations monitored on a given day will be established based on the prevailing wind direction.

The CAMP establishes action levels for dust and VOCs that are protective of the surrounding community. Specific measures that will be taken during Site remediation work to comply with the CAMP are described in the following paragraphs.

5.4.12.1 VOC Monitoring, Response Levels and Actions

VOCs will be monitored at the downwind perimeter of the immediate Site on a continuous basis during ground intrusive activities. Upwind concentrations will be measured at the start of each workday and periodically afterwards to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contamination known or suspected to be present (i.e., Photoionization detector (PID)). The PID will be calibrated at a minimum daily using an appropriate surrogate. The PID will be capable of calculating 15-minute running average concentrations, which will be compared to the following action levels:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the Site exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the down gradient perimeter of the Site persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of the vapors identified, corrective actions will be taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the Site or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm background for the 15-minute average.
- If the total organic vapor level is above 25 ppm at the perimeter of the Site, activities will be shutdown.

All 15-minute readings will be recorded. Instantaneous readings, if any, used for decision purposes will also be recorded.

5.4.12.2 Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the Site at temporary particulate monitoring (PM) stations. The PM will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes or less for comparison to the airborne particulate actions levels. The equipment will be equipped with an audible and/or visual alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The following are the action levels for particulates:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (ug/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the Site.

If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ug/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentrations to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

5.4.12.3 Weather

A log of local weather observations (wind direction, temperature, and precipitation data) will be kept with observations taken coincidental with real-time air-quality measurements.

5.4.12.4 Reporting

All air monitoring data will be recorded and available for State (NYSDEC and NYSDOH) personnel to review.

Exceedances of the action levels contained in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report.

5.4.13 Odor, Dust and Nuisance Control Plan

In addition to the specific measures that will be taken during Site remediation work to comply with the CAMP, odor, dust and nuisance control plans will be implemented. These plans are presented in the following sections.

5.4.13.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site Personnel trained in making odor and dust observations and evaluations will monitor odors downwind of the exclusion zone.

If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the Applicant's Remedial Engineer, who is responsible for certifying the FER.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; (c) using foams to cover exposed odorous soils; (d) temporarily relocating work to an area with potentially lower emission levels; (e) reducing the excavation rate or changing the sequence of work activities; and (f) changing the work methods or equipment to alternatives that minimize air emissions. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (g) direct load-out of soils to trucks for off-Site disposal; (h) use of chemical odorants in spray or misting systems; and, (i) use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and

handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

5.4.13.2 Dust Control Plan

If the real-time perimeter particulate action levels are exceeded, Mehadrin Dairy, the Remedial Engineer or qualified environmental professional and the Contractor will consult to determine what type of dust suppression control action, specified in this dust control plan, is appropriate.

This dust control plan addresses dust management during invasive on-Site work. Actions that may be taken to reduce dust emissions include the following:

- Dust suppression will be achieved though the use of a dedicated on-Site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.
- Covering areas of exposed soils or stockpiles with tarpaulins
- Temporarily relocating work to an area with potentially lower dust emission levels.
- Reduce the excavation rate or change the sequence of work activities
- Change the work methods or equipment to alternatives that minimize dust emissions

In practice, these actions will typically be employed proactively to prevent action levels from being reached at the Site perimeter.

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

5.4.13.3 Other Nuisances

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to NYCDEP noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Since contaminated soil may be left in place, and contaminated ground water and soil vapor will exist beneath the Site after the remedy is complete, Engineering and Institutional Controls (ECs and ICs) are required to protect human health and the environment. These ECs and ICs are described hereafter.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) will have 3 primary EC systems. These are: an air sparging system/soil vapor extraction system; a soil vapor barrier/SSDS under the building foundation; and a composite cover system consisting of the building foundation and a minimum 1-foot thick clean fill/clean subbase gravel

Documentation samples (discussed in Section 5.2.1) collected from the sides and bottoms of the excavations will be used to characterize the remaining urban fill and native soils encapsulated by the cover system.

Long-term management of EC/ICs and of residual contamination will be executed under a Site-specific SMP that will be developed and included in the FER. The SMP will establish a set of procedures and restrictions to manage any potential future human exposure to soils left in place below the composite cover system, to ensure that the remedy remains protective of human health and the environment. The SMP will include the following ICs: (a) an Environmental Easement; (b) management of the composite cover system to restrict excavation below the building foundation and/or the demarcation barrier; (c) monitoring of ground water; (d) identification of any use restrictions on the Site; and (e) provisions for the continued proper operation and maintenance of the components of the remedy. The SMP will also include details for the operation of the ECs (including an air sparging/soil vapor extraction system and SSDS) and post-remedial ground water-monitoring program.

The FER will report residual contamination on the Site in tabular and map form. This will include presentation of exceedances of both Track 1 and Track 4 SCOs.

After the remedial excavation is completed and the FER has been approved by the NYSDEC, Mehadrin Dairy will perform periodic ground water sampling to monitor changes in ground water quality resulting from the remedy. The exact number and placement of post-remediation monitoring wells will be established subsequent to the completion of the construction activities on the Site. During each sampling round, samples from each well will be tested for VOCs, SVOCs, and metals. Ground water samples will be collected quarterly for the duration of the operation of the AS/SVES, and for a minimum of two years after the shut down of the system. The first sampling round will be performed three months after construction is completed. The post-remedial ground water-monitoring program will be discussed in detail in the SMP.

7.0 ENGINEERING CONTROLS: COMPOSITE COVER SYSTEM

7.1 COMPOSITE COVER SYSTEM

Exposure to any residual contaminated soils will be prevented by an engineered, composite cover system that will be built on the Site. This composite cover system will be comprised of the building foundation and a minimum 1-foot thick clean fill/clean subbase gravel in all areas outside the boundary of the building footprint. A demarcation barrier will be placed below the clean fill/clean subbase gravel fill cover in all areas outside the Mehadrin Diary building foundation footprint (see Section 5.4.8).

A map showing the areal distribution of each of the cover types to be built at the Site is included in Figure 14.

A Soil Management Plan will be included in the Site Management Plan and will outline the procedures to be followed in the event that the composite cover system and underlying residual contamination are disturbed after the Remedial Action is complete.

Maintenance of this composite cover system will be described in the Site Management Plan in the FER.

8.0 ENGINEERING CONTROLS: TREATMENT SYSTEMS

This section presents a detailed description of the methods for implementation for each of the Engineering Controls to be utilized on-Site. All as-built drawings, diagrams, calculation and manufacturer documentation for treatment systems will be presented in the FER.

8.1 ENGINEERING CONTROL SYSTEMS

8.1.1 Criteria for Completion of Remediation/Termination of Remedial Systems

8.1.1.1 Composite Cover System

The composite cover system is a permanent engineering control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

8.1.1.2 Soil Vapor Barrier

The soil vapor barrier is a permanent control which will be placed under the structural foundation slab component of the proposed building to prevent potential soil vapor from penetrating into the building.

8.1.1.3 Sub-Slab Depressurization System (SSDS)

The SSDS has been designed to mitigate soil vapor intrusion into the proposed building. The active SSDS will not be discontinued without written approval of the NYSDEC and NYSDOH. A proposal to discontinue the active SSDS may be submitted by the property owner based on confirmatory data that justifies such request. Systems will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

8.1.1.4 Air Sparging/Soil Vapor Extraction System (AS/SVE) System

The AS/SVE system has been designed to remediate dissolved phase VOCs in ground water and adsorbed phase VOCs in soil on Site. In addition, the SVE system will provide the necessary sub slab depressurization to prevent the migration of VOCs into the Site building (i.e., the SVE system and SSDS will be operated as one system).

The AS portion of the system will be comprised of 24 shallow and 24 deep air sparging wells installed in alternating banks of six air sparge wells each across the Site. The purpose of the alternating deep and shallow AS wells is to improve the vertical mixing of ground water and ensure a more efficient treatment of VOC impacts.

The AS wells will be installed via hollow stem auger drilling techniques utilizing 4.25 inch inside diameter augers. The AS wells will be constructed of one inch diameter poly vinyl chloride (PVC) schedule 40 piping. A two foot long, 10 slot screen will be installed to a depth of twenty feet bgs for the shallow AS wells and 40 feet bgs for the deep AS wells. Flush jointed solid riser will complete the AS wells to grade. A number 2 Morie Sand filter pack will be installed to one foot above the screen section with two feet of hydrated bentonite chips placed above the filter pack. A 15% bentonite/cement grout will be installed above the bentonite chip seal to a depth of four feet bgs. The 15% bentonite added to the cement will prevent grout shrinkage from the AS well and the borehole annulus as well as prevent heat of hydration from potentially damaging the PVC pipe.

Compressed ambient air will be delivered to the AS wells via two inch diameter polyethylene piping. Each two inch trunk line will carry compressed air from the AS manifold in the treatment area to 6 AS wells. One-inch diameter polyethylene feed lines will be connected from each AS well to the appropriate reduction fitting to the trunk line. Timer controlled solenoid valves will control the distribution of compressed air to pairs of trunk lines for preset intervals designated by the Remedial Engineer. Shutdown intervals will be accommodated into the timer schedule to allow for proper cooling of the compressor. AS well locations, piping plans, and construction details are included in Sheet Numbers EX1 and EX2 presented in Appendix D.

The arrangement of the AS wells is based on BL Companies Architects Engineers Landscape Architects Surveyors PC experience at sites with similar lithology and contaminant concentrations. A conservative radius of influence (ROI) of 25 feet was selected. A pilot test will be conducted at the Site prior to construction. Based on the Site specific ROI measured during pilot testing, the spacing of AS wells will be modified accordingly.

Additional vertical plume delineation will be conducted at the Site prior to remediation system construction. The depth of the deep AS wells proposed were based on conservative estimates of potential deep contaminants based on the historic assessment and analytical data collected at the Site. The combination of hot spot removal, the shallow and deep AS well configuration, and the diffusion of contaminants under active remediation are expected to reduce contaminant concentrations to below NYSDEC standards quickly and effectively based on our experience.

The SVE/SSDS will provide for collection and treatment of soil vapors. The SVE/SSDS will be constructed with eight lateral slotted pipe sections individually manifolded in an alternating pattern to two single stage regenerative vacuum blowers.

The purpose of alternating the lateral SVE/SSDS sections and the use of two independent vacuum blowers is to maintain the negative pressure gradient under the entire building in the event of a mechanical failure of one of the vacuum blowers. Each SVE/SSDS lateral will consist of one 50-foot section of 20-slot three-inch diameter PVC screen wrapped with filter fabric, and set at approximately three feet bgs. Each lateral will be connected to its respective SVE/SSDS header in the treatment area with three inch diameter solid PVC piping. As illustrated in the detail drawings attached in Appendix D, the odd numbered and even numbered SVE/SSDS laterals will be connected to independent single stage regenerative vacuum blowers. This will provide for the maintenance of subslab depressurization across the entire building in the event of one of the vacuum blowers has a mechanical failure. Integrated interlocks incorporated into the SVE/SSDS design will immediately shut off the compressed air flow to the AS system in the event of either vacuum blower shutting down.

The above ground equipment will include a Kaeser™ SX-7 rotary screw air compressor capable of delivering 32 cubic feet per minute (CFM) at 100 pounds per square inch (PSI) pressure, or approved equivalent, to supply the compressed air for the AS system. The compressor will be coupled to a minimum 80-gallon receiver tank equipped with an automatic condensate drain valve. The specified air compressor will be capable of delivering adequate compressed air to operate at least two AS trunk lines simultaneously. Timer controlled solenoid

valves will activate and deactivate the selected AS trunk lines as well as allow for compressor cool down periods to prevent excessive wear on the compressor. The flow of compressed air to each trunk line will be controlled by a manually operated ball valve piped in line with a Dwyer Rate-Master™ flow meter capable of measuring flow rates between two and twenty CFM. One inch diameter copper piping will be used for the construction of the AS system header including the solenoid valves, ball valves, and flow meters to dissipate heat from the compressor prior to air flow entering any non metallic piping to prevent long term degradation of the underground piping.

The AS wells will be manifolded underground in balks of six wells each. The injection flow rate at each AS well is intended to be between 2 and 2.5 CFM, or the equivalent of 12 to 15 CFM per well bank. The air compressor specification is based on the operation of two banks simultaneously during each operational cycle requiring 24 to 30 CFM. One dedicated flow meter will be installed to monitor and balance the flow rate at each bank. The use of flow meters with a range of 2 to 20 CFM will allow for the most accurate measurement and control of the airflow.

The SVE/SSDS will utilize two Gast™ R6P350A single stage regenerative vacuum blowers, or approved equivalent, independently manifolded to four SVE/SSDS laterals each. The specified vacuum blowers are designed to maintain 150 CFM of flow at 60 inches of water column. Each independent system will have a water knockout tank with a minimum ten-gallon capacity and a ball float shut off mechanism, followed by an in-line particulate filter to prevent water or particle damage to the vacuum blowers. Vacuum relief valves will be installed after the water knockout tanks and particle filters to protect the vacuum blowers from an overload if physical blockage were to occur. Each SVE/SSDS lateral will be outfitted with a ball valve for flow adjustment and a sample port for flow measurement with a hand held anemometer to ensure balanced flow across the system.

A Dwyer Flotect™ vane operated flow switch, or approved equivalent, will be installed on the inlet of each vacuum blower after the water knockout and particle filter but before the relief valve to detect air flow stoppage of the vacuum blower either due to physical blockage or

mechanical failure. A reduction in airflow to 50% of the design flow at either vacuum blower will instantly close a solenoid controlled valve on the air compressor receiver tank to prevent air flow to the AS system. The signal will also trigger an alarm sequence notification so that repairs can be initiated. The process flow of the SVE/SSDS is illustrated on Sheet EX-2 presented in Appendix D.

The operation, maintenance, and monitoring (OM&M) of the entire system will include monthly inspections of all operational parameters and the correction of any operational faults. Specifically, the compressor for the AS system will be inspected and serviced following the manufacturers guidelines for filter and fluid changeouts. Each trunk line will be manually activated to check that flow rates and pressure measurements are within design specifications, as well as to ensure that all solenoid valves are functioning properly. The system will be adjusted accordingly to correct any deviation from the design specification.

Inspection of the SVE/SSDS will include draining any water from the knockout tanks, inspecting the particulate filters, testing of the air relief valves and the interlock AS shutdown system for proper operation. In addition, airflow rates and vacuum will be measured at each SVE/SSDS lateral and adjusted as necessary to specified airflow rates. Influent and effluent VOC concentrations will be measured with a hand held photoionization detector (PID) to ensure there are no exceedances of NYSDEC Ambient Air Quality Guidance.

Sample ports consisting of one-quarter inch diameter ball valves will be installed in the piping on the discharge side of each SVE blower prior to any treatment vessels and in the piping after the treatment vessels. The sample ports will provide access for the collection of off gas samples for laboratory analysis as needed and for field screening during routine operation and maintenance inspections.

The AS and SVE/SSD system will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the system may be submitted by the property owner after residual contamination concentrations in ground water: (1) are cleaned up to levels below NYSDEC standards, (2) have become asymptotic over an extended period of time as mandated by the NYSDEC and the NYSDOH, or (3) if NYSDEC has determined that the

AS and SVE/SSD system has reached the limit of its effectiveness. This assessment will be based in part on post-remediation contaminant levels in ground water collected from monitoring wells located throughout the Site. Systems will remain in place and operational until permission to discontinue their use is granted in writing by NYSDEC and NYSDOH. These sampling/monitoring activities will adhere to stipulations outlined in the Monitoring Plan section of the SMP.

9.0 INSTITUTIONAL CONTROLS

After the remedy is complete, the Site will have residual contamination remaining in place. Engineering Controls (ECs) for the residual contamination have been incorporated into the remedy to render the overall Site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan. These elements are described in this Section. A Site -specific Environmental Easement will be recorded with Kings County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. The Environmental Easement requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

9.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. If the Site will have residual contamination after completion of all Remedial Actions then an Environmental Easement is required. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the Kings County Clerk. The Environmental Easement will be submitted as part of the FER.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with the Kings County Clerk before the Certificate of Completion can be issued by NYSDEC. A series of Institutional Controls are required under this remedy to implement, maintain and monitor these Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use

of the Site to commercial use(s) only (which would also permit Industrial use(s)). These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantor and the Grantor's successors and adherence of all elements to the SMP is required;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- The composite cover system must be inspected, certified and maintained as required in the SMP;
- A soil vapor mitigation system consisting of a sub-slab depressurization system under all building structures must be inspected, certified, operated and maintained as required by the SMP;
- The AS and SVE/SSD system must be inspected, certified, operated and maintained as required by the SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Ground water, soil vapor, and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

- On-Site environmental monitoring devices, including but not limited to, ground water monitor wells and soil vapor probes, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.
- The property owner will provide annual certification of institutional and engineering controls, prepared and signed by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the SMP unless otherwise approved by the NYSDEC.

The institutional controls will only apply to the area within the boundary of the Site being remediated under the BCA between the Volunteer and the NYSDEC.

Adherence to these Institutional Controls for the Site is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Raising of livestock or producing animal products for human consumption is prohibited;
- Single family housing is prohibited;

- Use of ground water underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose. Approval by the New York State Department of Health must be obtained prior to any such intended purpose. All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the Site Management Plan;
- The Controlled Property may be used for restricted commercial use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan are employed;
- The Controlled Property may not be used for a higher level of use, such as restricted residential use without an amendment or extinguishment of this Environmental Easement;
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.

9.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report (FER) and issuance of the Certificate of Completion for the Remedial Action. The Site Management Plan is submitted as part of the FER but will be written in a

manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the Site Management Plan are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

The Site Management Plan in the FER will include a monitoring plan for ground water at the down-gradient Site perimeter and monitoring of the soil vapor extraction system discharge to

evaluate Site-wide performance of the remedy. Appropriately placed ground water monitoring wells will be installed hydraulically downgradient of all VOC remediation areas for the purpose of evaluation of the effectiveness of the remedy that is implemented. No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

10.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The FER will include as-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the FER review.

The FER will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a

map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in portable document format (PDF) on electronic media.

10.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the FER. The certification will be signed by the Remedial Engineer (Guy LaBella) who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I, Guy LaBella, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for the 353 McKibbin Street Site (NYSDEC BCA Index No. W2-1054-05-03, Site No. C224102).

I certify that the Site description presented in this FER is identical to the Site descriptions presented in the Environmental Easement, the Site Management Plan, and the Brownfield Cleanup Agreement for 353 McKibbin Street and related amendments.

I certify that the Remedial Action Work Plan dated [month day year] and Stipulations [if any] in a letter dated [month day year] and approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with.

I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the Site are contained in an Environmental Easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. A Site Management Plan has been submitted by the Applicant for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the NYSDEC.

I certify that the export of all contaminated soil, fill, water or other material from the property was performed in accordance with the Remedial Action Work Plan, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that all import of soils from off-Site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.

I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remedial Action Work Plan.

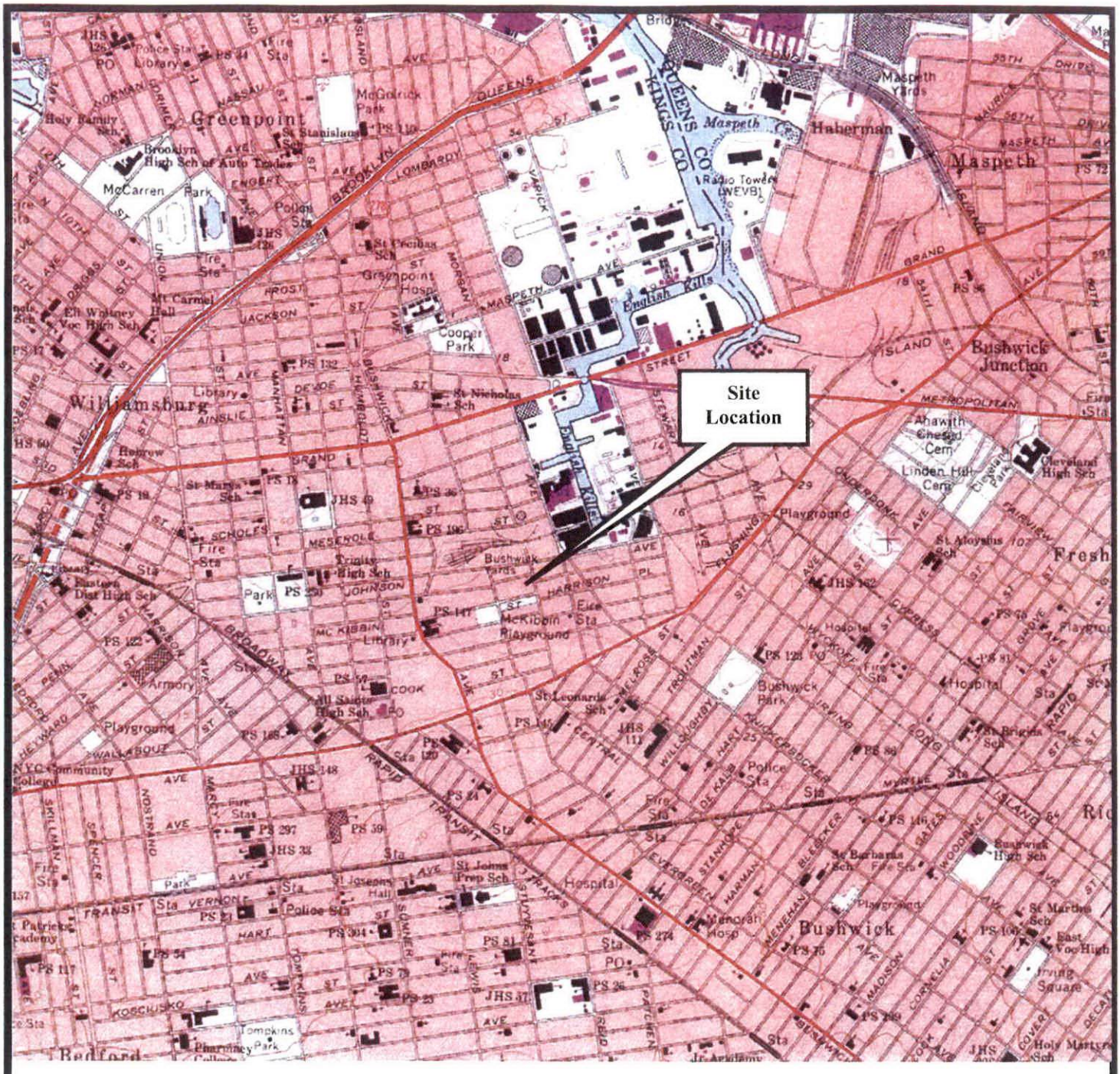
I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

11.0 SCHEDULE

A preliminary schedule of major construction submittals, remedial implementation and post-construction reporting is presented in Table11. The schedule is referenced in months from stakeholder review of the RAWP to the NYSDEC review of the FER and SMP. Based of the schedule, the total estimated projected duration from RAWP approval to NYSDEC review of the FER and SMP is 11 months.

FIGURES



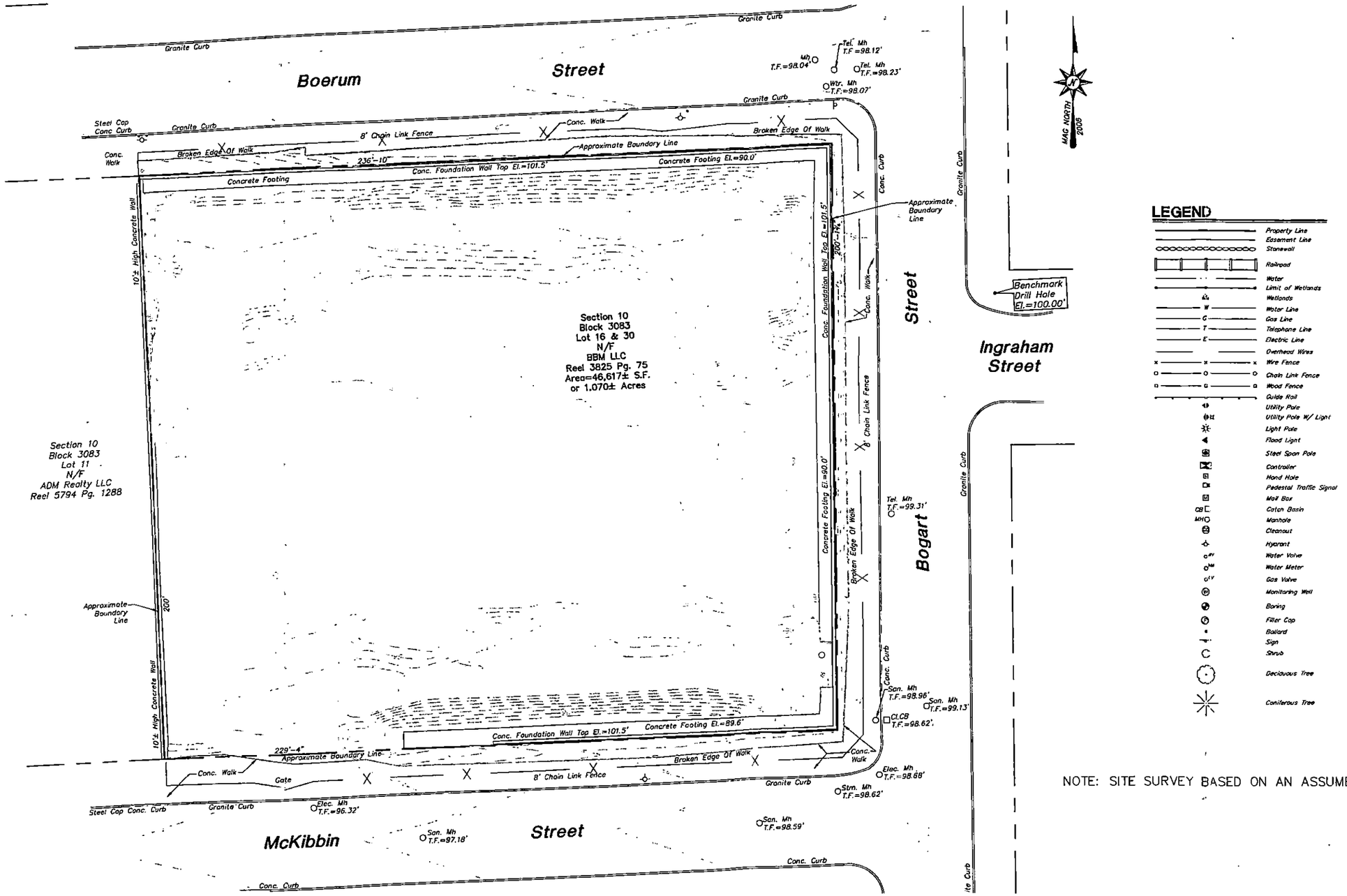
Base map is a reproduction of the U.S.G.S. 7.5 Minute Topographic Quadrangle of Brooklyn, New York, 1967, photorevised 1979.

N

BL Companies

FIGURE 1
SITE LOCATION MAP
PROPOSED MEHADRIN DAIRY FACILITY
NYSDEC BCP SITE No. C224102
353 McKIBBIN STREET
CITY OF NEW YORK, KINGS COUNTY, BROOKLYN, NEW YORK

Project No. 05L0567



LEGEND

- Property Line
- Easement Line
- Stonewall
- Railroad
- Water
- Limit of Wetlands
- Wetlands
- W — Water Line
- G — Gas Line
- T — Telephone Line
- E — Electric Line
- Overhead Wires
- Wire Fence
- Chain Link Fence
- Wood Fence
- Guide Rail
- Utility Pole
- Utility Pole W/ Light
- Light Pole
- Flood Light
- Steel Span Pole
- Controller
- Hand Hole
- Pedestal Traffic Signal
- Mail Box
- CB — Catch Basin
- MH — Manhole
- Cleanout
- Hydrant
- WV — Water Valve
- WM — Water Meter
- GV — Gas Valve
- M — Monitoring Well
- Boring
- Filler Cap
- Bollard
- Sign
- C — Shrub
- Deciduous Tree
- Coniferous Tree

NOTE: SITE SURVEY BASED ON AN ASSUMED DATUM.

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ARCHITECTURE
ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ENVIRONMENTAL SCIENCES

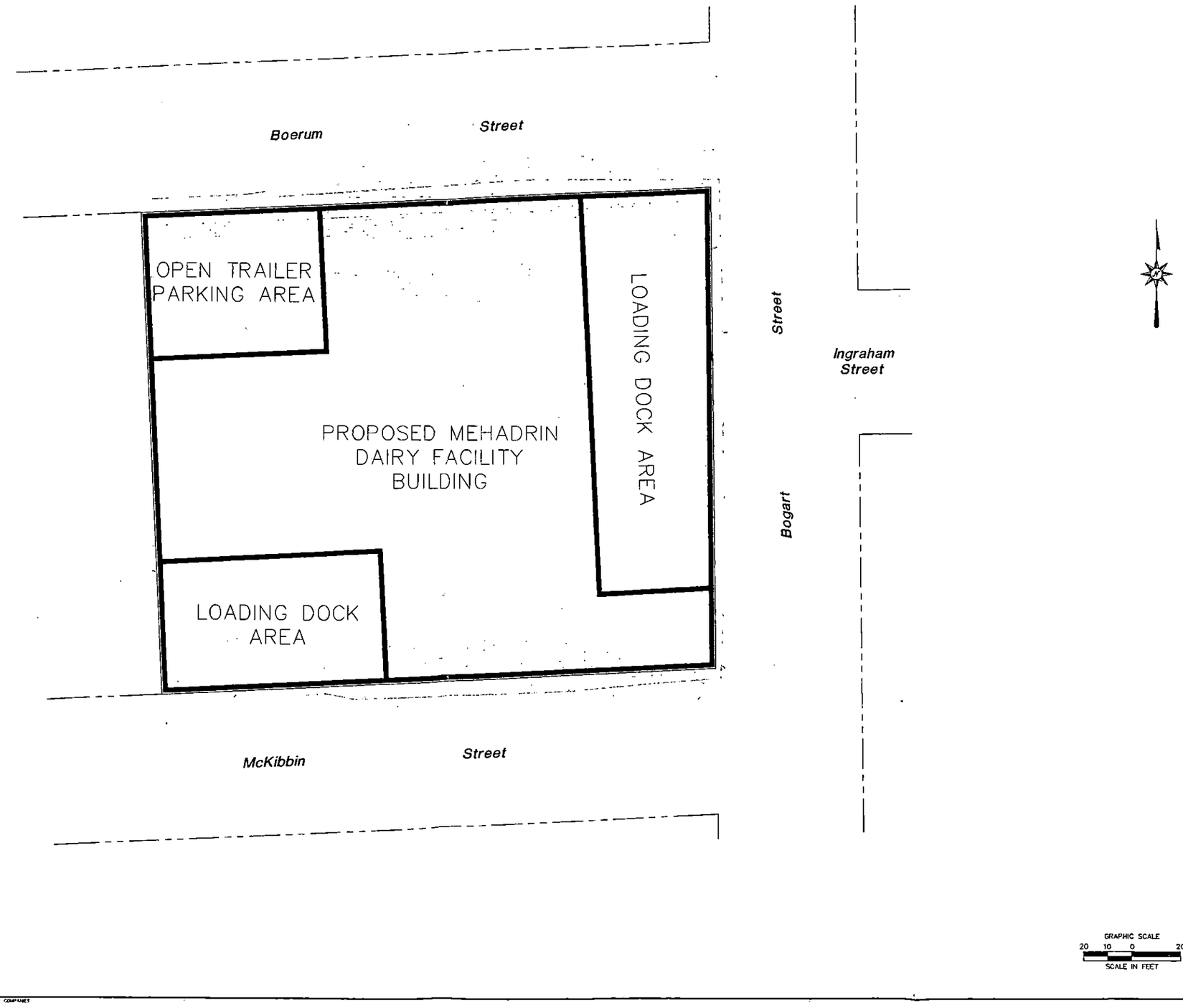
355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

SITE PLAN

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	X.X.X.
Drawn	S.R.L.
Checked	
Approved	
Scale	1"=36'
Project No.	03L849
Date	12/31/03
CAD File	FIGURE 2

FIGURE 2



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ARCHITECTURE
ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ENVIRONMENTAL SCIENCES

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2815 Fax

PROPOSED MEHADRIN DAIRY FACILITY
LAND AT
353 McKIBBIN STREET
CITY OF NEW YORK,
KINGS COUNTY, BROOKLYN, NEW YORK

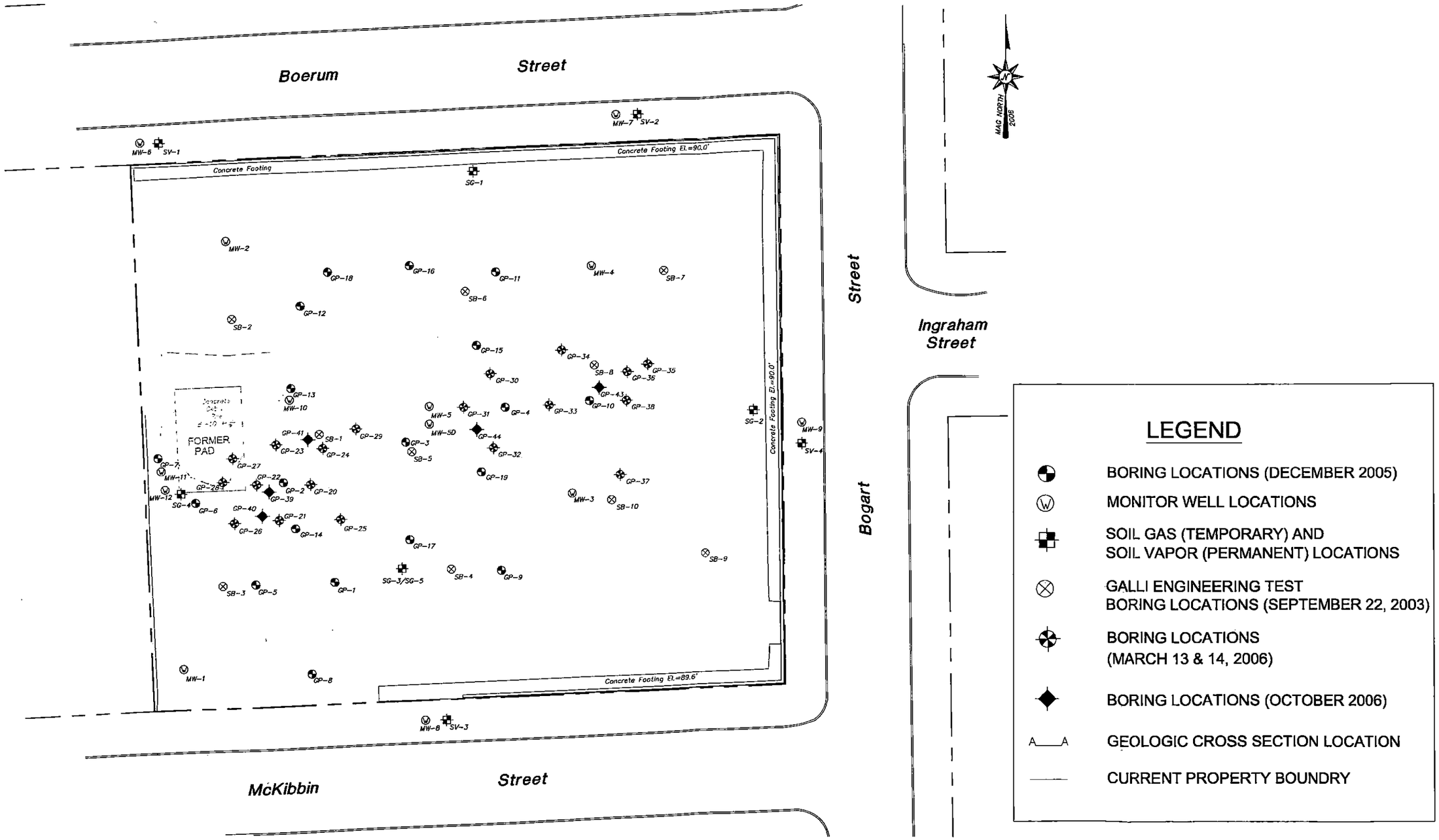
No.	Revision	Date

Designed
Drawn
Checked
Approved
Scale 1" = 20'
Project No 1151U56
Date 5 30 08
CAD File FIGURE 3

Title
SITE RE-DEVELOPMENT PLAN

Sheet No.
FIGURE 3

THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF BL COMPANIES



LEGEND

- BORING LOCATIONS (DECEMBER 2005)
- MONITOR WELL LOCATIONS
- SOIL GAS (TEMPORARY) AND SOIL VAPOR (PERMANENT) LOCATIONS
- GALLI ENGINEERING TEST BORING LOCATIONS (SEPTEMBER 22, 2003)
- BORING LOCATIONS (MARCH 13 & 14, 2006)
- BORING LOCATIONS (OCTOBER 2006)
- A—A GEOLOGIC CROSS SECTION LOCATION
- CURRENT PROPERTY BOUNDRY

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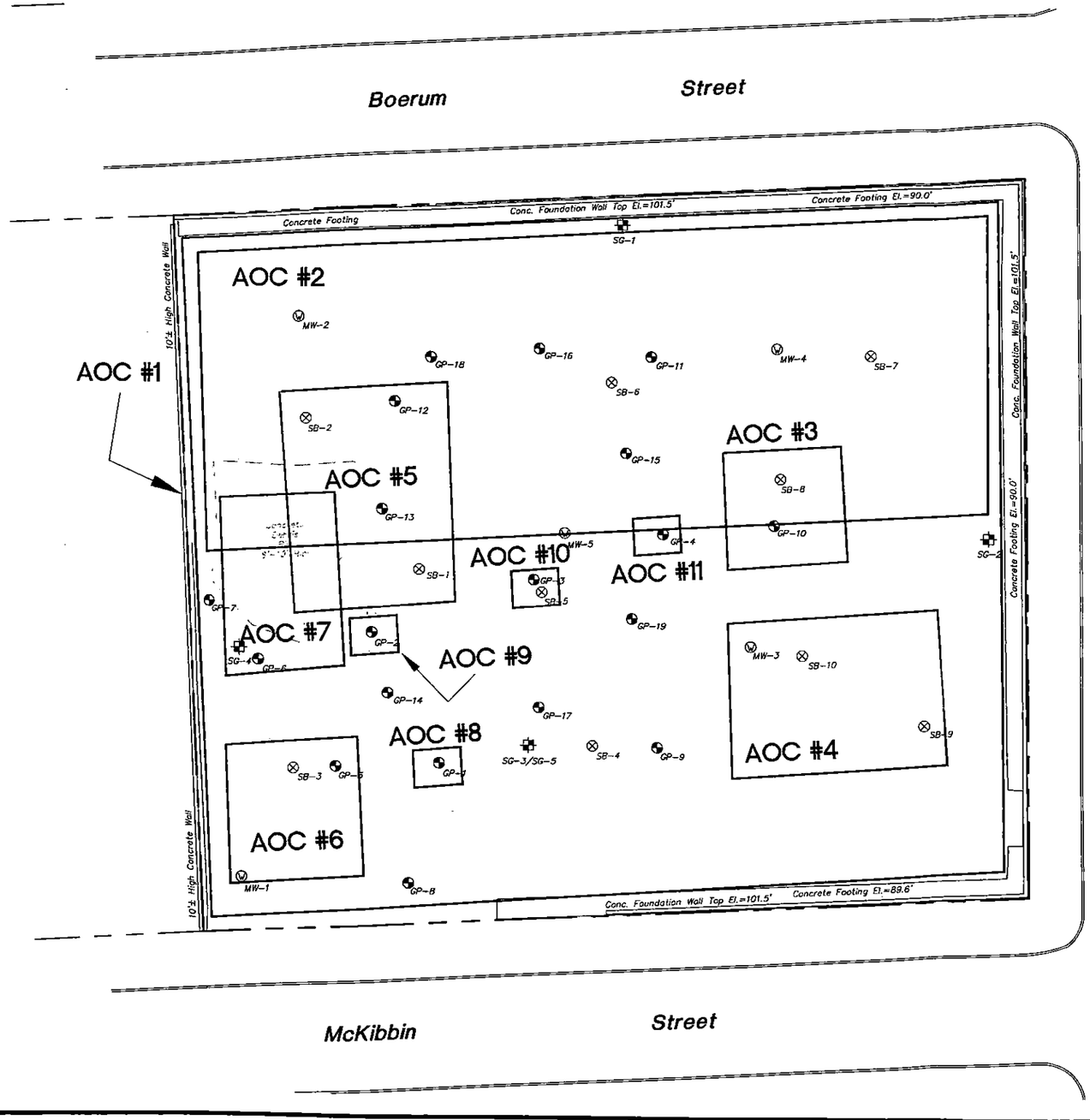
TEST BORING AND MONITOR WELL LOCATION MAP

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BROOKLYN, NEW YORK

Designed	X.X.X.
Drawn	S.R.L.
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Approved	
Scale	1"=40'
Project No.	05L0567
Date	12/31/03
CAD File	FIGURE 4

XREF(s): XXXXXXXX

FIGURE 4



LEGEND

- BORING LOCATIONS
- MONITOR WELL LOCATIONS
- SOIL GAS LOCATIONS
- GALLI ENGINEERING TEST BORING LOCATIONS (SEPTEMBER 22, 2003)
- AREA OF CONCERN

AOC #1

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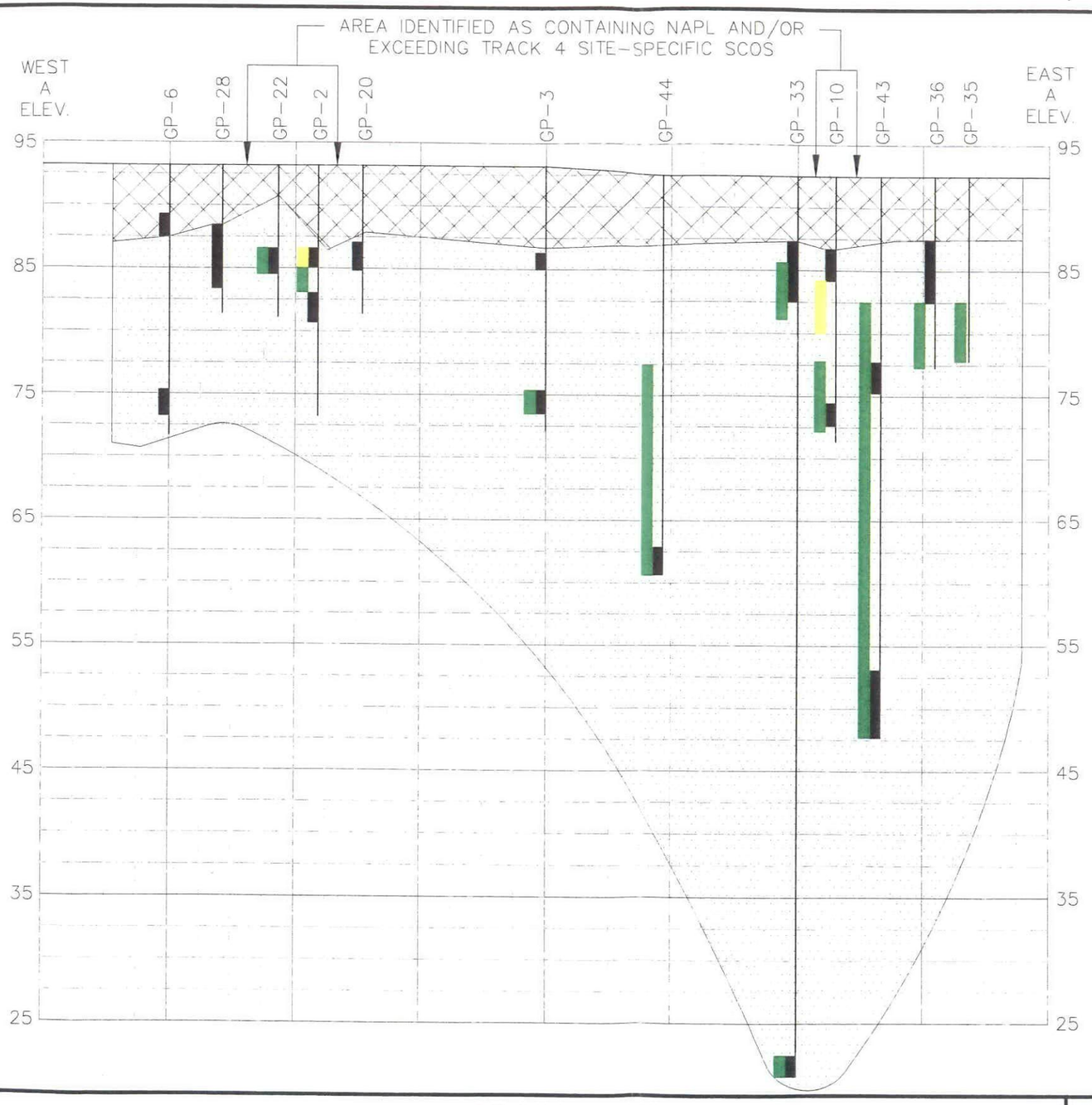
AREAS OF CONCERN

MEHADRIN / BCP SITE No. C224102
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Designed	N.C.T.
Drawn	J.A.B.
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Date	12/15/06
CAD File	FIGURE 5

FIGURE 5

XREF(s): XXXxxxxx



VERTICAL

10 5 0 10

SCALE IN FEET

HORIZONTAL

30 15 0 30

SCALE IN FEET

LEGEND

- FILL
- SAND AND SILT
- NAPL
- PETROLIUM-LIKE STAINING AND/OR ODOR
- CONTACT
- GP-2 — SOIL BORING IDENTIFICATION
- ANALYTICAL SOIL SAMPLE INTERVAL

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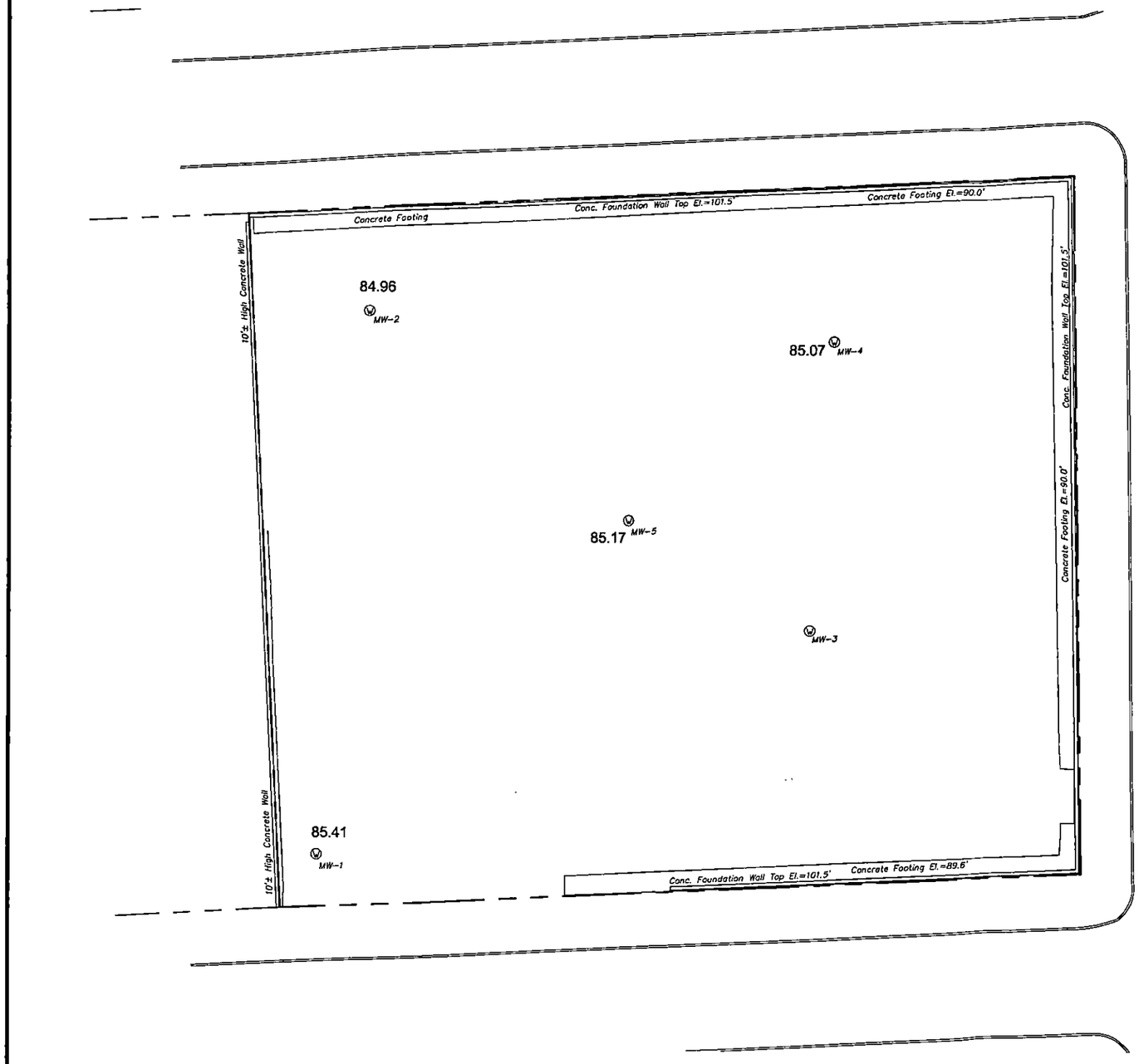
CROSS-SECTION A-A

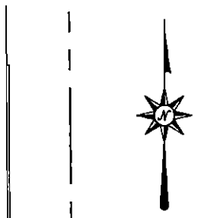
MEHADRIN / BCP SITE No. C224102
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Designed	J.A.B.
Drawn	J.A.B.
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Scale	AS SHOWN
Project No.	05L0567
Date	05/21/08
CAD File	FIGURE 6

XREF(s): XXXXXXXX

FIGURE 6





LEGEND

- MW — MONITOR WELL LOCATIONS
- 85.20 — GROUND WATER ELEVATION CONTOUR IN FEET (DASHED WHERE INFERRED)
- GW FLOW DIRECTION

NOTE: GROUND WATER ELEVATIONS BASED ON AN SSUMED DATUM.

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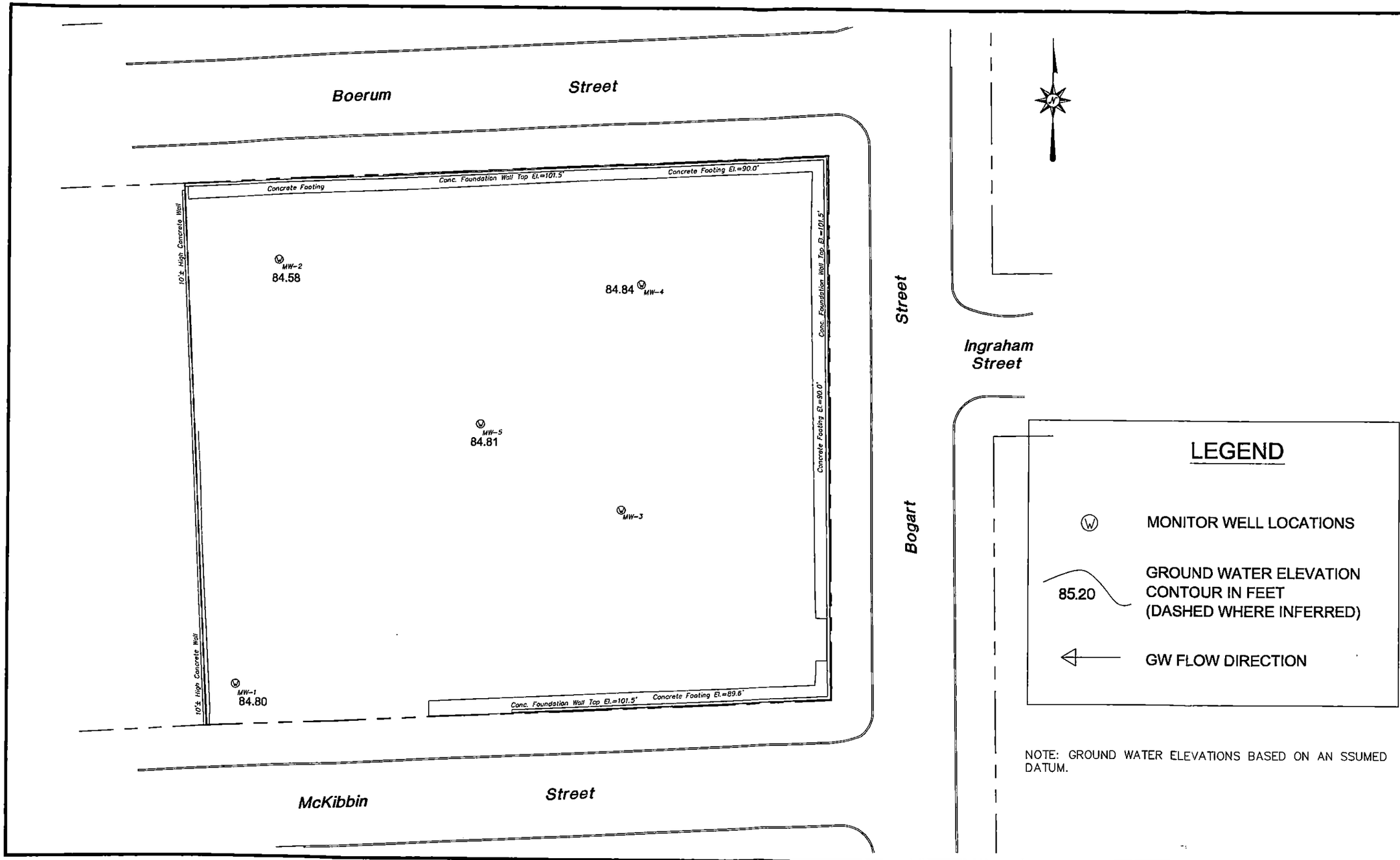
SHALLOW GW TABLE ELEVATION CONTOUR MAP - 11/23/05

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
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Drawn	N.C.T.
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Scale	1"=36'
Project No.	05L0567
Date	3/1/07
CAD File	FIGURE 7A

XREF(s): XXXXXXXX

FIGURE 7A



NOTE: GROUND WATER ELEVATIONS BASED ON AN SSUMED DATUM.

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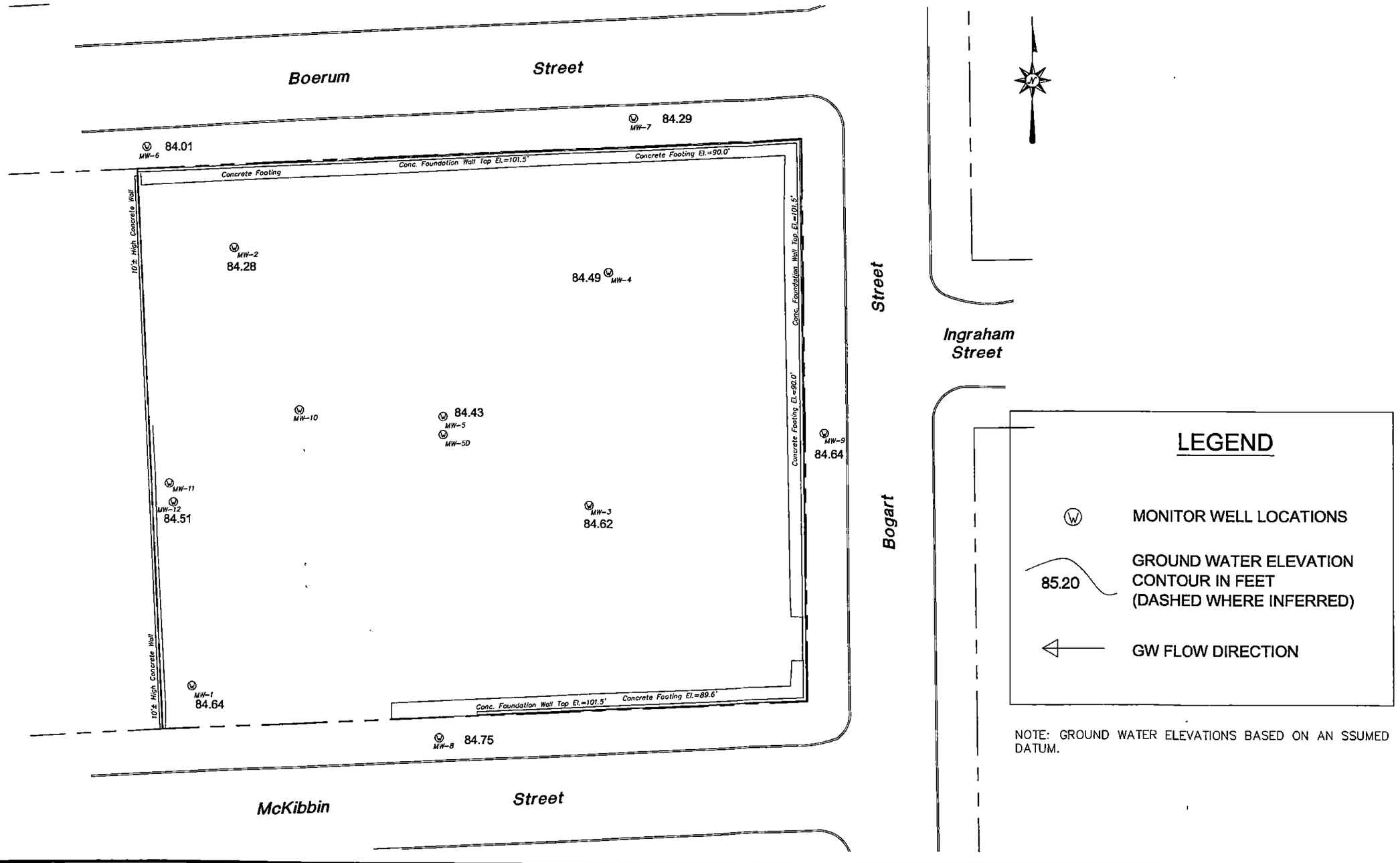
SHALLOW GW TABLE ELEVATION CONTOUR MAP - 12/14/05

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	C.S.
Drawn	N.C.T.
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Scale	1"=36'
Project No.	05L0567
Date	3/1/07
CAD File	FIGURE 7B

FIGURE 7B

XREF(s): XXXXXXXX



NOTE: GROUND WATER ELEVATIONS BASED ON AN SSUMED DATUM.

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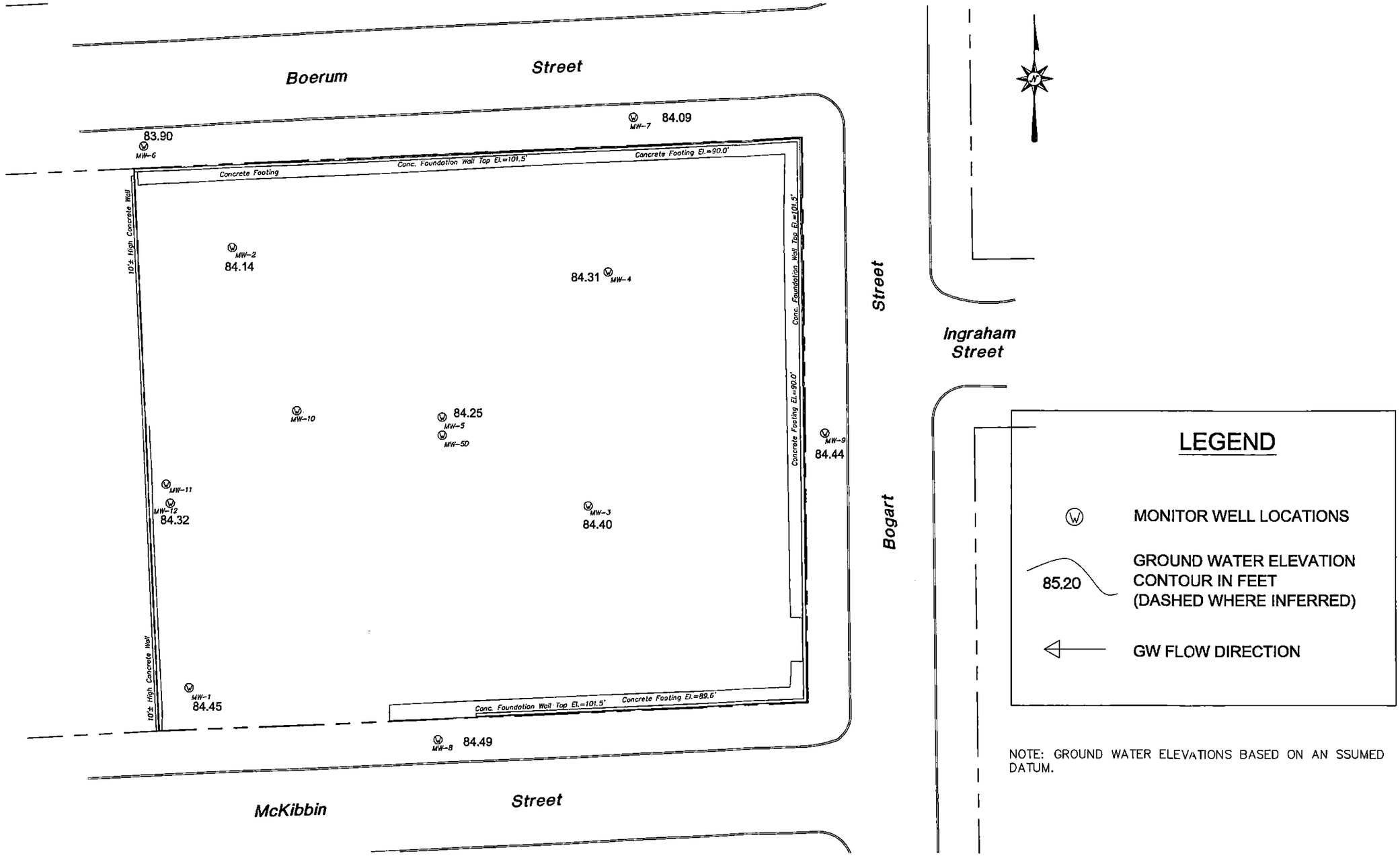
SHALLOW GW TABLE ELEVATION CONTOUR MAP - 11/16/06

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	J.A.B.
Drawn	J.A.B.
Checked	
Approved	
Scale	1"=36'
Project No.	05L0567
Date	3/1/07
CAD File	FIGURE 7C

FIGURE 7C

XREF(s): XXXXXXXX



NOTE: GROUND WATER ELEVATIONS BASED ON AN SSUMED DATUM.

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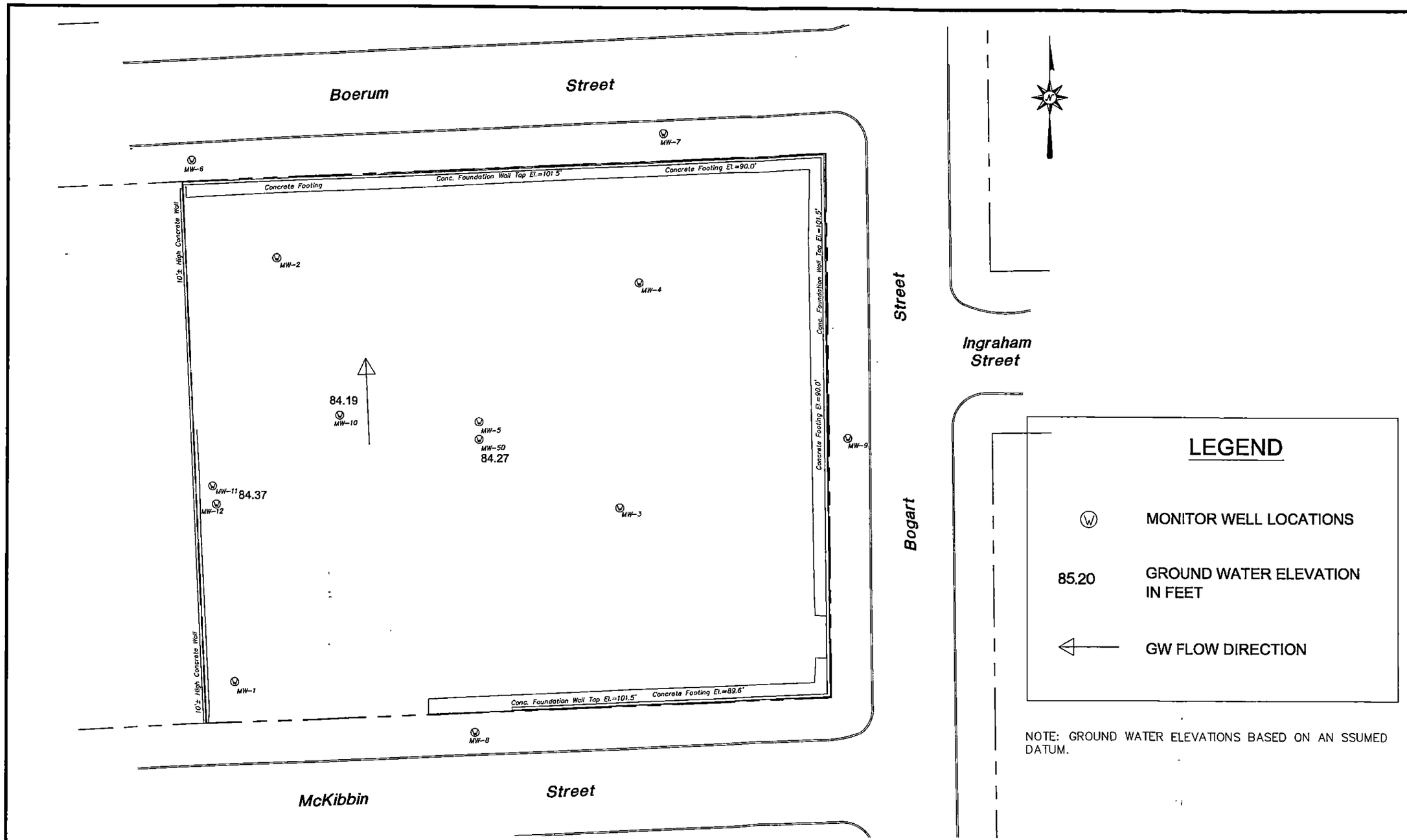
SHALLOW GW TABLE ELEVATION CONTOUR MAP - 1/3/07

MEHADRIN / BCP SITE No. C224102
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Designed	J.A.B.
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Scale	1"=36'
Project No.	05L0567
Date	3/1/07
CAD File	FIGURE 7D

FIGURE 7D

XREF(s): XXXXXXXX



NOTE: GROUND WATER ELEVATIONS BASED ON AN SSUMED DATUM.

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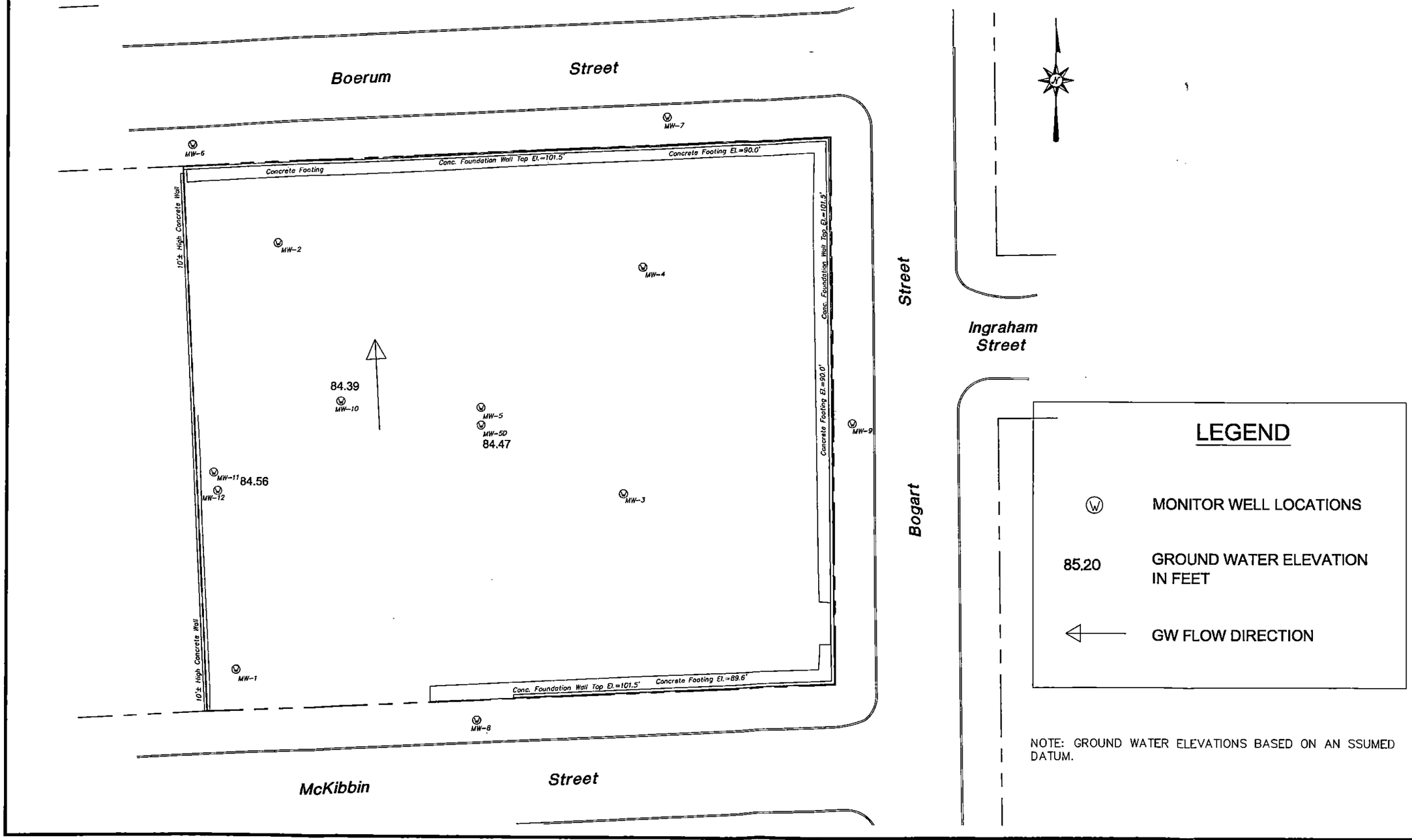
DEEP GROUND WATER ELEVATION CONTOUR MAP - 1/3/07

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	J.A.B.
Drawn	J.A.B.
Checked	
Approved	
Scale	1"=36'
Project No.	05L0567
Date	3/1/07
CAD File	FIGURE 8B

XREF(s): XXXXXXXX

FIGURE 8B



LEGEND

Ⓦ	MONITOR WELL LOCATIONS
85.20	GROUND WATER ELEVATION IN FEET
←	GW FLOW DIRECTION

NOTE: GROUND WATER ELEVATIONS BASED ON AN SSUMED DATUM.

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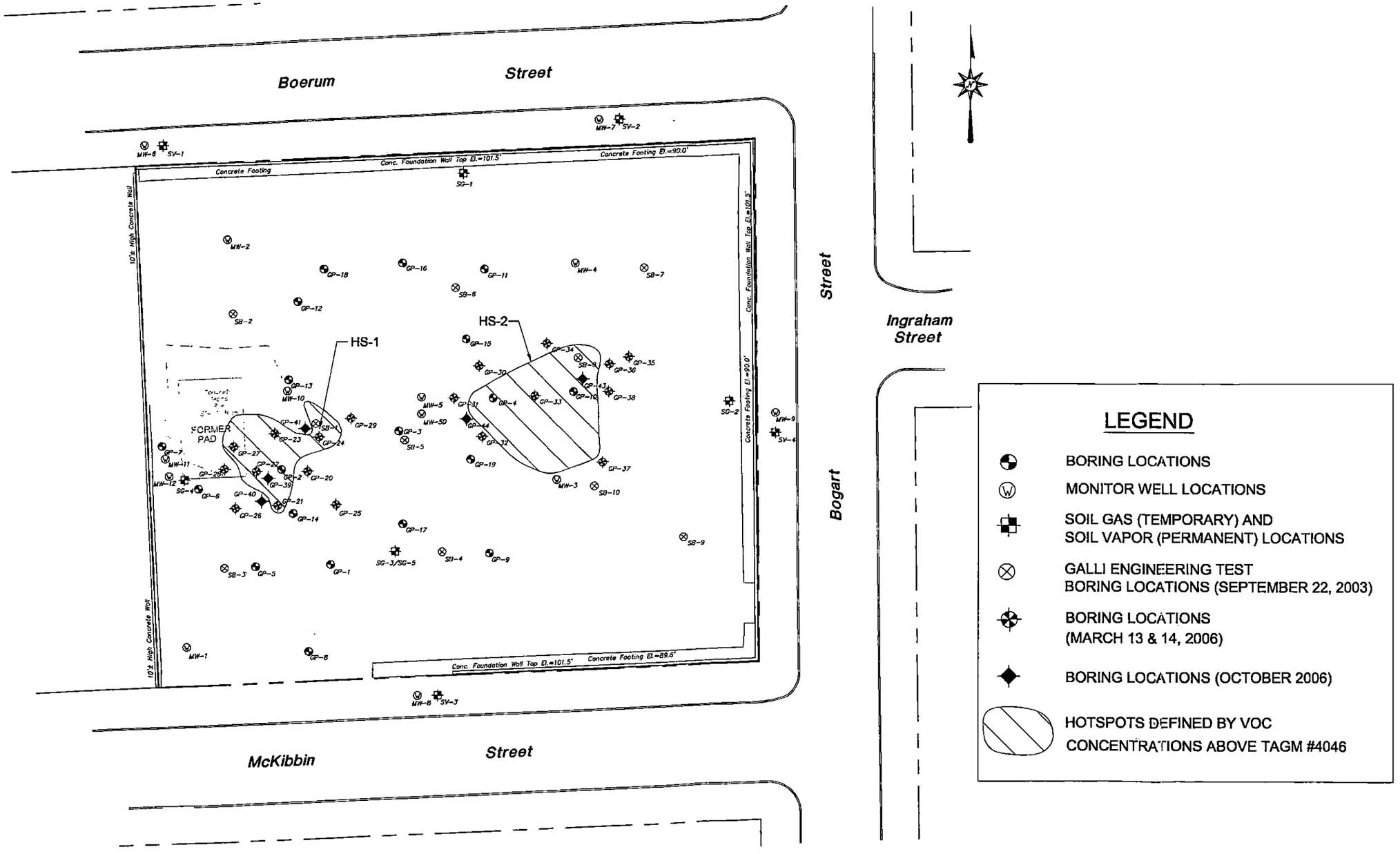
DEEP GROUND WATER ELEVATION CONTOUR MAP - 11/16/06

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	J.A.B.
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Scale	1"=36'
Project No.	05L0567
Date	3/1/07
CAD File	FIGURE 8A

XREF(s): XXXXXXXX

FIGURE 8A



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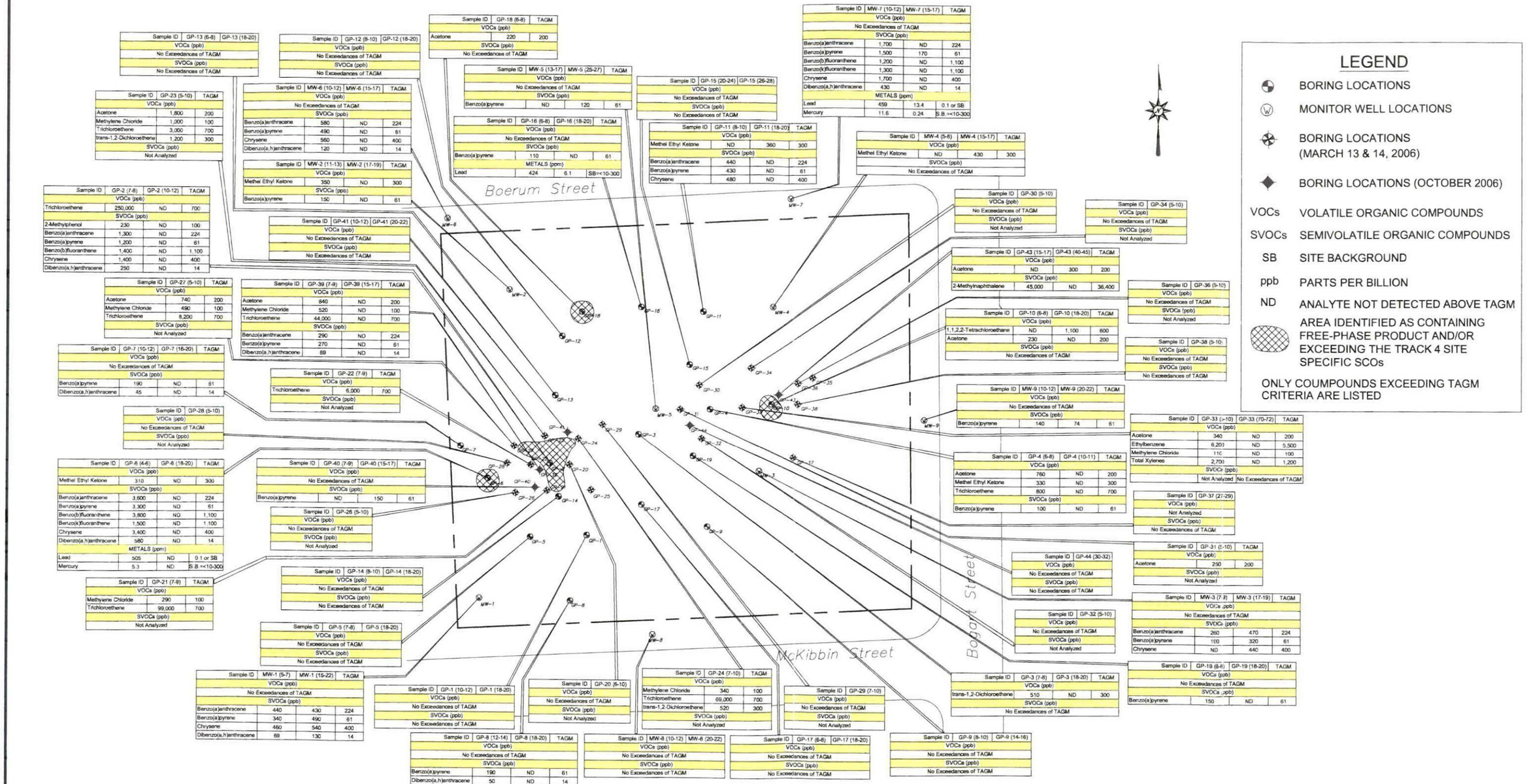
HOTSPOT LOCATION MAP

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	N.C.T.
Drawn	N.C.T.
Checked	
Approved	
Scale	1"=40'
Project No.	05L0567
Date	03/07/2007
CAD File	FIGURE 9

XREF(s): XXXXXXXX

FIGURE 9



Sample ID	GP-13 (6-8)	GP-13 (18-20)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-12 (8-10)	GP-12 (18-20)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-18 (6-8)	TAGM
VOCs (ppb)		
Acetone	220	200
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-23 (5-10)	TAGM
VOCs (ppb)		
Acetone	1,800	200
Methylene Chloride	1,000	100
Trichloroethene	3,000	700
trans-1,2-Dichloroethene	1,200	300
SVOCs (ppb)		
Not Analyzed		

Sample ID	MW-6 (10-12)	MW-6 (15-17)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)anthracene	580	ND	224
Benzo(a)pyrene	490	ND	61
Chrysene	560	ND	400
Dibenzo(a,h)anthracene	120	ND	14

Sample ID	MW-5 (13-17)	MW-5 (25-27)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	ND	120	61

Sample ID	GP-15 (20-24)	GP-15 (26-28)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	MW-7 (10-12)	MW-7 (15-17)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)anthracene	1,700	ND	224
Benzo(a)pyrene	1,500	170	61
Benzo(b)fluoranthene	1,200	ND	1,100
Benzo(k)fluoranthene	1,300	ND	1,100
Chrysene	1,700	ND	400
Dibenzo(a,h)anthracene	430	ND	14
METALS (ppm)			
Lead	459	13.4	0.1 or SB
Mercury	11.6	0.24	S.B.=<10-300

Sample ID	GP-16 (6-8)	GP-16 (18-20)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	110	ND	61
METALS (ppm)			
Lead	424	6.1	SB=<10-300

Sample ID	GP-11 (8-10)	GP-11 (18-20)	TAGM
VOCs (ppb)			
Methel Ethyl Ketone	ND	360	300
SVOCs (ppb)			
Benzo(a)anthracene	440	ND	224
Benzo(a)pyrene	430	ND	61
Chrysene	480	ND	400

Sample ID	MW-4 (5-8)	MW-4 (15-17)	TAGM
VOCs (ppb)			
Methel Ethyl Ketone	ND	430	300
SVOCs (ppb)			
No Exceedances of TAGM			

Sample ID	GP-2 (7-8)	GP-2 (10-12)	TAGM
VOCs (ppb)			
Trichloroethene	250,000	ND	700
SVOCs (ppb)			
2-Methylphenol	230	ND	100
Benzo(a)anthracene	1,300	ND	224
Benzo(a)pyrene	1,200	ND	61
Benzo(b)fluoranthene	1,400	ND	1,100
Chrysene	1,400	ND	400
Dibenzo(a,h)anthracene	250	ND	14

Sample ID	MW-2 (11-13)	MW-2 (17-19)	TAGM
VOCs (ppb)			
Methel Ethyl Ketone	350	ND	300
SVOCs (ppb)			
Benzo(a)pyrene	150	ND	61

Sample ID	GP-41 (10-12)	GP-41 (20-22)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-30 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	GP-34 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	GP-43 (15-17)	GP-43 (40-45)	TAGM
VOCs (ppb)			
Acetone	ND	300	200
SVOCs (ppb)			
2-Methylnaphthalene	45,000	ND	36,400

Sample ID	GP-36 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	GP-10 (6-8)	GP-10 (18-20)	TAGM
VOCs (ppb)			
1,1,2,2-Tetrachloroethane	ND	1,100	600
Acetone	230	ND	200
SVOCs (ppb)			
No Exceedances of TAGM			

Sample ID	GP-38 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
No Exceedances of TAGM	

Sample ID	GP-39 (7-8)	GP-39 (15-17)	TAGM
VOCs (ppb)			
Acetone	840	ND	200
Methylene Chloride	520	ND	100
Trichloroethene	44,000	ND	700
SVOCs (ppb)			
Benzo(a)anthracene	290	ND	224
Benzo(a)pyrene	270	ND	61
Dibenzo(a,h)anthracene	69	ND	14

Sample ID	GP-27 (5-10)	TAGM
VOCs (ppb)		
Acetone	740	200
Methylene Chloride	490	100
Trichloroethene	8,200	700
SVOCs (ppb)		
Not Analyzed		

Sample ID	GP-7 (10-12)	GP-7 (16-20)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	190	ND	61
Dibenzo(a,h)anthracene	45	ND	14

Sample ID	GP-22 (7-9)	TAGM
VOCs (ppb)		
Trichloroethene	6,000	700
SVOCs (ppb)		
Not Analyzed		

Sample ID	GP-28 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	MW-9 (10-12)	MW-9 (20-22)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	140	74	61

Sample ID	GP-33 (>10)	GP-33 (70-72)	TAGM
VOCs (ppb)			
Acetone	340	ND	200
Ethylbenzene	6,200	ND	5,500
Methylene Chloride	110	ND	100
Total Xylenes	2,700	ND	1,200
SVOCs (ppb)			
Not Analyzed	No Exceedances of TAGM		

Sample ID	GP-6 (4-6)	GP-6 (18-20)	TAGM
VOCs (ppb)			
Methel Ethyl Ketone	310	ND	300
SVOCs (ppb)			
Benzo(a)anthracene	3,600	ND	224
Benzo(a)pyrene	3,300	ND	61
Benzo(b)fluoranthene	3,800	ND	1,100
Benzo(k)fluoranthene	1,500	ND	1,100
Chrysene	3,400	ND	400
Dibenzo(a,h)anthracene	580	ND	14
METALS (ppm)			
Lead	505	ND	0.1 or SB
Mercury	5.3	ND	S.B.=<10-300

Sample ID	GP-40 (7-9)	GP-40 (15-17)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	ND	150	61

Sample ID	GP-26 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	GP-4 (6-8)	GP-4 (10-11)	TAGM
VOCs (ppb)			
Acetone	760	ND	200
Methel Ethyl Ketone	330	ND	300
Trichloroethene	800	ND	700
SVOCs (ppb)			
Benzo(a)pyrene	100	ND	61

Sample ID	GP-37 (27-29)
VOCs (ppb)	
Not Analyzed	
SVOCs (ppb)	
No Exceedances of TAGM	

Sample ID	GP-21 (7-9)	TAGM
VOCs (ppb)		
Methylene Chloride	290	100
Trichloroethene	99,000	700
SVOCs (ppb)		
Not Analyzed		

Sample ID	GP-14 (8-10)	GP-14 (18-20)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-44 (30-32)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
No Exceedances of TAGM	

Sample ID	GP-31 (5-10)	TAGM
VOCs (ppb)		
Acetone	250	200
SVOCs (ppb)		
Not Analyzed		

Sample ID	GP-5 (7-8)	GP-5 (18-20)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-32 (5-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	MW-3 (7-9)	MW-3 (17-19)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)anthracene	260	470	224
Benzo(a)pyrene	100	320	61
Chrysene	ND	440	400

Sample ID	MW-1 (5-7)	MW-1 (15-22)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)anthracene	440	430	224
Benzo(a)pyrene	340	490	61
Chrysene	460	540	400
Dibenzo(a,h)anthracene	69	130	14

Sample ID	GP-1 (10-12)	GP-1 (18-20)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-20 (6-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	GP-24 (7-10)	TAGM
VOCs (ppb)		
Methylene Chloride	340	100
Trichloroethene	69,000	700
trans-1,2-Dichloroethene	520	300
SVOCs (ppb)		
Not Analyzed		

Sample ID	GP-29 (7-10)
VOCs (ppb)	
No Exceedances of TAGM	
SVOCs (ppb)	
Not Analyzed	

Sample ID	GP-3 (7-8)	GP-3 (18-20)	TAGM
VOCs (ppb)			
trans-1,2-Dichloroethene	510	ND	300
SVOCs (ppb)			
No Exceedances of TAGM			

Sample ID	GP-19 (6-8)	GP-19 (18-20)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	150	ND	61

Sample ID	GP-8 (12-14)	GP-8 (18-20)	TAGM
VOCs (ppb)			
No Exceedances of TAGM			
SVOCs (ppb)			
Benzo(a)pyrene	190	ND	61
Dibenzo(a,h)anthracene	50	ND	14

Sample ID	MW-8 (10-12)	MW-8 (20-22)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-17 (6-8)	GP-17 (18-20)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

Sample ID	GP-9 (8-10)	GP-9 (14-16)
VOCs (ppb)		
No Exceedances of TAGM		
SVOCs (ppb)		
No Exceedances of TAGM		

LEGEND

- BORING LOCATIONS
- MONITOR WELL LOCATIONS
- BORING LOCATIONS (MARCH 13 & 14, 2006)
- BORING LOCATIONS (OCTOBER 2006)
- VOCs — VOLATILE ORGANIC COMPOUNDS
- SVOCs — SEMIVOLATILE ORGANIC COMPOUNDS
- SB — SITE BACKGROUND
- ppb — PARTS PER BILLION
- ND — ANALYTE NOT DETECTED ABOVE TAGM
- AREA IDENTIFIED AS CONTAINING FREE-PHASE PRODUCT AND/OR EXCEEDING THE TRACK 4 SITE SPECIFIC SCOs

ONLY COUMPOUNDS EXCEEDING TAGM CRITERIA ARE LISTED

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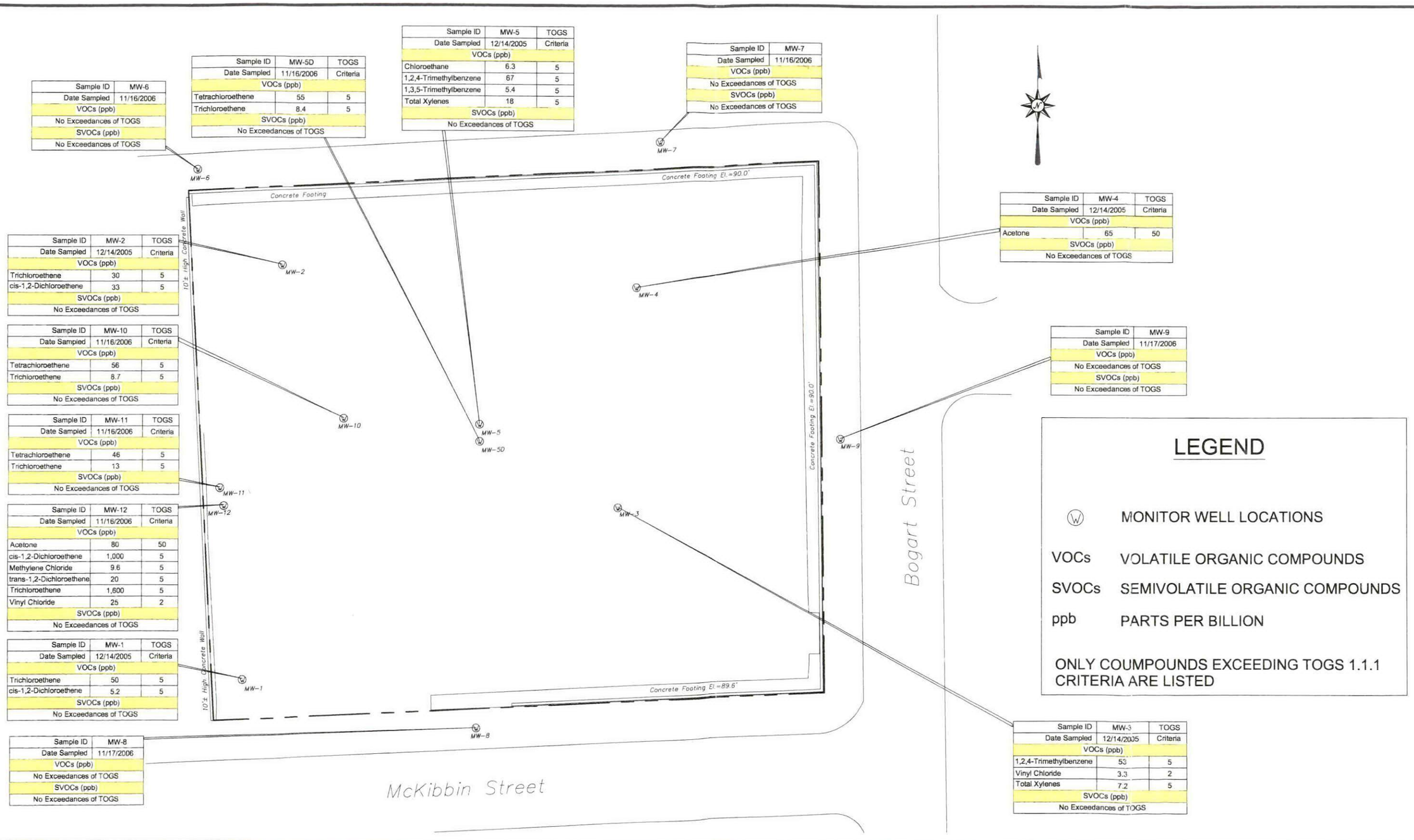
SOIL VOC AND SVOC ANALYTICAL DATA

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	X.X.X.
Drawn	J.A.B.
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Scale	1"=36'
Project No.	05L0567
Date	03/07/2007
CAD File	FIGURE 10

FIGURE 10

XREF(s): XXXXXXXx



Sample ID	MW-6
Date Sampled	11/16/2006
VOCs (ppb)	
No Exceedances of TOGS	
SVOCs (ppb)	
No Exceedances of TOGS	

Sample ID	MW-5D	TOGS
Date Sampled	11/16/2006	Criteria
VOCs (ppb)		
Tetrachloroethene	55	5
Trichloroethene	8.4	5
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-5	TOGS
Date Sampled	12/14/2005	Criteria
VOCs (ppb)		
Chloroethane	6.3	5
1,2,4-Trimethylbenzene	67	5
1,3,5-Trimethylbenzene	5.4	5
Total Xylenes	18	5
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-7
Date Sampled	11/16/2006
VOCs (ppb)	
No Exceedances of TOGS	
SVOCs (ppb)	
No Exceedances of TOGS	

Sample ID	MW-4	TOGS
Date Sampled	12/14/2005	Criteria
VOCs (ppb)		
Acetone	65	50
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-2	TOGS
Date Sampled	12/14/2005	Criteria
VOCs (ppb)		
Trichloroethene	30	5
cis-1,2-Dichloroethene	33	5
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-9
Date Sampled	11/17/2006
VOCs (ppb)	
No Exceedances of TOGS	
SVOCs (ppb)	
No Exceedances of TOGS	

Sample ID	MW-10	TOGS
Date Sampled	11/16/2006	Criteria
VOCs (ppb)		
Tetrachloroethene	56	5
Trichloroethene	8.7	5
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-11	TOGS
Date Sampled	11/16/2006	Criteria
VOCs (ppb)		
Tetrachloroethene	46	5
Trichloroethene	13	5
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-12	TOGS
Date Sampled	11/16/2006	Criteria
VOCs (ppb)		
Acetone	80	50
cis-1,2-Dichloroethene	1,000	5
Methylene Chloride	9.6	5
trans-1,2-Dichloroethene	20	5
Trichloroethene	1,600	5
Vinyl Chloride	25	2
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-1	TOGS
Date Sampled	12/14/2005	Criteria
VOCs (ppb)		
Trichloroethene	50	5
cis-1,2-Dichloroethene	5.2	5
SVOCs (ppb)		
No Exceedances of TOGS		

Sample ID	MW-8
Date Sampled	11/17/2006
VOCs (ppb)	
No Exceedances of TOGS	
SVOCs (ppb)	
No Exceedances of TOGS	

Sample ID	MW-3	TOGS
Date Sampled	12/14/2005	Criteria
VOCs (ppb)		
1,2,4-Trimethylbenzene	53	5
Vinyl Chloride	3.3	2
Total Xylenes	7.2	5
SVOCs (ppb)		
No Exceedances of TOGS		

LEGEND

(W)	MONITOR WELL LOCATIONS
VOCs	VOLATILE ORGANIC COMPOUNDS
SVOCs	SEMIVOLATILE ORGANIC COMPOUNDS
ppb	PARTS PER BILLION

ONLY COUMPOUNDS EXCEEDING TOGS 1.1.1 CRITERIA ARE LISTED

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GROUND WATER VOC AND SVOC ANALYTICAL DATA

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353 McKIBBIN STREET
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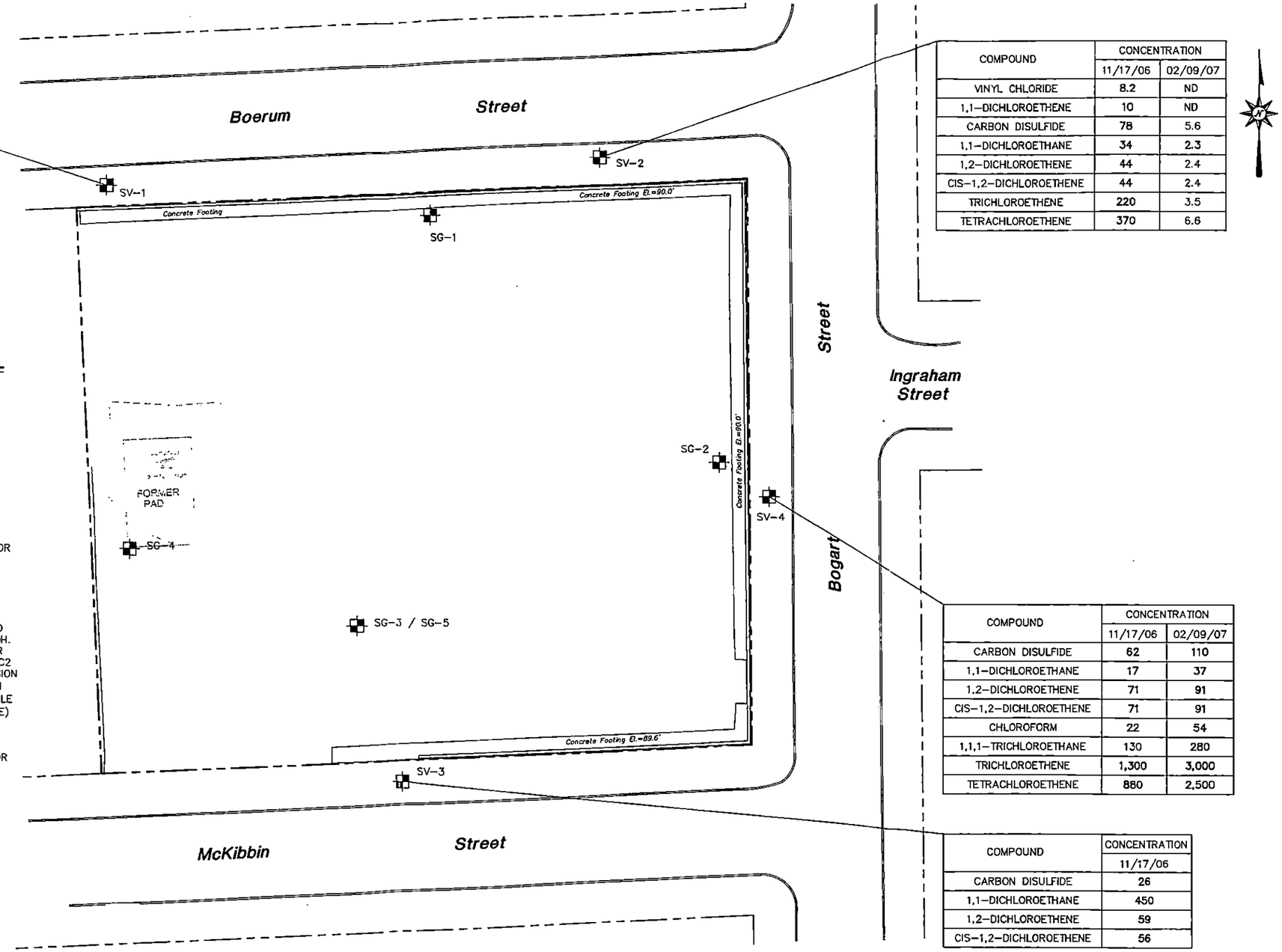
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Approved	
Scale	1"=36'
Project No.	05L0567
Date	12/15/06
CAD File	FIGURE 11

FIGURE 11

XREF(s): XXXXXXXX

COMPOUND	CONCENTRATION	
	11/17/06	02/09/07
1,1–DICHLOROEHTANE	ND	1.4
METHYL ETHYL KETONE	86	ND

COMPOUND	CONCENTRATION	
	11/17/06	02/09/07
VINYL CHLORIDE	8.2	ND
1,1–DICHLOROETHENE	10	ND
CARBON DISULFIDE	78	5.6
1,1–DICHLOROETHANE	34	2.3
1,2–DICHLOROETHENE	44	2.4
CIS–1,2–DICHLOROETHENE	44	2.4
TRICHLOROETHENE	220	3.5
TETRACHLOROETHENE	370	6.6



COMPOUND	CONCENTRATION	
	11/17/06	02/09/07
CARBON DISULFIDE	62	110
1,1–DICHLOROETHANE	17	37
1,2–DICHLOROETHENE	71	91
CIS–1,2–DICHLOROETHENE	71	91
CHLOROFORM	22	54
1,1,1–TRICHLOROETHANE	130	280
TRICHLOROETHENE	1,300	3,000
TETRACHLOROETHENE	880	2,500

COMPOUND	CONCENTRATION
	11/17/06
CARBON DISULFIDE	26
1,1–DICHLOROETHANE	450
1,2–DICHLOROETHENE	59
CIS–1,2–DICHLOROETHENE	56

LEGEND:

SV–1 PERMENANT SOIL VAPOR SAMPLING POINT

SG–1 TEMPORARY SOIL GAS SAMPLING POINT

GENERAL NOTES:

1. ONLY COMPOUNDS WITH CONCENTRATIONS DETECTED ABOVE BACKGROUND INDOOR AIR VALUES ARE SHOWN.
2. BOLD = EXCEEDS BACKGROUND INDOOR AIR VALUE.
3. ALL CONCENTRATIONS REPORTED IN ug/m3 (MICROGRAMS PER CUBIC METER).
4. THE VOCS LISTED ARE THE COMPOUNDS IDENTIFIED IN SOIL GAS. THERE ARE NO GUIDANCE VALUES FOR SOIL VAPOR PUBLISHED BY THE NYSDEC OR THE NYSDOH. HOWEVER, THE SOIL GAS RESULTS ARE COMPARED TO BACKGROUND INDOOR AIR VALUES, EXPRESSED AS 99TH PERCENTILE VALUES, PRESENTED IN TABLES C1, C2 AND C3 OF THE NYSDOH FINAL GUIDANCE FOR EVALUATION SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK DATED OCTOBER 2006 (NYSDOH AIR INSTRUCTION GUIDANCE). THESE GUIDANCE VALUES AND THE NYSDOH GUIDELINES FOR VOLATILE CHEMICALS IN INDOOR AIR (TABLE 3.1 OF THE NYSDOH AIR INTRUSION GUIDANCE) ARE USED AS GENERAL SCREENING TOOLS TO DETERMINE HOW THE CONCENTRATIONS OF VOCS IN ON–SITE AND OFF–SITE SOIL GAS COMPARE TO TYPICAL INDOOR AIR BACKGROUND CONCENTRATIONS. THE COMPARISON IS NOT USED TO ESTIMATE THE CONCENTRATION OF CONTAMINANTS EXPECTED IN INDOOR AIR, OR IDENTIFY SOILS THAT REQUIRE MITIGATION.

GRAPHIC SCALE

40 20 0 40

SCALE IN FEET

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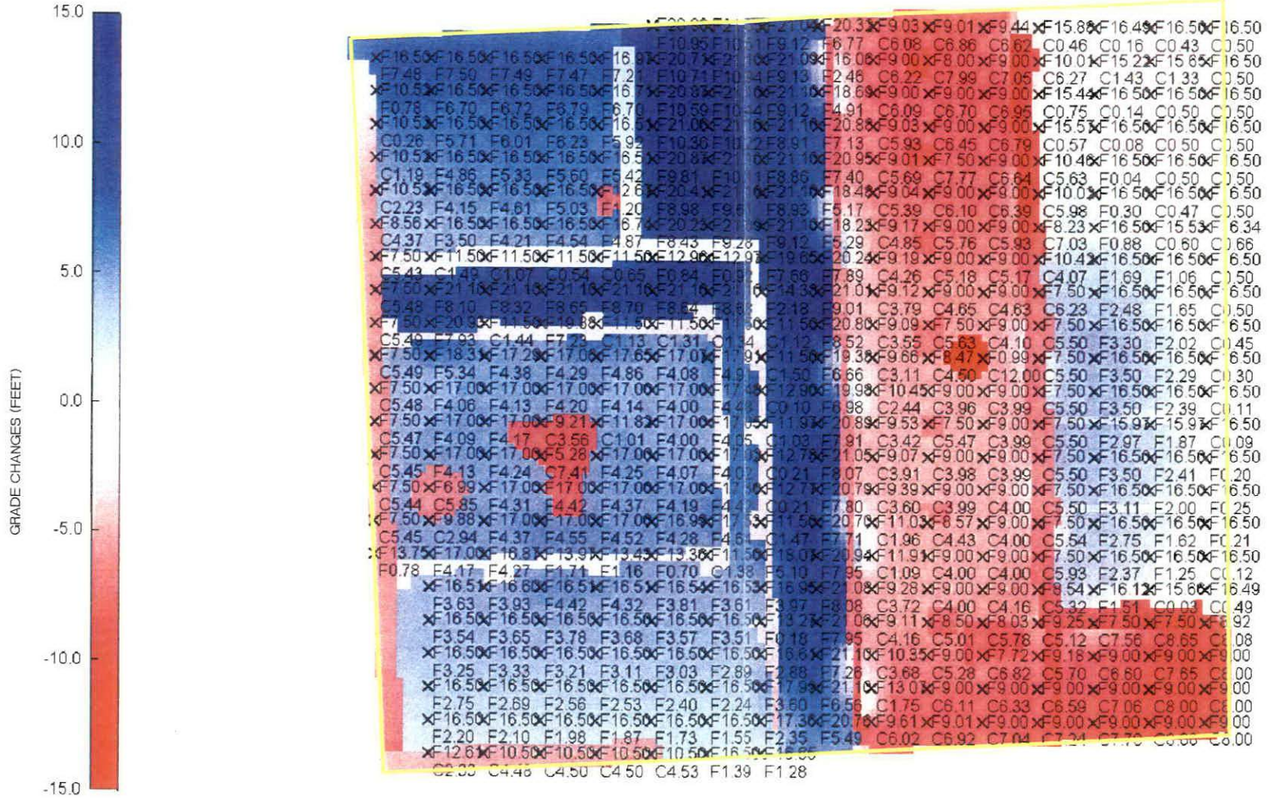
SOIL GAS CONCENTRATION PLAN

MEHADRIN DAIRY
353 McKIBBIN STREET
BROOKLYN, NEW YORK

Designed	J.S.Y.
Drawn	J.S.Y.
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Scale	1"= 40'
Project No.	05L0567
Date	01/22/08
CAD File	FIGURE 12

XREF(s): CT–17X11.DWG

FIGURE 12



GRAPHIC SCALE

0 40 80

SCALE IN FEET

LEGEND

- AREA OF REMEDIAL EXCAVATION FROM CURRENT GROUND SURFACE
- AREA OF FILL FROM CURRENT GROUND SURFACE NEEDED FOR CONSTURCTION OF FOOTINGS, FOUNDATION AND BUILDING SLAB
- xF16.50 — TARGET REMEDIAL EXCAVATION ELEVATION (MEAN SEA LEVEL)
- C3.99 — TARGET REMEDIAL EXCAVATION DEPTH (CUT) FROM CURRENT GROUND SURFACE REQUIRED TO ESTABLISH REMEDIAL EXCAVATION LIMITS (FEET)
- F2.89 — TARGET FILL DEPTH NEEDED FOR CONSTURCTION OF FOOTINGS, FOUNDATION AND BUILDING SLAB
- PROPOSED EXCAVATION FILL LIMITS AND CURRENT PROPERTY BOUNDARY

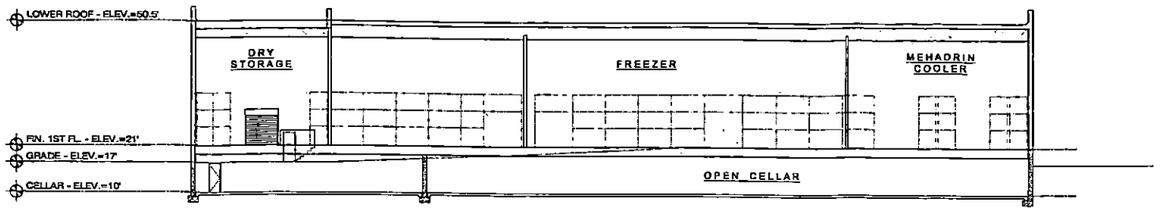
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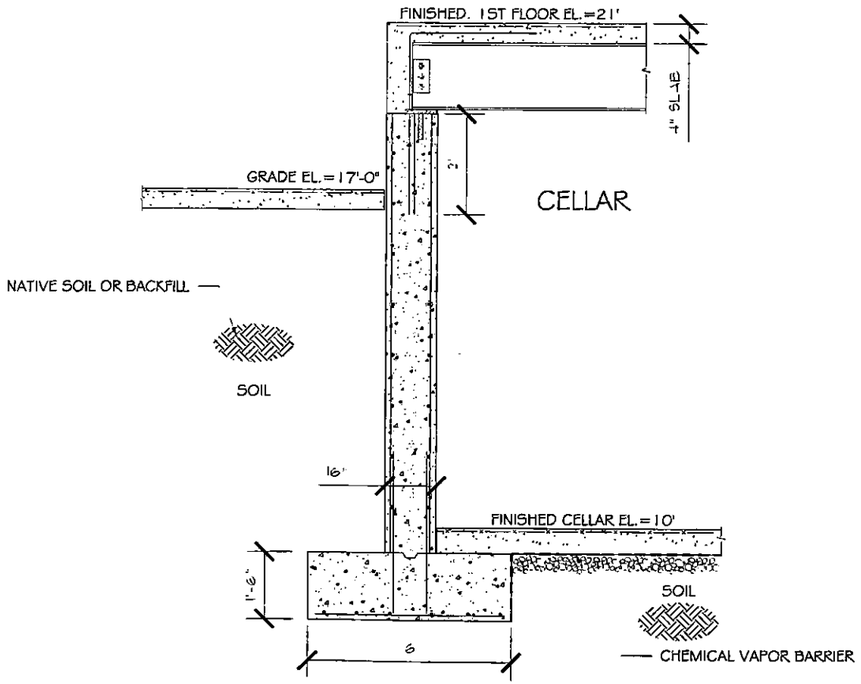
Proposed Mahadrin Dairy Food Warehouse and Distibution Facility
355 McKibben Street
Brooklyn, Kings County, New York
NYSDEC BCP Site No. C224102

PROPOSED EXCAVATION LIMITS AND GRADE CHANGES

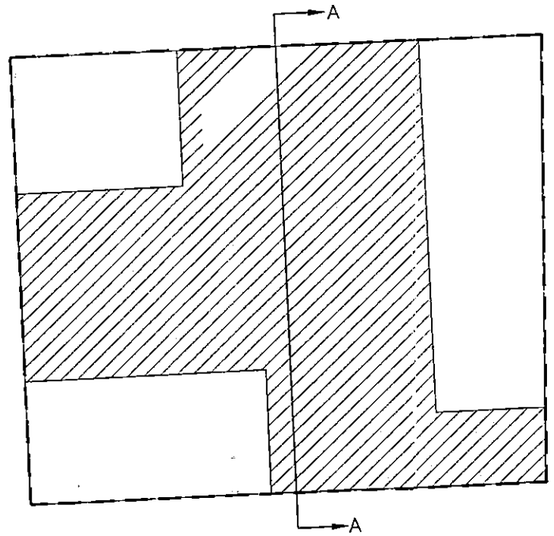
FIGURE 13



SECTION 'A-A' BUILDING ELEVATION



TYPICAL FOUNDATION WALL CROSS-SECTIONS



SITE COVER MATERIAL

PROPERTY BOUNDARY OF THE BCP PROJECT IN ACCORDANCE WITH THE BCA

BUILDING SITE COVERAGE

PAVEMENT SITE COVERAGE

NOTE:
MINIMUM ONE FOOT THICK COVER OF CLEAN FILL/GRAVEL SUBBASE BELOW THE FINAL REDEVELOPMENT GRADE IN AREAS OF PAVEMENT

GRAPHIC SCALE
30 15 0 30
SCALE IN FEET

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PROPOSED MEHADRIN DAIRY FACILITY
LAND AT
353 McKIBBIN STREET
CITY OF NEW YORK,
KINGS COUNTY, BROOKLYN, NEW YORK

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Project No.	3540567
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CAD File	FIGURE 1

Title
FOUNDATION EXCAVATION PLAN

Sheet No.
FIGURE 14

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ORGANIZATION CHART

REGULATORY OVERSIGHT
NYSDEC AND NYSDOH

NICHOLAS S. BOLLERS - NYSDEC PROJECT MANAGER
BRIDGET CALLACHAN - NYSDOH PROJECT MANAGER

MEHADRIN DAIRY CORPORATION, BBM, LLC, AND LFW DAIRY CORPORATION, LLC

LARRY FARKAS - MANAGING MEMBER
JOSHEPH WEINBERGER - PROJECT MANAGER

BL COMPANIES

SAM HAYDOCK, P.G., LEP - PRINCIPLE - IN - CHARGE
GUY LABELLA, Ph.D, P.E., LEP, CHMM - REMEDIATION ENGINEER
JOHN BOGDANSKI, P.G. - PROJECT MANAGER
TOM MOTSKO - TECHNICAL MANAGER

CONTRACTOR

ALBERT LIEBERMAN CONSTRUCTION

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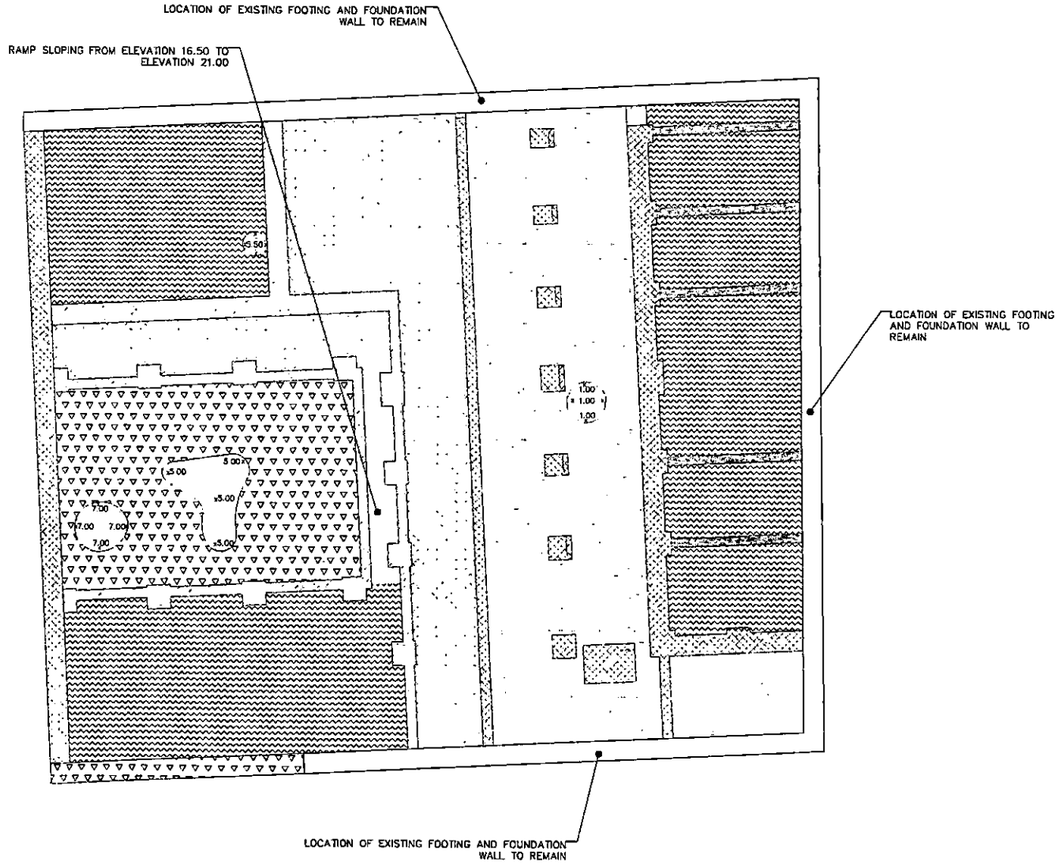
PROJECT ORGANIZATION CHART

MEHADRIN / BCP SITE No. C224102
353 McKIBBIN STREET
BROOKLYN, NEW YORK

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Drawn	J.A.B.
Checked	
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Scale	1"=36'
Project No.	05L0567
Date	05/21/08
CAD File	FIGURE 15

XREF(s): XXXXXXXX

FIGURE 15



LEGEND

- EXCAVATE AREA TO ELEVATION 7.50
- EXCAVATE AREA TO ELEVATION 13.00
- EXCAVATE AREA TO ELEVATION 15.00
- FILL ~~EXCAVATE~~ AREA TO ELEVATION 17.00
- FILL AREA TO ELEVATION 16.50
- FILL AREA TO ELEVATION 21.00
- EXCAVATE AREA TO ELEVATION 9.00
- X EL — CONTAMINATED AREA TO BE OVER EXCAVATED (X EL. = ELEVATION AT BOTTOM OF EXCAVATION)

1. THIS DRAWING HAS BEEN PREPARED TO EXPRESS THE VARIOUS DEPTHS THAT MUST BE REACHED FOR SOIL REMEDIATION (I.E., AREAS IDENTIFIED AS EXCEEDING TRACK-4 SITE SPECIFIC SCO'S AND AREAS NEEDED FOR THE CONSTRUCTION)

2. ALL EXCAVATION MUST BE PERFORMED IN ACCORDANCE WITH THE APPROVED REMEDIAL ACTION WORK PLAN (RAWP).

3. IN GENERAL, SOILS EXCAVATED FROM THE SITE WILL CONTAIN REGULATED COMPOUNDS AT THE CONCENTRATIONS AT OR BELOW TRACK 4 SITE-SPECIFIC USE SCO'S OR CONTAIN REGULATED COMPOUNDS AT CONCENTRATIONS ABOVE TRACK 4 SITE-SPECIFIC SCO'S.

4. AREAS IDENTIFIED AS CONTAINING REGULATED COMPOUNDS AT CONCENTRATIONS ABOVE TRACK 4 SITE SPECIFIC USE SCO'S CANNOT BE REUSED ON SITE.

5. AREAS OUTSIDE IDENTIFIED EXCEEDENCES OF TRACK 4 SITE SPECIFIC SCO'S MAY OR MAY NOT CONTAIN REGULATED COMPOUNDS AT CONCENTRATIONS ABOVE TRACK 4 SITE SPECIFIC USE SCO'S AND CAN BE STOCKPILED FOR POSSIBLE REUSE. SOILS CHARACTERIZED AS CONTAINING CONCENTRATIONS OF REGULATED COMPOUNDS GREATER THAN TRACK 4 SITE SPECIFIC SCO'S AND/OR CONTAINS VISIBLE IMPACTS MUST BE DISPOSED OF OFFSITE.

6. SOIL OUTSIDE IDENTIFIED AREAS OF TRACK 4 SITE SPECIFIC SCO'S, IF DESIRED FOR REUSE, MUST BE SAMPLED BY THE OWNERS ONSITE ENGINEER TO DETERMINE CONTAMINANT LEVELS. SHOULD CONTAMINANT LEVELS FALL BELOW TRACK 4 STANDARDS, SOIL CAN BE RE-USED ON THE SITE. SOIL MUST ALSO MEET REQUIREMENTS OF THE GEOTECHNICAL ENGINEER.

7. REFER TO RAWP FOR SOIL SAMPLING AND HANDLING REQUIREMENTS.

8. FILL AND EXCAVATION ELEVATIONS REQUIRED FOR CONSTRUCTION OF FOOTING, FOUNDATION AND BUILDING SLAB.

GRAPHIC SCALE
20 10 0 20
SCALE IN FEET

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353 McKIBBIN STREET
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KINGS COUNTY, BROOKLYN, NEW YORK

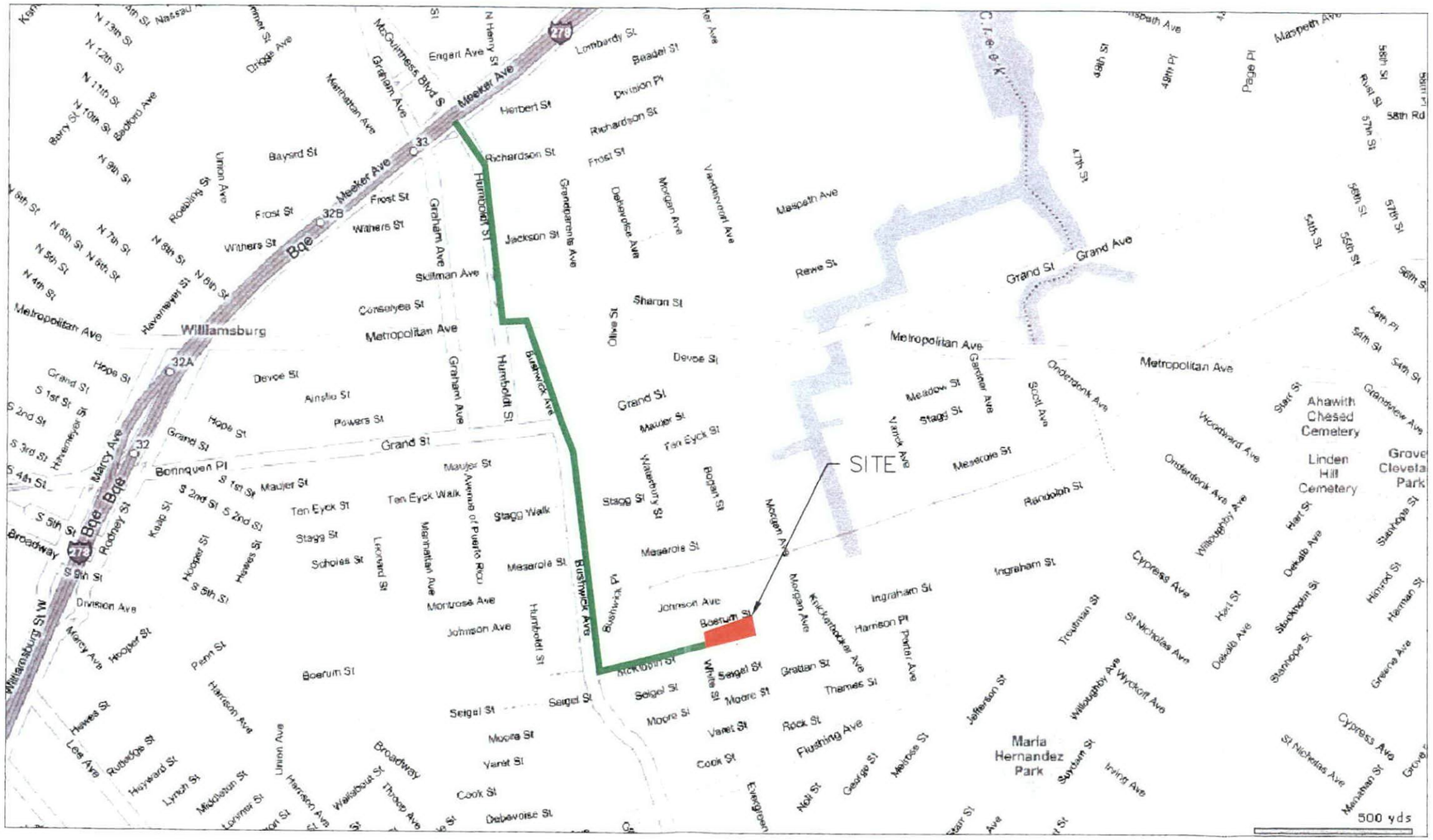
NO.	REVISIONS	DATE
1		

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Drawn
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Approved
Scale
Project No. 05LU58
Date
CAD File FIGURE 16

Title
FILL AND EXCAVATION PLAN

Sheet No.
FIGURE 16

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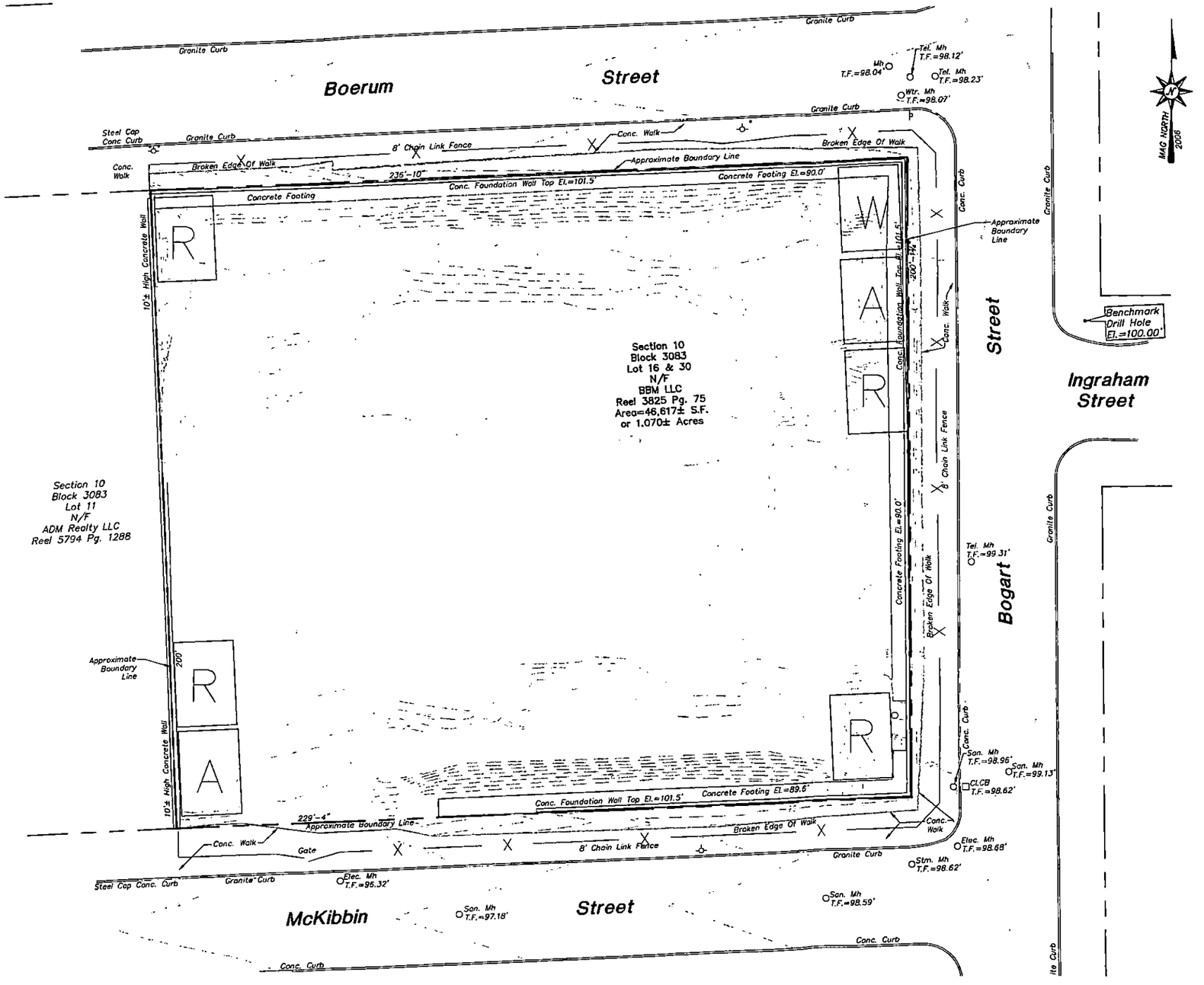
PROPOSED IN-BOUND AND OUT-BOUND TRUCK ROUTES

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353 McKIBBIN STREET
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CAD File	FIGURE 17

FIGURE 17

XREF(s): XXXXXXXX



GENERAL NOTES:

R — PROPOSED ROVING SAMPLE LOCATIONS

W — PROPOSED WIND SOCK LOCATION (APPROXIMATE)

A — PROPOSED AIR MONITORING STATION

1. EXACT LOCATION MONITORED ON A GIVEN DAY WILL BE ESTABLISHED BASE ON PREVAILING WIND DIRECTION.

2. AIR MONITORING PROGRAM SHALL INCLUDE A MINIMUM OF TWO FIXED AIR MONITORING STATIONS AND ONE WIND SOCK.

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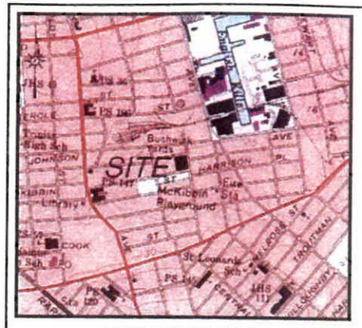
AIR MONITORING PLAN

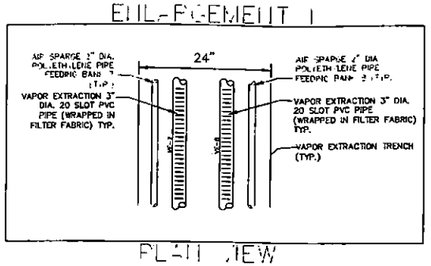
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353 McKIBBIN STREET
BROOKLYN, NEW YORK

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Drawn	S.R.L.
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Approved	
Scale	1"=36'
Project No.	03L849
Date	12/31/03
CAD File	FIGURE 18

FIGURE 18

XREF(s): XXXXXXXX

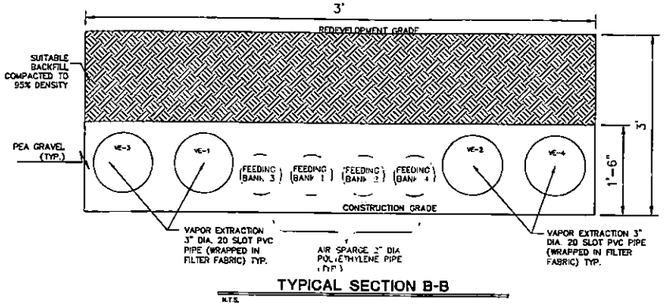

SITE
McKibbin Playground
Bushwick Houses
Public School 120
Public School 123
Public School 145
Public School 147
Public School 111
Public School 257
Public School 34
Public School 390
Public School 377
Public School 378
Public School 379
Public School 380
Public School 381
Public School 382
Public School 383
Public School 384
Public School 385
Public School 386
Public School 387
Public School 388
Public School 389
Public School



PLAN VIEW

ENLARGMENT 1
PLAN VIEW

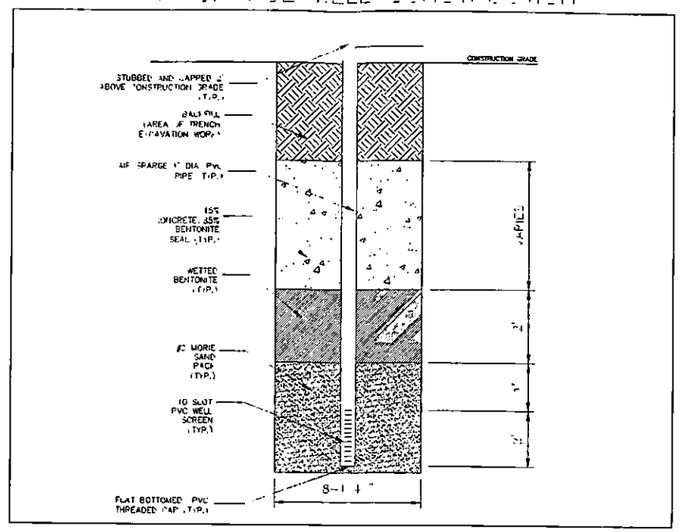
N.T.S.



TYPICAL SECTION B-B

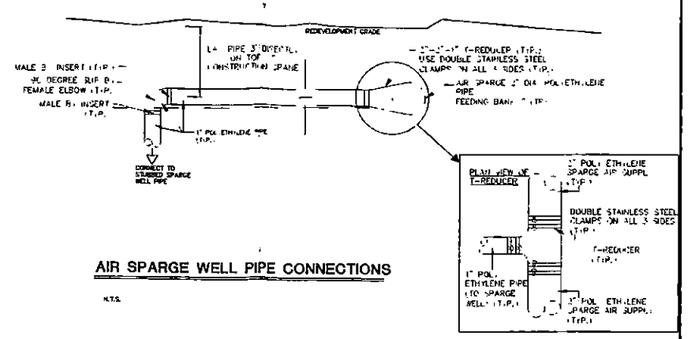
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AIR SPARGE WELL CONSTRUCTION



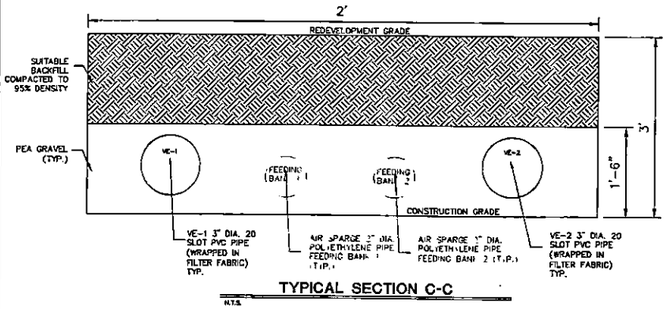
AIR SPARGE WELL CONSTRUCTION

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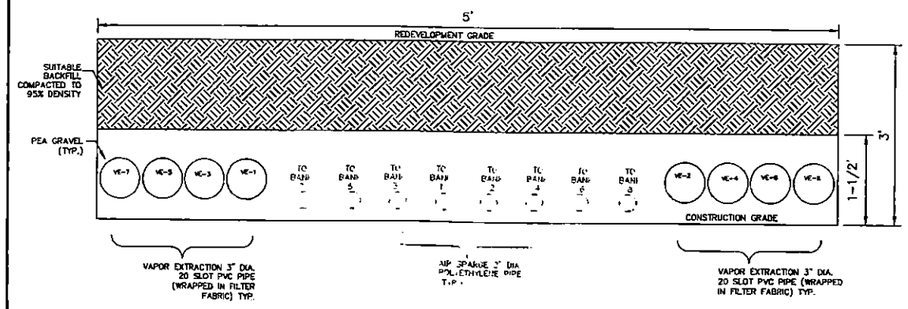
AIR SPARGE WELL PIPE CONNECTIONS

N.T.S.



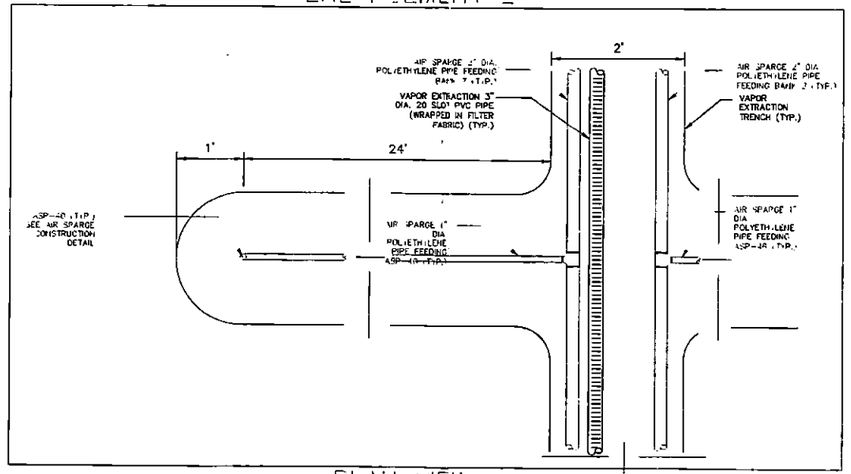
TYPICAL SECTION C-C

N.T.S.



TYPICAL SECTION A-A

N.T.S.



PLAN VIEW

ENLARGMENT 2
PLAN VIEW

N.T.S.

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REMEDIATION SYSTEM LAYOUT

353 McKIBBIN STREET
CITY OF NEW YORK,
KINGS COUNTY, BROOKLYN, NEW YORK

Surveyed
Drawn BDF
Checked
Approved
Scale NOT TO SCALE
Project No 15U056
Date 12 11 08
CAD File E-15U056701-SDF
Field Book

Title
AIR SPARGING AND SOIL VAPOR EXTRACTION SYSTEM DETAILS

Sheet No
EX-2

TABLES

Table 1
Sample Summary
Mehadrin Dairy/BCP Site No. C224102
353 McKibbin Street
Brooklyn, New York

Investigatory Method	Number of Data Points
Geologic Data	
Sub-Surface Soil Borings	68[1]
Hydrologic Data	
Overburden Aquifer Monitoring Wells	13
Chemical Data	
Sub-Surface Soil Samples (Soil Boring)	114
Ground Water Samples	13
Soil Gas Samples	12

1. Includes borings advanced by Galli Engineering in 2003

Table 2
Sample Collection and Analytical Summary
Mehadrin/BCP Site No. C224102
353 McKibbin Street
Brooklyn, New York

Medium	Sampling Method	Analytical Parameters	No. of Samples	No. of Field Blanks*	No. of Trip Blanks*	No. of Duplicates*
Sub-Surface Soil	Split spoon from soil borings	VOCs SVOCs TAL Metals, Total PCBs Pesticides	112	0	0	7
Ground Water	Low-Flow using Peristaltic Pump	VOCs SVOCs TAL Metals, Total Pesticides PCBs	13	2	1	2
Soil Vapor	Peristaltic Pump from Temporary and Permanent Soil Vapor Points	VOCs	12	3	0	1

Methods:
VOCs - EPA Method 8260B for soil and ground water; EPA Method TO-15 for soil vapor
SVOCs - EPA Method 8270C
TAL Metals - EPA Method 6010B; Mercury - EPA Method 7471A
PCBs - EPA Method 8082
Pesticides - EPA Method 8081A

Notes:
* = Does not include Galli Engineering's field blanks, trip blanks, or duplicates, if any

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	GP-1 [10-12 ft bgs]	GP-1 [18-20 ft bgs]	GP-2 [7-8 ft bgs]	GP-2 [10-12 ft bgs]	GP-3 [7-8 ft bgs]	GP-3 [18-20 ft bgs]	GP-4 [6-8 ft bgs]	GP-4 [10-11 ft bgs]	GP-5 [7-8 ft bgs]	GP-5 [18-20 ft bgs]
VOCs (ppb)												
1,1,2-Trichloroethane	NE	NE	<0.68 U	<0.69 U	<840 U	<0.70 U	26	<3.3 U	<2.7 U	<69 U	<0.71 U	<0.66 U
2-Hexanone	NE	NE	<2.6 U	<2.6 U	<1,100 U	<2.7 U	<8.2 U	<13 U	<11 U	<92 U	<2.7 U	<2.5 U
1,1,2,2-Tetrachloroethane	NE	600	<0.56 U	<0.57 U	<560 U	<0.58 U	<1.8 UJ	<2.8 U	<2.3 U	<46 U	<0.59 U	<0.55 U
1,1-Dichloroethene	500,000	400	<2.3 U	<2.3 U	<980 U	<2.3 U	8.8 J	<11 U	<9.2 U	<80 U	<2.4 U	<2.2 U
1,2-Dichloroethane	30,000	100	<2.0 U	<2.1 U	<840 U	<2.1 U	<6.4 U	<10 U	<8.2 U	<69 U	<2.1 U	<2.0 U
cis-1,2-Dichloroethene	500,000	NE	<1.4 U	<1.4 U	31,000	18	1,700 (A)	17 J	110	<69 U	3.83	<1.3 U
4-Methyl-2-pentanone	NE	1,000	<1.1 U	15	<980 U	18	62	<5.6 U	17 J (H)	<80 U	29	21
Acetone	500,000	200	11 J	24 J	<17,000 U	50 J	<2,200 U (A)	130 J	760 U	<1,400 U	100 J	31 J
Benzene	44,000	60	<1.6 U	<1.6 U	<560 U	<1.6 U	57	<7.8 U	<6.4 U	<46 U	<1.7 U	<1.5 U
Bromomethane	NE	NE	<2.5 U	<2.5 U	<1,700 UJ	<2.6 U	<7.9 U	<12 U	<10 U	<140 UJ	<2.6 U	<2.4 U
Carbon Disulfide	NE	2,700	<1.9 U	<2.0 U	<1,300 U	<2.0 U	110	<9.5 U	33	<100 U	<2.0 U	<1.9 U
Chlorobenzene	500,000	1,700	<1.2 U	<1.3 U	<560 U	<1.3 U	<3.9 U	<6.1 U	<5.0 U	120 J	<1.3 U	<1.2 U
Chloroethane	NE	1,900	<3.3 U	<3.3 U	<1,100 U	<3.4 U	<10 U	<16 U	<13 U	<92 U	<3.4 U	<3.2 U
Chloromethane	NE	NE	<1.8 U	<1.8 U	<700 U	<1.9 U	<5.7 U	<8.9 U	<7.3 U	<57 U	<1.9 U	<1.8 U
Ethylbenzene	390,000	5,500	<2.0 U	<2.1 U	<1,400 U	<2.1 U	120	<10 U	15 J	340 J	<2.1 U	<2.0 U
1,2,4-Trimethylbenzene	190,000	NE	NR	NR	940 J	<1.9 U	<110 U	<8.9 U	NR	NR	NR	NR
1,3,5-Trimethylbenzene	190,000	NE	NR	NR	<980 U	<2.0 U	<120 U	<9.5 U	NR	NR	NR	NR
Methyl ethyl ketone	500,000	300	19	190	<1,700 U	210	750 (A)	<13 U	330	<140 U	300	290
Methylene chloride	500,000	100	8.9 J	11 J	<7,000 U	12 J	<890 UJ	25 J	41 J	<570 UJ	12 J	9.3 J
Toluene	500,000	1,500	<1.9 U	<2.0 U	660 J	<2.0 U	850 J	22 J	48 J	<34 U	<2.0 U	<1.9 U
trans-1,3-Dichloropropene	NE	NE	<0.56 U	<0.57 U	<420 U	<0.58 U	<1.8 U	<2.8 U	<2.3 U	<34 U	<0.59 U	<0.55 U
Trichloroethene	200,000	700	<1.9 U	<2.0 U	250,000	65	180 (A)	140 J	800 (A)	<80 U	8.6	4.7 J
Tetrachloroethene	150,000	1,400	<2.1 U	<2.2 U	<700 U	<2.2 U	240	<11 U	<8.7 U	<57 U	<2.3 U	<2.1 U
trans-1,2-Dichloroethene	500,000	300	<1.6 U	<1.6 U	<700 U	<1.6 U	510	<7.8 U	<6.4 U	<57 U	<1.7 U	<1.5 U
Total xylenes	500,000	1,200	<5.1 U	<5.2 U	<1,400 U	<5.2 U	260	<25 U	78	240 J	<5.3 U	<4.9 U
SVOCs (ppb)												
2,4-Dimethylphenol	NE	NE	<190 U	<190 U	570	<190 U	<300 U	<750 U	<200 U	<780 U	<200 U	<190 U
2-Methylnaphthalene	NE	36,400	<59 U	<60 U	360 J	<60 U	<92 U	<230 U	190 J	970 J (H)	<61 U	<57 U
2-Methylphenol	NE	100	<100 U	<100 U	230 J	<100 U	<150 U	<390 U	<100 U	<400 U	<100 U	<96 U
4-Methylphenol	NE	900	<200 U	<200 U	750	<200 U	<310 U	<780 U	<210 U	<810 U	<210 U	<190 U
Acenaphthene	500,000	50,000	<62 U	<62 U	780	<62 U	<95 U	3,700	<63 U	3,400	<64 U	<60 U
Acenaphthylene	500,000	41,000	<62 U	<46 U	120 J	<46 U	<71 U	<180 U	<47 U	<190 U	<47 U	<44 U
Anthracene	500,000	50,000	<62 U	<62 U	990	<62 U	<95 U	1,000 J	<63 U	920 J	<64 U	<60 U
Benzo(a)anthracene	5,600	224	<50 U	<51 U	1,300	<51 U	94 J	<200 U	110 J	<200 U	<52 U	<49 U
Benzo(a)pyrene	1,000	61	<46 U	<46 U	1,200	<46 U	<71 U	<180 U	100 J	<190 U	<47 U	<44 U
Benzo(b)fluoranthene	5,600	1,100	<100 U	<100 U	1,400	<100 U	<160 U	<410 U	140 J	<420 U	<110 U	<100 U
Benzo(g,h,i)perylene	500,000	50,000	<42 U	<42 U	950	<42 U	<64 U	<160 U	91 J	<170 U	<43 U	<40 U
Benzo(k)fluoranthene	56,000	1,100	<42 U	<42 U	510	<42 U	<64 U	<160 U	50 J	<170 U	<43 U	<40 U
Bis (2-ethylhexyl) phthalate	NE	50,000	<49 U	78 J	<59 U	<50 U	<76 U	<190 U	<50 U	<200 U	<51 U	83 J
Butyl benzyl phthalate	NE	50,000	<48 U	<48 U	<58 U	<48 U	<74 U	<190 U	<49 U	<190 U	<50 U	<47 U
Carbazole	NE	NE	<55 U	<55 U	540	<55 U	<85 U	<210 U	<56 U	<220 U	<57 U	<53 U
Chrysene	56,000	400	<47 U	<47 U	1,400	<47 U	100 J	<180 U	130 J	<190 U	<49 U	<46 U
Fluoranthene	500,000	50,000	<47 U	<47 U	3,500	110 J	210 J	280 J	210 J	320 J	<49 U	<46 U
Fluorene	500,000	50,000	<48 U	<48 U	720	<48 U	<74 U	4,600	<49 U	4,200 (H)	<50 U	<47 U
Indeno(1,2,3-cd)pyrene	5,600	3,200	<38 U	<38 U	800	<38 U	<59 U	<150 U	67 J	<150 U	<39 U	<37 U
Naphthalene	500,000	13,000	<64 U	<64 U	2,600	<64 U	<99 U	<250 U	1,500	<260 U	<66 U	<62 U
Pentachlorophenol	6,700	1,000	<320 U	<320 U	<390 U	<320 U	<500 U	<1,300 U	<330 U	<1,300 U	<330 U	<310 U
Phenanthrene	500,000	50,000	<44 U	<44 U	4,200	140 J	160 J	8,100	110 J	12,000	<45 U	<42 U
Pyrene	500,000	50,000	<52 U	<52 U	2,900 (H)	92 J	170 J	520 J	180 J	550 J	<53 U	<50 U
Dibenzo(a,h)anthracene	560	14	<42 U	<42 U	250 J	<42 U	<64 U	<160 U	<42 U	<170 U	<43 U	<40 U
Di-n-butyl phthalate	NE	8,100	<49 U	<50 U	<59 U	<50 U	<76 U	<190 U	<50 U	<200 U	<51 U	<48 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth In Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		GP-1 [10-12 ft bgs]	GP-1 [18-20 ft bgs]	GP-2 [7-8 ft bgs]	GP-2 [10-12 ft bgs]	GP-3 [7-8 ft bgs]	GP-3 [18-20 ft bgs]	GP-4 [6-8 ft bgs]	GP-4 [10-11 ft bgs]	GP-5 [7-8 ft bgs]	GP-5 [18-20 ft bgs]
TAL Metals, Total (ppm)		**TAGM #4046**	**SB**										
Aluminum	NE	SB	7,000 - 10,000	10,700	4,680	12,500	8,180	7,400	4,560	9,110	5,200	13,200	6,160
Antimony	NE	SB	<1 - 8.8	<1.5 U (N)	<1.4 U (N)	<2.0 U (N)	<1.1 U (N)	<2.3 U (N)	<1.4 U (N)	<1.4 U (N)	<1.6 U (N)	<1.0 U (N)	<1.5 U (N)
Arsenic	16	7.5 or SB	<0.1 - 73	2.9 B (N)	1.6 B (N)	3.2 B (N)	3.4 B (N)	3.7 B (N)	2.4 B (N)	1.9 B (N)	2.2 B (N)	3.2 B (N)	< 1.6 U (N)
Barium	400	300 or SB	10 - 1,500	29.9 (*N)	16.7 (*N)	60.3 (*N)	24.5 (*N)	66.9 (*N)	41.2 (*N)	43.2 (*N)	17.5 (*N)	28.3 (*N)	46.7 (*N)
Beryllium	590	0.16 or SB	<1 - 7	< 0.67 U	< 0.60 U	<0.87 U	0.56 B	<1.0 U	<0.63 U	0.73 B	<0.69 U	0.49 B	< 0.66 U
Cadmium	9.3	1 or SB	0.07 - 4.40 **	< 1.3 U	< 1.2 U	<1.7 U	<1.0 U	<2.0 U	<1.3 U	<1.2 U	<1.4 U	<0.88 U	< 1.3 U
Calcium	NE	SB	130 - 35,000 ***	447	300	2,160	667	2,940	1,810	502	579	715	646
Chromium - total	NE	10 or SB	1 - 1,000	36.3 (*)	14.6 (*)	17.9 (*)	32.8 (*)	28.1 (*)	17.3 (*)	23.3 (*)	13.4 (*)	19.6 (*)	16.3 (*)
Cobalt	NE	30 or SB	<3 - 70	4.2	3.9	5.0	4.7	12.5	7.8	6.7	4.0	6.7	4.7
Copper	270	25 or SB	<1 - 700	8.9 (N)	10.7 (N)	21.3 (N)	9.1 (N)	36.4 (N)	22.4 (N)	24.6 (N)	13.1 (N)	7.6 (N)	20.8 (N)
Iron	NE	2,000 or SB	100 - >100,000	19,200	17,800	16,600	14,600	65,900	40,500	19,400	32,100	20,000	28,900
Lead	1,000	SB	<10 - 300	5.4 B	4.6 B	119	5.3 B	8.7 B	6.4 B	6.6 B	6.0 B	7.8 B	8.5 B
Magnesium	NE	SB	100 - 5,000 ***	2,980 (*)	1,070 (*)	2,050 (*)	1,670 (*)	2,310 (*)	1,420 (*)	2,320 (*)	1,430 (*)	2,080 (*)	1,730 (*)
Manganese	10,000	SB	<2 - 7,000	69.9	143	458	94.6	6,640	4,090	198	265	394	284
Mercury (elemental)	2.8	0.1	0.01 - 3.4	0.016 B	< 0.014 U	0.61	0.014 B	0.40	<0.011 U	0.25	0.014 B	0.033 B	0.029 B
Nickel	310	13 or SB	<5 - 700	13.9	6.7	11.0	12.4	17.3	10.9	18.1	9.4	12.1	10.4
Potassium	NE	SB	50 - 37,000	411 (N)	324 (N)	532 (N)	443 (N)	686 (N)	422 (N)	912 (N)	389 (N)	451 (N)	467 (N)
Selenium	1,500	2 or SB	<0.1 - 3.9	<2.2 U (N)	<1.9 U (N)	<2.8 U (N)	<1.6 U (N)	<3.2 U (N)	<2.0 U (N)	<1.9 U (N)	<2.2 U (N)	<1.4 U (N)	<2.1 U (N)
Silver	1,500	SB	0.20 - 14.8 **	<0.43 U	<0.38 U	<0.56 U	<0.32 U	<0.65 U	<0.40 U	<0.38 U	<0.44 U	<0.28 U	<0.42 U
Sodium	NE	SB	6,000 - 8,000 ***	434	168	86.5 B	32.7 B	101 B	62.0 B	51.3 B	43.8 B	91.5	63.2 B
Thallium	NE	SB	2.2 - 23	<5.6 UJ	<5.0 UJ	<7.3 UJ	<4.2 UJ	<8.5 UJ	<5.3 UJ	<5.0 UJ	<5.8 UJ	<3.7 UJ	<5.5 UJ
Vanadium	NE	150 or SB	<7 - 300	32.1 (*N)	24.6 (*N)	22.3 (*N)	21.4 (*N)	71.7 (*N)	44.4 (*N)	33.4 (*N)	22.8 (*N)	26 (*N)	27.2 (*N)
Zinc	10,000	20 or SB	<5 - 2,900	74.2 (N)	75.1 (N)	80.4 (N)	26 (N)	44.7 (N)	27.5 (N)	206 (N)	31 (N)	36.6 (N)	46.5 (N)
PCBs / Pesticides													
Total, (ppb)													
4,4'-DDE	62,000	2,100		<0.49 U	<0.50 U	<0.59 U	<0.50 U	<0.77 U	<0.47 U	<0.48 U	<3.8 U	<0.51 U	<0.47 U
4,4'-DDT	47,000	2,100		<0.35 U	<0.35 U	<0.42 U	<0.36 U	<0.55 U	<0.34 U	<0.34 U	<0.35 U	<0.36 U	<0.34 U
4,4'-DDD	92,000	2,900		<0.43 U	<0.44 U	<0.52 U	<0.44 U	<0.67 U	<0.42 U	<0.43 U	<0.43 U	<0.44 U	<0.42 U
Aldrin	680	41		<0.40 U	<0.41 U	<0.48 U	<0.41 U	<0.63 U	<0.39 U	<0.40 U	<0.41 U	<0.41 U	<0.39 U
alpha-BHC	3,400	110		<1.9 U	<0.32 U	<2.3 U	<2.0 U	<3.0 U	<1.9 U	<0.31 U	<1.9 U	<2.0 U	<1.9 U
beta-BHC	3,000	200		<0.30 U	<0.31 U	<0.37 U	<0.31 U	<0.48 U	<0.29 U	<0.30 U	<0.31 U	<0.31 U	<0.29 U
Chlordane (alpha)	24,000	540		<0.12 U	0.31 J	<0.15 U	<0.13 U	<0.19 U	<0.12 U	0.42 J	<0.13 U	<0.13 U	1.9 NJ
Chlordane (gamma)	NE	540		<0.10 U	<0.10 U	<0.12 U	<0.11 U	<0.16 U	<0.099 U	0.15 J	<0.10 U	<0.11 U	<1.9 U
delta-BHC	500,000	300		<0.12 U	<2.0 U	<2.3 U	<0.12 U	1.5 J	<1.9 U	<1.9 U	<0.12 U	<2.0 U	<0.11 U
Methoxychlor	NE	NE		<2.4 U	<2.4 U	<2.9 U	<2.4 U	<3.7 U	<2.3 U	<2.4 U	<2.4 U	<2.5 U	<2.3 U
Dibenzofuran	350,000	6,200		<59 U	<60 U	570	<60 U	<92 U	<230 U	<61 U	<240 U	<61 U	<57 U
Endosulfan I	200,000	900		<0.17 U	<2.0 U	9.8	1.5 J	<0.26 U	<0.16 U	0.82 J	<0.17 U	<0.17 U	11 J (M)
Endosulfan II	200,000	900		<0.19 U	<0.20 U	<0.23 U	<3.8 U	<0.30 U	<0.19 U	<3.7 U	<0.19 U	<0.20 U	<0.19 U
Endosulfan sulfate	200,000	1,000		<0.19 U	<0.20 U	<4.5 U	<3.8 U	<0.31 U	<0.19 U	<3.7 U	<0.20 U	<0.20 U	<0.19 U
Endrin	89,000	100		<1.0 UJ	<1.0 UJ	<1.2 UJ	<1.0 UJ	<1.6 UJ	<0.97 UJ	<0.99 UJ	<1.0 UJ	<1.0 UJ	<0.97 UJ
Endrin ketone	NE	NE		<0.16 U	<0.17 U	<0.20 U	<0.17 U	<0.25 U	<0.16 U	<0.16 U	<0.16 U	<0.17 U	<0.16 U
Heptachlor epoxide	NE	20		<0.13 U	<2.0 U	<2.3 U	<2.0 U	<0.20 U	<0.12 U	<1.9 U	<1.9 U	<0.13 U	<1.9 U
Heptachlor	15,000	100		<0.17 U	<0.17 U	<0.20 U	<0.17 U	<0.27 U	<0.16 U	<0.17 U	<0.17 U	<0.17 U	<0.16 U
PCBs:	1,000	1,000 (surface)											
Aroclor, 1260	NE	10,000 (subsurface)		< 4.5 U	< 4.6 U	<5.4 U	<4.6 U	<7.1 U	<4.3 U	<4.5 U	<4.6 U	<4.6 U	<4.3 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	GP-6 [4-6 ft bgs]	GP-6 [18- 20 ft bgs]	GP-7 [10-12 ft bgs]	GP-7 [16-20 ft bgs]	GP-8 [12-14 ft bgs]	GP-8 [18-20 ft bgs]	GP-9 [8-10 ft bgs]	GP-9 [14-16 ft bgs]	GP-10 [6-8 ft bgs]
VOCs (ppb)											
1,1,2-Trichloroethane	NE	NE	<0.74 U	<0.67 U	<0.71 U	<0.67 U	<0.70 U	<0.70 U	<0.67 U	<3.3 U	<3.5 U
2-Hexanone	NE	NE	<2.8 U	<2.6 U	<2.7 U	<2.6 U	<2.7 U	<2.7 U	<2.6 U	<13 U	<13 U
1,1,2,2-Tetrachloroethane	NE	600	<0.62 U	<0.56 U	<0.60 U	<0.56 U	<0.58 U	<0.59 U	<0.56 U	<2.8 U	<2.9 U
1,1-Dichloroethene	500,000	400	<2.5 U	<2.2 U	<2.4 U	<2.2 U	<2.3 U	<2.3 U	<2.2 U	<11 U	<12 U
1,2-Dichloroethane	30,000	100	<2.2 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.1 U	<2.0 U	<9.9 U	<10 U
cis-1,2-Dichloroethene	500,000	NE	30	<1.3 U	20	<1.3 U	<1.4 U	4.4 J	<1.3 U	<6.6 U	<7.0 U
4-Methyl-2-pentanone	NE	1,000	<1.2 U	24	<1.2 U	<1.1 U	<1.2 U	<1.2 U	2.2 J	<5.5 U	<5.8 U
Acetone	500,000	200	38 J	23 J	26 J	<1.9 U	2.8 J	6.3 J	30	50 J	230 J
Benzene	44,000	60	<1.7 U	<1.6 U	<1.7 U	<1.6 U	<1.6 U	<1.6 U	<1.6 U	<7.7 U	<8.1 U
Bromomethane	NE	NE	<2.7 U	<2.5 U	<2.6 U	<2.5 U	<2.6 U	<2.6 U	<2.5 U	<12 U	<13 U
Carbon Disulfide	NE	2,700	<2.1 U	<1.9 U	2.5 J	<1.9 U	<2.0 U	<2.0 U	<1.9 U	<9.4 U	48 J
Chlorobenzene	500,000	1,700	<1.4 U	<1.2 U	<1.3 U	<1.2 U	<1.3 U	<1.3 U	<1.2 U	<6.1 U	<6.4 U
Chloroethane	NE	1,900	<3.6 U	<3.2 U	<3.5 U	<3.2 U	<3.4 U	<3.4 U	<3.2 U	<16 U	<17 U
Chloromethane	NE	NE	<2.0 U	<1.8 U	<1.9 U	<1.8 U	<1.9 U	<1.9 U	<1.8 U	<8.8 U	<9.3 UJ
Ethylbenzene	390,000	5,500	<2.2 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.1 U	<2.0 U	<9.9 U	<10 U
1,2,4-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methyl ethyl ketone	500,000	300	310	280	<2.7 U	<2.6 U	<2.7 U	<2.7 U	9.8 J	200 J	<13 U
Methylene chloride	500,000	100	17 J	7.2 J	13 J	6.6 J	9.8 J	10 J	7.4 J	30 J	28 J
Toluene	500,000	1,500	<2.1 U	<1.9 U	<2.3 U	2.0 J	<2.0 U	<2.0 U	<1.9 U	<9.4 U	<9.9 U
trans-1,3-Dichloropropene	NE	NE	<0.62 U	<0.56 U	<0.60 U	<0.56 U	<0.58 U	<0.59 U	<0.56 U	<2.8 U	<2.9 U
Trichloroethene	200,000	700	78	4.9 J	41	<1.9 U	2.6 J	2.4 J	<1.9 U	<9.4 U	11 J
Tetrachloroethene	150,000	1,400	<2.4 U	<2.1 U	<2.3 U	<2.1 U	<2.2 U	<2.2 U	<2.1 U	<10 U	<11 U
trans-1,2-Dichloroethene	500,000	300	<1.7 U	<1.6 U	<1.7 U	<1.6 U	<1.6 U	<1.6 U	<1.6 U	<7.7 U	<8.1 U
Total xylenes	500,000	1,200	7.0	<5.0 U	7.0	<5.0 U	<5.2 U	<5.3 U	<5.0 U	<25 U	<26 U
SVOCs (ppb)											
2,4-Dimethylphenol	NE	NE	<410 U	<190 U	<200 U	<190 U	<200 U	<200 U	<190 U	<180 U	<1,600 U
2-Methylnaphthalene	NE	36,400	550 J	<58 U	<63 U	<59 U	<61 U	<62 U	<57 U	580	<490 U
2-Methylphenol	NE	100	<210 U	<98 U	<110 U	<98 U	<100 U	<100 U	<96 U	<95 U	<830 U
4-Methylphenol	NE	900	<430 U	<200 U	<210 U	<200 U	<210 U	<210 U	<190 U	<190 U	<1,700 U
Acenaphthene	500,000	50,000	1,300	<61 U	<65 U	<61 U	<64 U	<64 U	<60 U	1,200	4,800 (H)
Acenaphthylene	500,000	41,000	370 J	<45 U	<48 U	65 J	<47 U	<48 U	<44 U	<44 U	<380 U
Anthracene	500,000	50,000	1,900	<61 U	<65 U	<61 U	<64 U	<64 U	<60 U	620 (H)	1,800 J
Benzo(a)anthracene	5,600	224	5,600	<50 U	<53 U	190 J	180 J	<52 U	<49 U	<48 U	<420 U
Benzo(a)pyrene	1,000	61	3,300	<45 U	<48 U	190 J	190 J	<48 U	<44 U	<44 U	<380 U
Benzo(b)fluoranthene	5,600	1,100	3,800	<100 U	<110 U	190 J	240 J (M)	<110 U	<100 U	<99 U	<870 U
Benzo(g,h,i)perylene	500,000	50,000	2,500	<41 U	<44 U	170 J	200 J	<43 U	<40 U	<39 U	<340 U
Benzo(k)fluoranthene	56,000	1,100	1,500	<41 U	<44 U	70 J	79 J (M)	<43 U	<40 U	<39 U	<340 U
Bis (2-ethylhexyl) phthalate	NE	50,000	760 J	<49 U	<52 U	310 J	640	320 J	<48 U	51 J (H)	<410 U
Butyl benzyl phthalate	NE	50,000	170 J	<47 U	<51 U	50 J	64 J	<50 U	<47 U	<46 U	<400 U
Carbazole	NE	NE	480 J	<54 U	<58 U	<54 U	<57 U	<57 U	<53 U	<52 U	<460 U
Chrysene	56,000	400	3,400	<56 U	<50 U	210 J	190 J	<49 U	<45 U	<45 U	<390 U
Fluoranthene	500,000	50,000	8,000	<46 U	<50 U	250 J	360 J	<49 U	<45 U	160 J	650 J
Fluorene	500,000	50,000	1,200	<47 U	<51 U	<47 U	<50 U	<50 U	<47 U	910	8,200
Indeno(1,2,3-cd)pyrene	5,600	3,200	2,000	<37 U	<40 U	110 J	150 J	<40 U	<37 U	<36 U	<320 U
Naphthalene	500,000	13,000	1,100	<63 U	<67 U	80 J	<66 U	<66 U	<62 U	<61 U	<530 U
Pentachlorophenol	6,700	1,000	<690 U	<320 U	<340 U	<320 U	<330 U	<340 U	<310 U	<310 U	<2,700 U
Phenanthrene	500,000	50,000	7,900	<43 U	<46 U	110 J	200 J	<45 U	<42 U	4,300	23,000
Pyrene	500,000	50,000	8,200	<51 U	69 J	610	320 J	<54 U	<50 U	300 J	1,400 J
Dibenzo(a,h)anthracene	560	14	580 J	<41 U	<44 U	45 J	50 U	<43 U	<40 U	<39 U	<340 U
Di-n-butyl phthalate	NE	8,100	<110 U	<49 U	<52 U	<49 U	<51 U	<51 U	<48 U	<47 U	<410 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		GP-6 [4-6 ft bgs]	GP-6 [18- 20 ft bgs]	GP-7 [10-12 ft bgs]	GP-7 [16-20 ft bgs]	GP-8 [12-14 ft bgs]	GP-8 [18-20 ft bgs]	GP-9 [8-10 ft bgs]	GP-9 [14-16 ft bgs]	GP-10 [6-8 ft bgs]
TAL Metals, Total (ppm)		**TAGM #4046**	**SB**									
Aluminum	NE	SB	7,000 - 10,000	7,780	4,790	10,900	5,800	9,180	4,930	5,510	3,690	11,000 J
Antimony	NE	SB	<1 - 8.8	<1.4 U (N)	<1.3 U (N)	<1.3 U (N)	<1.2 U (N)	<1.6 U (N)	<1.5 U (N)	<1.5 U (N)	<1.3 U (N)	<1.6 U (N)
Arsenic	16	7.5 or SB	<0.1 - 73	8.0 B (N)	3.4 B (U)	2.1 B (N)	2.5 B (N)	3.2 B (N)	< 1.6 U (N)	1.7 B (N)	< 1.4 U (N)	3.1 B (N)
Barium	400	300 or SB	10 - 1,500	121 (*N)	28.7 (*N)	40.2 (*N)	31.5 (*N)	73.6 (*N)	93.1 (*N)	23.9 (*N)	20.8 (*N)	27.9 (*N)
Beryllium	590	0.16 or SB	<1 - 7	< 0.59 U	< 0.57 U	< 0.56 U	< 0.54 U	< 0.69 U	< 0.64 U	< 0.67 U	< 0.57 U	< 0.69 U
Cadmium	9.3	1 or SB	0.07 - 4.40 **	< 1.2 U	< 1.1 U	< 1.1 U	< 1.1 U	< 1.4 U	< 1.3 U	< 1.3 U	3.1 B	< 1.4 U
Calcium	NE	SB	130 - 35,000 ***	10,300	846	710	1,670	12,200	457	705	638	5,850 J
Chromium - total	NE	10 or SB	1 - 1,000	70.9 (*)	15.8 (*)	19.7 (*)	19.2 (*)	18.6 (*)	13.1 (*)	10.6 (*)	11 (*)	24.2 J (*)
Cobalt	NE	30 or SB	<3 - 70	8.4	5.7	5.3	5.5	4.9	2.8	5.9	6.2	7.5
Copper	270	25 or SB	<1 - 700	73.9 (N)	16.7 (N)	7.4 (N)	21.6 (N)	25.4 (N)	11.8 (N)	21.3 (N)	9.8 (N)	12.6 (N)
Iron	NE	2,000 or SB	100 - >100,000	21,900	29,100	15,300	23,200	17,300	18,500	24,300	14,100	22,900
Lead	1,000	SB	<10 - 300	505	7.1 J	6.4 B	17.7	54.6	3.3 B	6.2 B	3.4 B	6.5 B
Magnesium	NE	SB	100 - 5,000 ***	1,790 (*)	1,190 (*)	1,850 (*)	1,450 (*)	2,610 (*)	1,270 (*)	1,780 (*)	1,250 (*)	2,370 (*)
Manganese	10,000	SB	<2 - 7,000	397	164	120	184	149	152	208	276	278 J
Mercury (elemental)	2.8	0.1	0.01 - 3.4	5.3	< 0.011 U	0.027 B	0.048	0.42	0.076	< 0.017 U	< 0.012 U	0.035 B
Nickel	310	13 or SB	<5 - 700	22.4	8.1	9.7	10.8	13.0	6.7	10.7	7.5	14.5
Potassium	NE	SB	50 - 37,000	950 (N)	479 (N)	456 (N)	541 (N)	793 (N)	468 (N)	400 (N)	442 (N)	555 (N)
Selenium	1,500	2 or SB	<0.1 - 3.9	<1.9 U (N)	<1.8 U (N)	<1.8 U (N)	<1.7 U (N)	<2.2 U (N)	<2.0 U (N)	<2.2 U (N)	<1.8 U (N)	<2.2 U (N)
Silver	1,500	SB	0.20 - 14.8 **	<0.38 U	<0.37 U	<0.36 U	<0.35 U	<0.44 U	<0.41 U	<0.43 U	<0.36 U	<0.44 U
Sodium	NE	SB	6,000 - 8,000 ***	82.4 B	31.0 B	40.8 B	45.3 B	167	76.7 B	45.9 B	60.4 B	105 B
Thallium	NE	SB	2.2 - 23	<5.0 UJ	<4.8 UJ	<4.7 UJ	<4.5 UJ	<5.8 UJ	<5.3 UJ	<5.6 UJ	<4.7 UJ	<5.7 UJ
Vanadium	NE	150 or SB	<7 - 300	31.6 (*N)	22.8 (*N)	29.4 (*N)	31.5 (*N)	25.2 (*N)	21.9 (*N)	28.5 (*N)	17.0 (*N)	31.2 J (*N)
Zinc	10,000	20 or SB	<5 - 2,900	261 (N)	34.5 (N)	22.4 B (N)	57.8 (N)	130 (N)	39 (N)	111 (N)	129 (N)	24.3 B (N)
PCBs / Pesticides												
Total, (ppb)												
4,4'-DDE	62,000	2,100		<0.53 U	<0.47 U	<0.51 U	<0.47 U	3.4 J	<0.50 U	<0.49 U	<0.47 U	<3.8 U
4,4'-DDT	47,000	2,100		<0.38 U	<0.34 U	<0.36 U	1.4	11 J	<0.35 U	<0.35 U	<0.33 U	<0.35 U
4,4'-DDD	92,000	2,900		<0.47 U	<0.42 U	<0.45 U	<0.41 U	4.5 J	<0.44 U	<0.43 U	<0.41 U	<0.43 U
Aldrin	680	41		<0.43 U	<0.39 U	<0.42 U	<0.39 U	<0.40 U	<0.41 U	<0.40 U	<0.38 U	<0.41 U
alpha-BHC	3,400	110		<0.34 U	<1.9 U	<0.32 U	<1.8 U	<0.31 U	1.6 J	<1.9 U	<1.8 U	<0.31 U
beta-BHC	3,000	200		0.58 J	<0.29 U	<0.32 U	<0.29 U	<1.9 U	<0.31 U	<0.30 U	<0.29 U	<0.31 U
Chlordane (alpha)	24,000	540		<0.13 U	<1.9 U (M)	<2.0 U	<0.12 U	<1.9 U	0.49 J (M)	<0.12 U	<0.12 U	<0.13 U
Chlordane (gamma)	NE	540		<0.11 U	<0.099 U	<0.11 U	<0.099 U	<1.9 U	<0.10 U	<0.10 U	<0.098 U	<0.10 U
delta-BHC	500,000	300		<0.13 U	<0.11 U	<2.0 U	<1.8 U	<1.9 U	2.3 J	<1.9 U	<1.8 U	<1.9 U
Dibenzofuran	350,000	6,200		870	<58 U	<63 U	<59 U	<61 U	<62 U	<57 U	<57 U	<490 U
Methoxychlor	NE	NE		<21 U	<2.3 U	<2.5 U	<2.3 U	<2.4 U	<2.4 U	<2.4 U	<2.3 U	<2.4 U
Endosulfan I	200,000	900		28	<0.16 U	1.0 J (M)	27 (M)	5.4	<1.9 U	<0.16 U	<0.16 U	<0.17 U
Endosulfan II	200,000	900		3.3 J	<0.19 U	<0.20 U	<0.18 U	<0.19 U	<0.19 U	<0.19 U	<0.18 U	<0.19 U
Endosulfan sulfate	200,000	1,000		7.3 NJ	<0.19 U	<0.20 U	8.6 J	<3.7 U	<0.20 U	<0.19 U	<0.19 U	<0.20 U
Endrin	89,000	100		<1.1 UJ	<0.97 UJ	<1.0 UJ	<0.97 UJ	<1.0 UJ	<1.0 UJ	<1.0 UJ	<0.96 UJ	<1.0 UJ
Endrin ketone	NE	NE		<0.18 U	<0.16 U	<0.17 U	<3.6 U	<0.16 U	<0.16 U	<0.16 U	<0.16 U	<0.16 U
Heptachlor epoxide	NE	20		2.8 NJ	<1.9 U	0.20 J	<1.8 U	<1.9 U	<1.9 U	<0.13 U	<0.12 U	<1.9 U
Heptachlor	15,000	100		<0.18 U	<0.16 U	<0.18 U	<0.16 U	<0.17 U	<0.17 U	<0.17 U	<0.16 U	<0.17 U
PCBs:	1,000	1,000 (surface)										
Aroclor, 1260	NE	10,000 (subsurface)		<4.9 U	<4.4 U	<4.7 U	<4.3 U	<4.5 U	<4.6 U	<4.5 U	<4.3 U	<4.6 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	GP-10 [18-20 ft bgs]	GP-11 [8-10 ft bgs]	GP-11 [18-20 ft bgs]	GP-12 [8-10 ft bgs]	GP-12 [18-20 ft bgs]	GP-13 [6-8 ft bgs]	GP-13 [18-20 ft bgs]	GP-14 [8-10 ft bgs]	GP-14 [18-20 ft bgs]
VOCs (ppb)											
1,1,2-Trichloroethane	NE	NE	<66 U	<0.68 U	<0.68 U	<0.73 U	<0.67 U	<0.84 U	<0.66 U	<0.68 U	<76 U
2-Hexanone	NE	NE	<87 U	<2.6 UJ	<2.6 UJ	<2.8 U	<2.6 U	<3.2 U	<2.5 U	<2.6 U	<100 U
1,1,2,2-Tetrachloroethane	NE	600	1,100	<0.56 U	<0.57 U	<0.61 U	<0.56 U	<0.70 UJ	<0.55 U	<0.57 U	<51 U
1,1-Dichloroethene	500,000	400	<76 U	<2.3 U	<2.3 U	<2.4	<2.2 U	<2.8 U	<2.2 U	<2.3 U	<89 U
1,2-Dichloroethane	30,000	100	<66 U	<2.0 UJ	<2.0 UJ	<2.2 U	<2.0 U	<2.5 U	<2.0 U	<2.0 U	<76 U
cis-1,2-Dichloroethene	500,000	NE	<66 U	2.3 J	<1.4 U	<1.5 U	<1.3 U	4.7 J	<1.3 U	1.9 J	520 J
4-Methyl-2-pentanone	NE	1,000	<76 U	36 (H)	36 (H)	6.9 J	8.2 J	<1.4 U	<1.1 U	3.5 J	<89 U
Acetone	500,000	200	<1,400 U	<30 UJ	<37 UJ	19 J	17 J	160 J	12 J	34	<1,600 UJ
Benzene	44,000	60	<44 U	<1.6 U (H)	<1.6 U	<1.7 U	<1.6 U	<2.0 U	<1.5 U	<1.6 U	<51 U
Bromomethane	NE	NE	<130 UJ	<2.5 U	<2.5 U	<2.7 U	<2.5 U	<3.1 U	<2.4 U	<2.5 U	<150 UJ
Carbon Disulfide	NE	2,700	<98 U	<1.9 U	<1.9 U	<2.1 U	<1.9 U	<2.4 U	<1.9 U	<1.9 U	<110 U
Chlorobenzene	500,000	1,700	110 J	<1.2 U	<1.2 U	<1.3 U	<1.2 U	<1.5 UJ	<1.2 U	<1.3 U	<51 U
Chloroethane	NE	1,900	<87 U	<3.3 UJ	<3.3 UJ	<3.5 U	<3.2 U	<4.0 U	<3.2 U	<3.3 U	<100 U
Chloromethane	NE	NE	<55 U	<1.8 U	<1.8 U	<1.9 UJ	<1.8 UJ	<2.2 UJ	<1.8 UJ	<1.8 UJ	<64 U
Ethylbenzene	390,000	5,500	<110 U	2.5 J	<2.0 U (H)	<2.2 U	<2.0 U	<2.5 UJ	<2.0 U	<2.0 U	<130 U
1,2,4-Trimethylbenzene	190,000	NE	3,400	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	190,000	NE	<76 U	NR	NR	NR	NR	NR	NR	NR	NR
Methyl ethyl ketone	500,000	300	<130 R	250 J	360 J	180 J	170 J	93 J	21 J	91 J	<150 UJ
Methylene chloride	500,000	100	<550 UJ	<23 U	<23 U	<24 UJ	<22 UJ	<4.9 UJ	<22 U	<23 UJ	<640 UJ
Toluene	500,000	1,500	<33 U	<1.9 U	<1.9 U (H)	<2.1 U	<1.9 U	<2.4 U	<1.9 U	<1.9 U	270 J
trans-1,3-Dichloropropene	NE	NE	<33 U	<0.56 U	<0.57 U	<0.61 U	<0.56 U	<0.70 U	<0.55 U	<0.57 U	<38 U
Trichloroethene	200,000	700	<76 U	7.0	<1.9 U	<2.1 U	<1.9 U	5.6 J	<1.9 U	<1.9 U	560 J
Tetrachloroethene	150,000	1,400	<55 U	<2.1 U	<2.2 U	<2.3 U	<2.1 U	<2.6 UJ	<2.1 R	<2.2 U	<64 U
trans-1,2-Dichloroethene	500,000	300	<55 U	<1.6 U	<1.6 U	<1.7 U	<1.6 U	<2.0 U	<1.5 U	<1.6 U	<64 U
Total xylenes	500,000	1,200	150 J	12	<5.1 U	<5.5 U	<5.0 U	<6.3 UJ	<5.0 U	<5.1 U	550 J
SVOCs (ppb)											
2,4-Dimethylphenol	NE	NE	<1,800 U	<190 U	<190 U	<200 U	<180 U	<240 U	<180 U	<190 U	<210 U
2-Methylnaphthalene	NE	36,400	36,000	<59 U	<58 U	<61 U	<56 U	<72 U	<56 U	<59 U	<64 U
2-Methylphenol	NE	100	<950 U	<99 U	<97 U	<100 U	<94 U	<120 U	<93 U	<99 U	<110 U
4-Methylphenol	NE	900	<1,900 U	<200 U	<190 U	<210 U	<190 U	<240 U	<190 U	<200 U	<210 U
Acenaphthene	500,000	50,000	<580 U	74 J	<60 U	<63 U	<58 U	<75 U	<58 U	<61 U	<66 U
Acenaphthylene	500,000	41,000	<440 U	<46 U	<44 U	<47 U	<43 U	<56 U	<43 U	<45 U	<49 U
Anthracene	500,000	50,000	660 J	160 J	<60 U	<63 U	<58 U	<75 U	<58 U	<51 U	<66 U
Benzo(a)anthracene	5,600	224	<480 U	440	<49 U	<52 U	<48 U	<62 U	<47 U	<50 U	<54 U
Benzo(a)pyrene	1,000	61	<440 U	430	<44 U	<47 U	<43 U	<56 U	<43 U	<45 U	<49 U
Benzo(b)fluoranthene	5,600	1,100	<990 U	520	<100 U	<110 U	<98 U	<130 U	<98 U	<100 U	<110 U
Benzo(g,h,i)perylene	500,000	50,000	<390 U	310 J	<40 U	<43 U	<39 U	<51 U	<39 U	<41 U	<44 U
Benzo(k)fluoranthene	56,000	1,100	<390 U	210 J	<40 U	<43 U	<39 U	<51 U	<39 U	<41 U	<44 U
Bis (2-ethylhexyl) phthalate	NE	50,000	<470 U	<49 U	<48 U	<51 U	<47 U	<60 U	<46 U	<49 U	<53 U
Butyl benzyl phthalate	NE	50,000	<460 U	<48 U	<47 U	<50 U	<45 U	<59 U	<45 U	<48 U	<52 U
Carbazole	NE	NE	<520 U	67 J	<53 U	<57 U	<52 U	<67 U	<51 U	<54 U	<59 U
Chrysene	56,000	400	<450 U	480	<46 U	<48 U	<44 U	59 J	<44 U	<47 U	<50 U
Fluoranthene	500,000	50,000	<450 U	890	<46 U	<48 U	<44 U	95 J	<44 U	<47 U	<50 U
Fluorene	500,000	50,000	2,800 J	61 J	<47 U	<50 U	<45 U	<59 U	<45 U	<48 U	<52 U
Indeno(1,2,3-cd)pyrene	5,600	3,200	<360 U	250 J	<37 U	<39 U	<36 U	<46 U	<36 U	<38 U	<41 U
Naphthalene	500,000	13,000	1,300 J	<63 U	<62 U	<66 U	<60 U	<78 U	<60 U	<63 U	<68 U
Pentachlorophenol	6,700	1,000	<3,100 U	<320 U	<310 U	<330 U	<300 U	<390 U	<300 U	<320 U	<350 U
Phenanthrene	500,000	50,000	6,300	680	<42 U	<45 U	<41 U	<53 U	<41 U	<43 U	<47 U
Pyrene	500,000	50,000	<49 U	900	<50 U	<53 U	<49 U	87 J	<48 U	<51 U	<55 U
Dibenzo(a,h)anthracene	560	14	<390 U	<41 U	<40 U	<43 U	<39 U	<51 U	<39 U	<41 U	<44 U
Di-n-butyl phthalate	NE	8,100	<470 U	<49 U	<48 U	81 J (H)	91 J (H)	130 J	170 J	<49 U	<53 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		GP-10 [18-20 ft bgs]	GP-11 [8-10 ft bgs]	GP-11 [18-20 ft bgs]	GP-12 [8-10 ft bgs]	GP-12 [18-20 ft bgs]	GP-13 [6-8 ft bgs]	GP-13 [18-20 ft bgs]	GP-14 [8-10 ft bgs]	GP-14 [18-20 ft bgs]
TAL Metals, Total (ppm)		TAGM #4046	SB									
Aluminum	NE	SB	7,000 - 10,000	3,890	7,160	3,670	9,950	2,830	9,290	4,780	5,510	3,890
Antimony	NE	SB	<1 - 8.8	<1.3 U (N)	<1.4 U (N)	<1.4 U (N)	<1.7 U (N)	<1.2 U (N)	<1.5 U (N)	<1.5 U (N)	<1.5 U (N)	<1.4 U (N)
Arsenic	16	7.5 or SB	<0.1 - 73	1.5 B (N)	2.8 B (N)	< 1.5 U (N)	2.4 B	<1.3 U	3.0 B	<1.6 U	<1.6 U	<1.5 U
Barium	400	300 or SB	10 - 1,500	74.7 (*N)	107 (*N)	25.3 (*N)	23.4	16.8	37.4	29.6	19.6	21.4
Beryllium	590	0.16 or SB	<1 - 7	< 0.56 U	< 0.63 U	< 0.63 U	<0.73 U	<0.53 U	<0.65 U	<0.64 U	<0.67 U	<0.62 U
Cadmium	9.3	1 or SB	0.07 - 4.40 **	< 1.1 U	< 1.3 U	< 1.3 U	<1.5 U	<1.1 U	<1.3 U	<1.3 U	<1.3 U	<1.2 U
Calcium	NE	SB	130 - 35,000 ***	1,510	1,980	425	1,390	492	1,920	525	418	436
Chromium - total	NE	10 or SB	1 - 1,000	16.7 (*)	15.7 (*)	10.1 (*)	18.4	9.5	13.2	16.2	12.7	16.2
Cobalt	NE	30 or SB	<3 - 70	6.4	6.8	3.0	3.6	4.6	6.1	5.3	5.4	3.4
Copper	270	25 or SB	<1 - 700	18.1 (N)	17.9 (N)	13.8 (N)	5.9 B	13.6	10.5	14.6	6.9	13.8
Iron	NE	2,000 or SB	100 - >100,000	28,600	19,900	12,300	13,500	13,500	13,200	20,800	12,100	20,900
Lead	1,000	SB	<10 - 300	5.3 B	122	2.1 B	10.7 B	3.7 B	75.0	4.3 B	3.4 B	5.2 B
Magnesium	NE	SB	100 - 5,000 ***	1,620 (*)	1,750 (*)	1,390 (*)	1,580	946	1,340	2,090	1,130	939
Manganese	10,000	SB	<2 - 7,000	1,570	314	346	60.0	239	757	281	232	186
Mercury (elemental)	2.8	0.1	0.01 - 3.4	0.074	0.15	< 0.014 U	0.072	<0.013 U	0.31	<0.014 U	<0.017 U	<0.014 U
Nickel	310	13 or SB	<5 - 700	10.3	13.1	5.6 B	9.6	7.2	7.4	7.4	8.7	7.0
Potassium	NE	SB	50 - 37,000	411 (N)	672 (N)	386 (N)	290 B	263	351	709	295	360
Selenium	1,500	2 or SB	<0.1 - 3.9	<1.8 U (N)	<2.0 U (N)	<2.0 U (N)	<2.3 U	<1.7 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U
Silver	1,500	SB	0.20 - 14.8 **	<0.36 U	<0.40 U	<0.41 U	<0.47 U	<0.34 U	<0.42 U	<0.41 U	<0.43 U	<0.40 U
Sodium	NE	SB	6,000 - 8,000 ***	61.4 B	64.3 B	52.0 B	34.9 B	26.1 B	86.0 B	33.5 B	46.0 B	35.3 B
Thallium	NE	SB	2.2 - 23	<4.7 UJ	<5.2 UJ	<5.3 UJ	<6.1 U (N)	<4.4 U (N)	<5.4 U (N)	<5.3 U (N)	<5.6 U (N)	<5.2 U (N)
Vanadium	NE	150 or SB	<7 - 300	38.1 (*N)	24.2 (*N)	16.6 (*N)	26.5	15.0	18.3	28.7	18.9	23.7
Zinc	10,000	20 or SB	<5 - 2,900	24.4 (N)	51.3 (N)	13.9 B (N)	37.8	34.4	41.0	27.2	17.6 B	19.3 B
PCBs / Pesticides Total, (ppb)												
4,4'-DDE	62,000	2,100		<0.47 U	<0.49 U	<0.48 U	<0.51 U	<0.47 U	<0.59 U	<0.47 U	<0.49 U	<0.55 U
4,4'-DDT	47,000	2,100		<0.33 U	<0.35 U	<0.34 U	<0.37 U	<0.34 U	<0.42 U	<0.33 U	<0.35 U	<0.39 U
4,4'-DDD	92,000	2,900		<0.41 U	<0.43 U	<0.42 U	<0.45 U	<0.41 U	<0.52 U	<0.41 U	<0.43 U	<0.48 U
Aldrin	680	41		<0.38 U	<0.40 U	<0.39 U	<0.42 U	<0.39 U	<0.49 U	<0.38 U	<0.40 U	<0.45 U
alpha-BHC	3,400	110		<0.30 U	<0.31 U	<0.30 U	<0.32 U	<0.30 U	<0.38 U	<0.30 U	<0.31 U	<0.35 U
beta-BHC	3,000	200		<0.29 U	<0.30 U	<0.30 U	<0.32 U	<0.29 U	<0.37 U	<0.29 U	<0.30 U	<0.34 U
Chlordane (alpha)	24,000	540		<0.12 U	<0.12 U	<0.12 U	<0.13 U	<0.12 U	<2.3 U	<0.12 U	<0.12 U	<0.14 U
Chlordane (gamma)	NE	540		<0.098 U	<0.10 U	<0.10 U	<0.11 U	<0.099 U	<0.12 U	<0.098 U	<0.10 U	<0.11 U
delta-BHC	500,000	300		1.4 J	<1.9 U	<0.11 U	<0.12 U	<0.11 U	1.8 J	<0.11 U	<0.12 U	<2.1 U
Dibenzofuran	350,000	6,200		2,000 J	<59 U	<58 U	<61 U	<56 U	<72 U	<56 U	<59 U	<64 U
Methoxychlor	NE	NE		<2.3 U	<2.4 U	<2.3 U	<2.5 U	<2.3 U	<2.9 U	<2.3 U	<2.4 U	<2.7 U
Endosulfan I	200,000	900		0.37 J	3.3	<0.16 U	<0.17 U	<0.16 U	<0.20 U	<0.16 U	<0.17 U	<0.19 U
Endosulfan II	200,000	900		<0.18 U	<3.7 U	<0.19 U	<0.20 U	<0.19 U	<4.5 U	<0.18 U	<0.19 U	<0.21 U
Endosulfan sulfate	200,000	1,000		<0.19 U	<3.7 U	<0.19 U	<0.20 U	<0.19 U	<4.5 U	<0.19 U	<0.19 U	<0.22 U
Endrin	89,000	100		<0.96 U	<1.0 U	<0.99 U	<1.1 U	<0.97 U	<1.2 U	<0.95 U	<1.0 U	<1.1 U
Endrin ketone	NE	NE		<0.15 U	<0.16 U	<0.16 U	<0.17 U	<0.16 U	<0.20 U	<0.15 U	<0.16 U	<0.18 U
Heptachlor epoxide	NE	20		<1.8 U	<0.13 U	<0.13 U	<0.13 U	<0.12 U	<0.16 U	<0.12 U	<0.13 U	0.27 J
Heptachlor	15,000	100		<0.16 U	<0.17 U	<0.17 U	<0.18 U	<0.16 U	<0.21 U	<0.16 U	<0.17 U	<0.19 U
PCBs: Aroclor, 1260	1,000 NE	1,000 (surface) 10,000 (subsurface)		<4.3 U	<4.5 U	<4.4 U	<4.7 U	<4.3 U	<5.5 U	<4.3 U	<4.5 U	<5.0 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	GP-15 [20-24 ft bgs]	GP-15 [26-28 ft bgs]	GP-16 [6-8 ft bgs]	GP-16 [18-20 ft bgs]	GP-17 [6-8 ft bgs]	GP-17 [18-20 ft bgs]	GP-18 [6-8 ft bgs]	GP-19 [6-8 ft bgs]	GP-19 [18-20 ft bgs]
VOCs (ppb)											
1,1,2-Trichloroethane	NE	NE	<0.67 U	<0.71 UJ	<0.70 U	<3.3 U	<0.72 U	<0.66 U	<0.81 U	<0.73 U	<3.3 U
2-Hexanone	NE	NE	<2.6 U	<2.7 R	<2.7 U	<13 U	<2.8 U	<2.5 U	<3.1 U	<2.8 U	<13 U
1,1,2,2-Tetrachloroethane	150,000	600	<0.56 U	<0.59 R	<0.58 U	<2.7 U	<0.60 U	<0.55 U	<0.67 U	<0.61 U	<2.8 U
1,1-Dichloroethene	240,000	400	<2.2 U	<2.4 UJ	<2.3 U	<11 U	<2.4 U	<2.2 U	<2.7 U	<2.4 U	<11 U
1,2-Dichloroethane	30,000	100	<2.0 U	<2.1 UJ	<2.1 U	<9.8 U	<2.2 U	<2.0 U	<2.4 U	<2.2 U	<10 U
cis-1,2-Dichloroethene	500,000	NE	<1.3 U	<1.4 UJ	<1.4 U	<6.5 U	<1.4 U	<1.3 U	6.9	<1.5 U	<6.6 U
4-Methyl-2-pentanone	NE	1,000	5.3 J	<1.2 R	5.8 J	<5.4 U	34 (H)	12	18	15	<5.5 U
Acetone	500,000	200	30 J	<2.0 UJ	58	81 J	130	8.5 J	220	44	83 J
Benzene	44,000	60	<1.6 U	<1.7 UJ	<1.6 U	<7.6 U	<1.7 U	<1.5 U	<1.9 U	<1.7 U	<7.8 U
Bromomethane	NE	NE	<2.5 U	<2.6 UJ	<2.6 U	<12 U	<2.6 U	<2.4 U	<3.0 U	<2.7 U	<12 U
Carbon Disulfide	NE	2,700	<1.9 U	<2.0 UJ	<2.0 U	<9.3 U	<2.0 U	<1.9 U	<2.3 U	<2.1 U	<9.4 U
Chlorobenzene	500,000	1,700	<1.2 U	<1.3 R	<1.3 U	<6.0 U	<1.3 U	<1.2 U	<1.5 U	<1.3 U	<6.1 U
Chloroethane	NE	1,900	<3.3 U	<3.4 UJ	<3.4 U	<16 U	<3.5 U	<3.2 U	<3.9 U	<3.5 U	<16 U
Chloromethane	NE	NE	<1.8 UJ	<1.9 UJ	<1.9 UJ	<8.7 UJ	<1.9 UJ	<1.8 UJ	<2.2 UJ	<1.9 UJ	<8.9 UJ
Ethylbenzene	390,000	5,500	<2.0 U	<2.1 R	<2.1 U	22 J	2.6 J	<2.0 U	<2.4 U	<2.2 U	27 J
1,2,4-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	NR	NR	NR	NR	NR
1,3,5-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	NR	NR	NR	NR	NR
Methyl ethyl ketone	500,000	300	87 J	<2.7 UJ	120 J	<13 U	140 J	82 J	88 J	94 J	<13 U
Methylene chloride	500,000	100	<22 UJ	<24 UJ	<23 UJ	<110 UJ	<31 UJ	<23 UJ	<34 UJ	<26 UJ	<110 UJ
Toluene	500,000	1,500	<1.9 U	<2.0 R	<2.0 U	<9.3 U	2.7 J	<1.9 U	2.5 J	<2.1 U	<9.4 U
trans-1,3-Dichloropropene	NE	NE	<0.56 U	<0.59 UJ	<0.58 U	<2.7 U	<0.60 U	<0.55 U	<0.67 U	<0.61 U	<2.8 U
Trichloroethene	200,000	700	<1.9 U	<2.0 UJ	<2.0 U	<9.3 U	<2.0 U	<1.9 U	9.2	<2.1 U	<9.4 U
Tetrachloroethene	150,000	1,400	<2.1 U	<2.2 R	<2.2 U	<10 U	<2.3 U	<2.1 U	<2.6 U	<2.3 U	<11 U
trans-1,2-Dichloroethene	500,000	300	<1.6 U	<1.7 UJ	<1.6 U	<7.6 U	<1.7 U	<1.5 U	<1.9 U	<1.7 U	<7.8 U
Total xylenes	500,000	1,200	<5.1 U	<5.3 R	<5.2 U	160 J	13	<4.9 U	8.0	<5.5 U	110 J
SVOCs (ppb)											
2,4-Dimethylphenol	NE	NE	<190 U	<190 U	<190 U	<900 U	<200 U	<190 U	<220 U	<200 U	<760 U
2-Methylnaphthalene	NE	36,400	<58 U	<59 U	<59 U	24,000 J	<61 U	<57 U	<69 U	<63 U	11,000 J
2-Methylphenol	NE	100	<98 U	<100 U	<100 U	<460 U	<100 U	<96 U	<120 U	<110 U	<390 U
4-Methylphenol	NE	900	<200 U	<200 U	<200 U	<930 U	<210 U	<190 U	<230 U	<210 U	<790 U
Acenaphthene	500,000	50,000	<60 U	<62 U	<62 U	3,400 J	<64 U	<60 U	<72 U	<65 U	3,300 J
Acenaphthylene	500,000	41,000	<45 U	<46 U	<46 U	<210 U	<47 U	<44 U	<54 U	<48 U	<180 U
Anthracene	500,000	50,000	<60 U	<62 U	69 J	870 J	<64 U	<60 U	<72 U	90 J	780 J
Benzo(a)anthracene	5,600	224	<49 U	<50 U	140 J	<230 U	<52 U	<49 U	<59 U	220 J	<200 U
Benzo(a)pyrene	1,000	61	<45 U	<46 U	110 J	<210 U	<47 U	<44 U	<54 U	150 J	<180 U
Benzo(b)fluoranthene	5,600	1,100	<100 U	<100 U	190 J	<480 U	<110 U	<100 U	<120 U	220 J	<410 U
Benzo(g,h,i)perylene	500,000	50,000	<41 U	<42 U	71 J	<190 U	<43 U	<40 U	<48 U	97 J	<160 U
Benzo(k)fluoranthene	56,000	1,100	<41 U	<42 U	52 J	<190 U	<43 U	<40 U	<48 U	84 J	<160 U
Bis (2-ethylhexyl) phthalate	NE	50,000	<48 U	<49 U	<49 U	<230 U	<51 U	<48 U	<57 U	<52 U	<190 U
Butyl benzyl phthalate	NE	50,000	<47 U	<48 U	<48 U	<220 U	<50 U	<47 U	<56 U	<51 U	<190 U
Carbazole	NE	NE	<54 U	<55 U	<55 U	<260 U	<57 U	<53 U	<64 U	62 J	<220 U
Chrysene	56,000	400	<46 U	<47 U	150 J	<220 U	<49 U	<45 U	<55 U	200 J	<190 U
Fluoranthene	500,000	50,000	<46 U	<47 U	260 J	<220 U	<49 U	<45 U	60 J	510	<190 U
Fluorene	500,000	50,000	<47 U	<48 U	<48 U	3,600 J	<50 U	<47 U	<56 U	<51 U	3,000 J
Indeno(1,2,3-cd)pyrene	5,600	3,200	<37 U	<38 U	67 J	<180 U	<39 U	<37 U	<44 U	91 J	<150 U
Naphthalene	500,000	13,000	<62 U	<64 U	<64 U	<300 U	<66 U	<62 U	<74 U	<67 U	<250 U
Pentachlorophenol	6,700	1,000	<320 U	<320 U	<320 U	<1,500 U	<330 U	<310 U	<380 U	<340 U	<1,300 U
Phenanthrene	500,000	50,000	<43 U	<44 U	230 J	11,000	<45 U	<42 U	<51 U	540	11,000
Pyrene	500,000	50,000	<50 U	<52 U	230 J	500 J	<53 U	<50 U	<60 U	460	520 J
Dibenzo(a,h)anthracene	560	14	<41 U	<42 U	<41 U	<190 U	<43 U	<40 U	<48 U	<44 U	<160 U
Di-n-butyl phthalate	NE	8,100	<48 U	<49 U	<49 U	<230 U	<51 U	<48 U	<57 U	<52 U	<190 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		GP-15 [20-24 ft bgs]	GP-15 [26-28 ft bgs]	GP-16 [6-8 ft bgs]	GP-16 [18-20 ft bgs]	GP-17 [6-8 ft bgs]	GP-17 [18-20 ft bgs]	GP-18 [6-8 ft bgs]	GP-19 [6-8 ft bgs]	GP-19 [18-20 ft bgs]
TAL Metals, Total (ppm)		**TAGM #4046**	**SB**									
Aluminum	NE	SB	7,000 - 10,000	4,510	2,250	7,920	3,450	10,500	3,820	9,830	10,800	4,070
Antimony	NE	SB	<1 - 6.8	<1.5 U (N)	<1.3 U (N)	7.8 B (N)	<1.4 U (N)	<1.4 U (B)	<1.5 U (N)	<1.6 U (N)	<1.2 U (N)	<1.4 U (N)
Arsenic	16	7.5 or SB	<0.1 - 73	<1.6 U	<1.4 U	3.9 B	<1.5 U	4.4 B	<1.7 U	2.6 B	3.3 B	<1.5 U
Barium	400	300 or SB	10 - 1,500	42.7	13.8	47.8	62.6	24.9	89.1	37.9	26.5	197
Beryllium	590	0.16 or SB	<1 - 7	<0.66 U	<0.57 U	<0.58 U	<0.61 U	<0.60 U	<0.68 U	<0.70 U	<0.52 U	<0.63 U
Cadmium	9.3	1 or SB	0.07 - 4.40 **	<1.3 U	<1.1 U	<1.2 U	<1.2 U	<1.2 U	<1.4 U	<1.4 U	<1.0 U	<1.3 U
Calcium	NE	SB	130 - 35,000 ***	471	550	6,040	1,220	2,110	1,000	1,920	2,350	2,360
Chromium - total	NE	10 or SB	1 - 1,000	13.4	7.7	15.9	10.1	16.7	9.7	14.4	22.0	9.0
Cobalt	NE	30 or SB	<3 - 70	5.2	2.2 B	5.4	6.4	4.0	4.6	5.1	6.2	8.2
Copper	270	25 or SB	<1 - 700	19	8.1	15.0	22.2	9.5	12.8	12.9	9.6	15.9
Iron	NE	2,000 or SB	100 - >100,000	19,400	14,000	21,100	12,900	25,600	15,700	13,900	17,700	12,700
Lead	1,000	SB	<10 - 300	4.3 B	2.2 B	424.0	6.1 B	15.9	4.5 B	42.5	16.1	3.9 B
Magnesium	NE	SB	100 - 5,000 ***	1,690	996	1,530	1,450	1,730	1,670	1,610	2,060	1,740
Manganese	10,000	SB	<2 - 7,000	122	91.9	654	1,680	119	147	182	240	5,510
Mercury (elemental)	2.8	0.1	0.01 - 3.4	<0.012 U	<0.013 U	0.33	<0.013 U	0.19	<0.014 U	0.56	0.11	<0.013 U
Nickel	310	13 or SB	<5 - 700	8.3	5.2 B	9.7	9.5	9.8	9.1	8.9	13.1	12.5
Potassium	NE	SB	50 - 37,000	714	241	392	557	368	580	409	558	855
Selenium	1,500	2 or SB	<0.1 - 3.9	<2.1 U	<1.8 U	<1.9 U	<1.9 U	<1.9 U	<2.2 U	<2.2 U	<1.7 U	<2.0 U
Silver	1,500	SB	0.20 - 14.8 **	<0.42 U	<0.36 U	<0.37 U	<0.39 U	<0.39 U	<0.43 U	<0.45 U	<0.33 U	<0.41 U
Sodium	NE	SB	6,000 - 8,000 ***	80.6 B	56.6 B	108 B	67.8 B	38.1 B	49.0 B	91.3 B	526	129
Thallium	NE	SB	2.2 - 23	<5.5 U (N)	<4.7 U (N)	<4.9 U (N)	<5.1 U (N)	<5.0 U (N)	<5.7 U (N)	<5.9 U (N)	<4.3 U (N)	<5.3 U (N)
Vanadium	NE	150 or SB	<7 - 300	25.0	8.0	23.5	21.5	22.9	15.2	19.6	25.0	17.4
Zinc	10,000	20 or SB	<5 - 2,900	22.1 B	13.7 B	35.5	23.5 B	43.5	28.6	36.8	32.6	26.1
PCBs / Pesticides												
Total, (ppb)												
4,4'-DDE	62,000	2,100		<0.48 U	<0.50 U	<0.50 U	<3.5 U	<0.51 U	<0.47 U	<0.57 U	<0.52 U	<0.47 U
4,4'-DDT	47,000	2,100		<0.34 U	<0.36 U	<0.36 U	<0.33 U	<0.37 U	<0.34 U	<0.41 U	<0.37 U	<0.34 U
4,4'-DDD	92,000	2,900		<0.42 U	<0.44 U	<0.44 U	<0.41 U	<0.45 U	<0.41 U	<0.50 U	<0.45 U	<0.42 U
Aldrin	680	41		<0.39 U	<0.41 U	<0.41 U	<0.38 U	<0.42 U	<0.39 U	<0.47 U	<0.42 U	<0.39 U
alpha-BHC	3,400	110		<0.30 U	<0.32 U	<0.32 U	<0.29 U	<0.33 U	<0.30 U	<0.36 U	<0.33 U	<0.30 U
beta-BHC	3,000	200		<0.29 U	<0.31 U	<0.31 U	<0.29 U	<0.32 U	<0.29 U	<0.35 U	<0.32 U	<0.29 U
Chlordane (alpha)	24,000	540		<0.12 U	<0.13 U	<2.0 U	<0.12 U	<0.13 U	<0.12 U	<0.15 U	<2.0 U	0.34 J (M)
Chlordane (gamma)	NE	540		<0.10 U	<0.11 U	<0.10 U	<0.098 U	<0.11 U	<0.099 U	<0.12 U	<0.11 U	<0.099 U
delta-BHC	500,000	300		<0.11 U	<0.17 U	1.7 J	<1.8 U	<0.12 U	<0.11 U	<2.2 U	<2.0 U	<0.11 U
Dibenzofuran	350,000	6,200		<58 U	<59 U	<59 U	<280 U	<61 U	<57 U	<69 U	<63 U	<230 U
Methoxychlor	NE	NE		<2.3 U	<2.4 U	<2.4 U	<2.3 U	<2.5 U	<2.3 U	<2.8 U	<20 U	<2.3 U
Endosulfan I	200,000	900		<0.16 U	<0.17 U	<0.17 U	<0.16 U	<0.17 U	<0.16 U	<0.19 U	<0.18 U	<0.16 U
Endosulfan II	200,000	900		<0.19 U	<0.20 U	<3.8 U	<0.18 U	<0.20 U	<0.18 U	<0.22 U	<0.20 U	<0.19 U
Endosulfan sulfate	200,000	1,000		<0.19 U	<0.20 U	<3.8 U	<0.19 U	<0.20 U	<0.19 U	<0.23 U	<0.21 U	<3.6 U
Endrin	89,000	100		<0.98 U	<1.0 U	<1.0 U	<0.95 U	<1.1 U	<0.97 U	<1.2 U	<1.1 U	<0.97 U
Endrin ketone	NE	NE		<0.16 U	<0.17 U	<0.17 U	<0.15 U	<0.17 U	<0.16 U	<0.19 U	<0.17 U	<0.16 U
Heptachlor epoxide	NE	20		<0.12 U	<0.13 U	<0.13 U	<1.8 U	<0.14 U	<0.12 U	<0.15 U	<0.14 U	<1.9 U
Heptachlor	15,000	100		<0.16 U	<0.17 U	<0.17 U	<0.16 U	<0.18 U	<0.16 U	<0.20 U	<0.18 U	<0.16 U
PCBs:	1,000	1,000 (surface)										
Aroclor, 1260	NE	10,000 (subsurface)		<4.4 U	<4.6 U	<4.6 U	<4.3 U	<4.7 U	<4.3 U	<5.3 U	<4.8 U	<4.3 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	MW-1 [5-7 ft bgs]	MW-1 [15-22 ft bgs]	MW-2 [11-13 ft bgs]	MW-2 [17-19 ft bgs]	MW-3 [7-9 ft bgs]	MW-3 [17-19 ft bgs]	MW-4 [5-8 ft bgs]	MW-4 [15-17 ft bgs]	MW-5 [13 - 17 ft bgs]	MW-5 [25 - 27 ft bgs]
VOCs (ppb)												
1,1,2-Trichloroethane	NE	NE	<0.68 U	<0.70 U	<0.68 U	<0.70 U	<0.68 U	<3.5 U	<0.67 U	<0.70 U	<3.7 U	<0.74 U
2-Hexanone	NE	NE	<2.6 UJ	<2.7 UJ	<2.6 UJ	<2.7 UJ	<2.6 UJ	<13 UJ	<2.6 UJ	<2.7 UJ	<14 UJ	<2.8 UJ
1,1,2,2-Tetrachloroethane	NE	600	<0.57 U	<0.58 U	<0.57 U	<0.58 U	<0.57 U	<2.9 U	<0.56 U	<0.58 U	<3.1 U	<0.62 U
1,1-Dichloroethene	500,000	400	<2.3 U	<2.3 U	<2.3 U	<2.3 U	<2.3 U	<12 U	<2.2 U	<2.3 U	<12 U	<2.5 U
1,2-Dichloroethane	30,000	100	<2.1 UJ	<2.1 UJ	<2.1 UJ	<2.1 UJ	<2.1 UJ	<10 UJ	<2.0 UJ	<2.1 UJ	<11 UJ	<2.2 UJ
cis-1,2-Dichloroethene	500,000	NE	<1.4 U	<1.4 U	<1.4 U	<1.4 U	1.6 J	<6.9 U	<1.3 U	<1.4 U	<7.4 U	<1.5 U
4-Methyl-2-pentanone	NE	1,000	13 (H)	20 (H)	34 (H)	18 (H)	14	<5.8 U	11 J	42 (H)	<6.2 U	<1.2 U
Acetone	500,000	200	<25 UJ	<28 UJ	49 J	<26 UJ	<33 UJ	<120 UJ	85 J	47 J	<120 UJ	<37 UJ
Benzene	44,000	60	<1.6 U	<1.6 U	<1.6 U	<1.6 U	<1.6 U (H)	<8.1 U	<1.6 U	<1.6 U	<8.7 U	<1.7 U
Bromomethane	NE	NE	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<2.5 U	<13 U	<2.5 U	<2.6 U	<14 U	<2.7 U
Carbon Disulfide	NE	2,700	<1.9 U	<2.0 U	<1.9 U	<2.0 U	<1.9 U	<9.8 U	<1.9 U (M)	<2.0 U	<11 U	3.7 J
Chlorobenzene	500,000	1,700	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<1.3 U	<6.4 U	<1.2 U	<1.3 U	<6.8 U	<1.4 U
Chloroethane	NE	1,900	<3.3 UJ	<3.4 UJ	<3.3 UJ	<3.4 UJ	<3.3 UJ	<17 UJ	<3.3 UJ	<3.4 UJ	<18 UJ	<3.6 UJ
Chloromethane	NE	NE	<1.8 U	<1.9 U	<1.8 U	<1.9 U	<1.8 U	<9.3 U	<1.8 U	<1.9 U	<9.9 U	<2.0 U
Ethylbenzene	390,000	5,500	<2.1 U	<2.1 U	<2.1 U (H)	<2.1 U	<2.1 U	<10 U	<2.0 U (H)	<2.1 U (H)	13 J	<2.2 U
1,2,4-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	NR	NR	NR	NR	5,700 (A)	18
1,3,5-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	NR	NR	NR	NR	200	<2.1 U
Methyl ethyl ketone	500,000	300	120 J	210 J	350 J	180 J	140 J	<13 R	140 J	430 J	<14 R	250 J
Methylene chloride	500,000	100	<23 U	<23 U	<23 U	<23 U	<23 U	<120 U	<22 U	<23 U	<120 UJ	<25 U
Toluene	500,000	1,500	<1.9 U	<2.0 U	<1.9 U (H)	<2.0 U	<1.9 U	<9.8 U	<1.9 U (M)	<2.0 U	<11 U	<2.1 U (H)
trans-1,3-Dichloropropene	NE	NE	<0.57 U	<0.58 U	<0.57 U	<0.58 U	<0.57 U	<2.9 U	<0.56 U	<0.58 U	<3.1 U	<0.62 U
Trichloroethene	200,000	700	3.4 J	3.0 J	<1.9 U	<2.0 U	5.8 J	<9.8 U	<1.9 U	<2.0 U	14 J	<2.1 U
Tetrachloroethene	150,000	1,400	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U	<11 U	<2.1 U	<2.2 U	<12 U	<2.3 U
trans-1,2-Dichloroethene	500,000	300	<1.6 U	<1.6 U	<1.6 U	<1.6 U	<1.6 U	<8.1 U	<1.6 U	<1.6 U	<8.7 U	<1.7 U
Total xylenes	500,000	1,200	<5.1 U	<5.2 U	<5.1 U	<5.2 U	10	27 J	<5.1 U	<5.2 U	170 J	<5.5 U
SVOCs (ppb)												
2,4-Dimethylphenol	NE	NE	<190 U	<200 U	<190 U	<200 U	<190 U	<190 U	<190 U	<190 U	<420 U	<200 U
2-Methylnaphthalene	NE	36,400	<60 U	73 J	<60 U	<61 U	<59 U	650	<59 U	<60 U	4,600	160 J
2-Methylphenol	NE	100	<100 U	<100 U	<100 U	<100 U	<100 U	<100 U	<99 U	<100 U	<220 U	<100 U
4-Methylphenol	NE	900	<200 U	<200 U	<200 U	<200 U	<200 U	<200 U	<200 U	<200 U	<440 U	<210 U
Acenaphthene	500,000	50,000	78 J	<62 U	<62 U	<63 U	<62 U	170 J	<61 U	<62 U	<130 U	<65 U
Acenaphthylene	500,000	41,000	<46 U	620	<46 U	<47 U	<46 U	<46 U	<45 U	<46 U	<100 U	<48 U
Anthracene	500,000	50,000	170 J	250 J	80 J	<63 U	96 J	190 J	<61 U	<62 U	650 J	120 J
Benzo(a)anthracene	5,600	224	440	430	170 J	<51 U	260 U	470	<50 U	<51 U	<110 U	150 J
Benzo(a)pyrene	1,000	61	340 J	490	150 J	<47 U	190 U	320 J	<45 U	<46 U	<100 U	120 J
Benzo(b)fluoranthene	5,600	1,100	430	440	170 J	<110 U	210 J	470	<100 U	<100 U	<230 U	140 J
Benzo(g,h,i)perylene	500,000	50,000	260 J (M)	570 J	99 J	<42 U	130 J	250 J	<41 U	<42 U	<90 U	60 J
Benzo(k)fluoranthene	56,000	1,100	140 J	130 J	67 J	<42 U	65 J	130 J	<41 U	<42 U	<90 U	49 J
Bis (2-ethylhexyl) phthalate	NE	50,000	810	470	110 J	<50 U	740	480	57 J	97 J	700 J	100 J
Butyl benzyl phthalate	NE	50,000	150 J	81 J	<48 U	<49 U	130 J	99 J	<48 U	<48 U	160 J	<51 U
Carbazole	NE	NE	79 J	<56 U	<55 U	<56 U	<55 U	78 J	<54 U	<55 U	<120 U	<58 U
Chrysene	56,000	400	460	540	160 J	<48 U	290 J	440	<47 U	<47 U	<100 U	140 J
Fluoranthene	500,000	50,000	830	310 J	340 J	<48 U	430	940	<47 U	<47 U	170 J	350 J
Fluorene	500,000	50,000	78 J	93 J	<48 U	<49 U	<48 U	200 J	<48 U	<48 U	2,800	160 J
Indeno(1,2,3-cd)pyrene	5,600	3,200	210 J	380 J	75 J	<39 U	95 J	180 J	<38 U	<38 U	<83 U	54 J
Naphthalene	500,000	13,000	<64 U	83 J	<64 U	<65 U	<64 U	84 J	<63 U	<64 U	<140 U	<67 U
Pentachlorophenol	6,700	1,000	<320 U	<330 U	<320 U	<330 U	<320 U	<320 U	<320 U	<320 U	<700 U	<340 U
Phenanthrene	500,000	50,000	710	450	290 J	<45 U	380	1,000	<43 U	<44 U	7,800	720
Pyrene	500,000	50,000	1,000	790	340 J	<53 U	600	930	<51 U	<52 U	530 J	310 J
Dibenzo(a,h)anthracene	560	14	69 J	130 J	<42 U	<42 U	<41 U	<42 U	<41 U	<42 U	<90 U	<44 U
Di-n-butyl phthalate	NE	8,100	<50 U	<50 U	<50 U	<50 U	<49 U	<50 U	<49 U	<49 U	<110 U	<52 U

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		MW-1 [5-7 ft bgs]	MW-1 [15-22 ft bgs]	MW-2 [11-13 ft bgs]	MW-2 [17-19 ft bgs]	MW-3 [7-9 ft bgs]	MW-3 [17-19 ft bgs]	MW-4 [5-8 ft bgs]	MW-4 [15-17 ft bgs]	MW-5 [13 - 17 ft bgs]	MW-5 [25 - 27 ft bgs]
TAL Metals, Total (ppm)		**TAGM #4046**	**SB**										
Aluminum	NE	SB	7,000 - 10,000	8,030	8,510	6,980	4,200	9,160	3,680	7,200	3,520	4,670	2,520
Antimony	NE	SB	<1 - 8.8	<1.3 U (N)	<1.6 U (N)	<1.2 U (N)	<1.3 U (N)	<1.5 U (N)	<1.2 U (N)	<1.3 U (N)	<1.2 U (N)	<1.2 U (N)	<1.4 U (N)
Arsenic	16	7.5 or SB	<0.1 - 73	4.2 B (N)	2.7 B (N)	2.3 B (N)	1.5 B (N)	4.2 B (N)	1.6 B (N)	1.9 B (N)	< 1.3 U (N)	< 1.3 U (N)	< 1.5 U (N)
Barium	400	300 or SB	10 - 1,500	67.7 (*N)	58.6 (*N)	26.1 (*N)	49.5 (*N)	91.9 (*N)	24.0 (*N)	23.9 (*N)	22.2 (*N)	96.5 (*N)	48.1 (*N)
Beryllium	590	0.16 or SB	<1 - 7	< 0.56 U	< 0.70 U	< 0.51 U	< 0.57 U	< 0.72 U	< 0.51 U	< 0.59 U	< 0.53 U	< 0.53 U	< 0.63 U
Cadmium	9.3	1 or SB	0.07 - 4.40 **	< 1.1 U	< 1.4 U	< 1.0 U	< 1.1 U	< 1.4 U	< 1.0 U	< 1.2 U	< 1.1 U	< 1.1 U	< 1.3 U
Calcium	NE	SB	130 - 35,000 ***	5,560	19,500	1,630	1,050	11,900	2,850	876	1,540	1,810	1,130
Chromium - total	NE	10 or SB	1 - 1,000	17.6 (*)	30.7 (*)	19.5 (*)	17.3 (*)	19.6 (*)	13.1 (*)	13.9 (*)	9.5 (*)	22.6 (*)	8.9 (*)
Cobalt	NE	30 or SB	<3 - 70	5.7	7.1	5.9	8.0	6.6	4.0	7.3	3.5	5.5	3.3
Copper	270	25 or SB	<1 - 700	254 (N)	21.1 (N)	11.1 (N)	16.6 (N)	298 (N)	27.7 (N)	13.8 (N)	10.8 (N)	13.1 (N)	9.3 (N)
Iron	NE	2,000 or SB	100 - >100,000	18,300	23,200	23,900	50,000	19,500	16,200	21,800	15,000	33,300	13,900
Lead	1,000	SB	<10 - 300	105	35.5	4.5 B	5.0 B	113	37.3	5.6 B	4.9 B	2.7 B	6.5 B
Magnesium	NE	SB	100 - 5,000 ***	1,850 (*)	3,340 (*)	1,450 (*)	1,170 (*)	2,520 (*)	1,190 (*)	2,490 (*)	1,240 (*)	1,430 (*)	980 (*)
Manganese	10,000	SB	<2 - 7,000	356	181	576	1,450	396	461	159	218	2,920	1,170
Mercury (elemental)	2.8	0.1	0.01 - 3.4	1.3	2.2	0.084	< 0.013 U	0.92	0.26	< 0.017 U	< 0.016 U	< 0.016 U	0.055
Nickel	310	13 or SB	<5 - 700	11.9	14.1	10.8	10.6	13.6	7.3	11.0	6.0	9.9	7.1
Potassium	NE	SB	50 - 37,000	707 (N)	993 (N)	479 (N)	410 (N)	819 (N)	318 (N)	497 (N)	352 (N)	554 (N)	316 (N)
Selenium	1,500	2 or SB	<0.1 - 3.9	<1.8 U (N)	<2.3 U (N)	<1.6 U (N)	<1.8 U (N)	<2.3 U (N)	<1.6 U (N)	<1.9 U (N)	<1.7 U (N)	<1.7 U (N)	<2.0 U (N)
Silver	1,500	SB	0.20 - 14.8 **	0.38 B	< 0.45 U	< 0.33 U	< 0.36 U	< 0.46 U	< 0.33 U	< 0.37 U	< 0.34 U	< 0.34 U	< 0.40 U
Sodium	NE	SB	6,000 - 8,000 ***	128	163	46.1 B	33.8 B	162	51.9 B	72.5 B	37.9 B	63.9 B	38.4 B
Thallium	NE	SB	2.2 - 23	<4.6 UJ	<5.9 UJ	<4.2 UJ	<4.7 UJ	<6.0 UJ	<4.3 UJ	<4.9 UJ	<4.4 UJ	<4.4 UJ	<5.3 UJ
Vanadium	NE	150 or SB	<7 - 300	25.3 (*N)	27.1 (*N)	28 (*N)	43.6 (*N)	28.5 (*N)	19.3 (*N)	26.3 (*N)	17.3 (*N)	38.2 (*N)	20.5 (*N)
Zinc	10,000	20 or SB	<5 - 2,900	124 (N)	78.7 (N)	33.3 (N)	30.4 (N)	148 (N)	41.6 (N)	27.1 (N)	44.2 (N)	22.9 (N)	18.6 B (N)
PCBs / Pesticides													
Total, (ppb)													
4,4'-DDE	62,000	2,100		<0.49 U	<0.49 U	<0.49 U	<0.50 U	<0.49 U	<0.49 U	<0.49 U	<0.50 U	<0.53 U	<0.53 U
4,4'-DDT	47,000	2,100		<0.35 U	<0.35 U	<0.35 U	<0.36 U	2.8 J	<0.35 U	<0.35 U	<0.36 U	<0.38 U	<0.38 U
4,4'-DDD	92,000	2,900		<3.7 U	<0.43 U	<0.43 U	<0.44 U	<0.43 U	<0.43 U	<0.43 U	<0.44 U	<0.47 U	<0.47 U
Aldrin	680	41		1.5 J	<2.3 U	<0.40 U	<2.3 U	<2.3 U	4.8	<2.2 U	5.3 J	1.1 J	12
alpha-BHC	3,400	110		<0.31 U	<0.31 U	<0.31 U	<0.32 U	<0.31 U	<0.31 U	<0.31 U	<0.32 U	<0.34 U	<0.34 U
beta-BHC	3,000	200		<0.30 U	<0.31 U	<0.30 U	<0.31 U	<0.30 U	<0.31 U	<0.30 U	<2.0 U	<0.33 U	<2.1 U
Chlordane (alpha)	24,000	540		<1.9 U	<1.9 U	<1.9 U	<2.0 U	<1.9 U	3.9 J	<0.12 U	<0.13 U	0.18 J (M)	8.8 J
Chlordane (gamma)	NE	540		0.35 J	<0.10 U	<0.10 U	<0.11 U	0.49 J	<0.10 U	<0.10 U	<0.10 U	<0.11 U	<0.11 U
delta-BHC	500,000	300		2.4 NJ	<1.9 U	1.6 J	<2.0 U	2.3 J	2.6 J	<1.9 U	<2.0 U	<2.1 U	3.7 NJ
Methoxychlor	NE	NE		<19 U	<19 U	<2.4 U	7.8 J	<19 U	11 J (M)	<19 U	<20 U	<2.6 U	23 J
Dibenzofuran	350,000	6,200		60 J	<60 U	<60 U	<61 U	<59 U	210 J	<59 U	<60 U	1,700	98 J
Endosulfan I	200,000	900		7.5	17	4.0	6.2	5.3 (M)	3.3 (M)	<0.16 U	<0.17 U	0.20 J (M)	<0.18 U
Endosulfan II	200,000	900		<0.19 U	<0.19 U	<0.19 U	<0.20 U	<0.19 U	<0.19 U	<0.19 U	<0.20 U	<0.21 U	<0.21 U
Endosulfan sulfate	200,000	1,000		<3.7 U	9.9 NJ	<3.7 U	<3.8 U	<0.20 U	<0.20 U	<0.19 U	<0.20 U	<0.21 U	<4.1 U
Endrin	89,000	100		<5.7 U	<1.0	1.5 J	<5.8 U	<5.7 U	<5.7 U	<1.0 U	<5.8 U	<1.1 U	<6.1 U
Endrin ketone	NE	NE		2.6 J	<0.16 U	<0.16 U	<3.8 U	<3.7 U	<3.8 U	<3.7 U	<3.8 U	<0.18 U	4.4 NJ
Heptachlor epoxide	NE	20		<0.13 U	<1.9 U	<0.13 U	<0.13 U	<0.13 U	<0.13 U	<0.13 U	<0.13 U	<2.1 U	<0.14 U
Heptachlor	15,000	100		<0.17 U	<0.17 U	<0.17 U	<0.17 U	<0.17 U	<0.17 U	<0.17 U	<0.17 U	<0.18 U	<0.18 U
PCBs:	1,000	1,000 (surface)											
Aroclor, 1260	NE	10,000 (subsurface)		140 J	170	46	100	68	420 J	41 J	670	21 J	1,200

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	GP-20 [5-10 ft bgs]	GP-21 [7-9 ft bgs]	GP-22 [7-9 ft bgs]	GP-23 [5-10 ft bgs]	GP-24 [7-10 ft bgs]	GP-26 [5-10 ft bgs]	GP-27 [5-10 ft bgs]	GP-28 5-10 ft bgs]	GP-29[7-10 ft bgs]
VOCs (ppb)											
1,1,2-Trichloroethane	NE	NE	<1.2 U	<340 U	<78 U	<390 U	<340 U	<1.5 U	<93 U	<6.7 U	<1.5 U
2-Hexanone	NE	NE	<3.0 U	<450 U	<100 U	<520 U	<450 U	<3.5 U	<120 U	<16 U	<3.7 U
1,1,2,2-Tetrachloroethane	NE	600	<1.4 U	<230 U	<52 U	<260 U	<230 U	<1.7 U	<62 U	<7.8 U	<1.8 U
1,1-Dichloroethene	500,000	400	<1.3 U	<400 U	<91 U	<460 U	<400 U	<1.5 U	<110 U	<7.0 U	<1.6 U
1,2-Dichloroethane	30,000	100	<1.2 U	<340 U	<78 U	<390 U	<340 U	<1.4 U	<93 U	<6.4 U	<1.4 U
cis-1,2-Dichloroethene	500,000	NE	30	480 J	140 J	81,000	3,600	54	560 J	39	4.2 J
4-Methyl-2-pentanone	NE	1,000	<1.4 U	<400 U	<91 U	<460 U	<400 U	<1.6 U	<110 U	<7.6 U	<1.7 U
Acetone	500,000	200	<3.8 U	<790 U	<180 U	1,800 J	<790 U	<4.4 U	740 J (B)	<20 U	59
Benzene	44,000	60	<1.0 U	<230 U	<52 U	<260 U	<230 U	1.6 J	<62 U	<5.5 U	<1.3 U
Bromomethane	NE	NE	<0.98 U	<680 U	<160 U	<780 U	<680 U	<1.1 U	<190 U	<5.3 U	<1.2 U
Carbon Disulfide	NE	2,700	<0.73 U	<510 U	<120 U	<590 U	<510 U	<0.85 U	<140 U	<3.9 U (B)	<0.89 U
Chlorobenzene	500,000	1,700	<0.94 U	<230 U	<52 U	<260 U	<230 U	<1.1 U	<62 U	<5.1 U	<1.2 U
Chloroethane	NE	1,900	<2.3 U	<450 U	<100 U	<520 U	<450 U	<2.6 U	<120 U	<12 U	<2.8 U
Chloromethane	NE	NE	<1.1 U	<280 U	<65 U	<330 U	<280 U	<1.3 U	<78 U	<5.8 U	<1.3 U
Ethylbenzene	390,000	5,500	<0.94 U	<570 U	<130 U	<650 U	<570 U	<1.1 U	<160 U	<5.1 U	<1.2 U
1,2,4-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	<340 U	NR	NR	NR	NR
1,3,5-Trimethylbenzene	190,000	NE	NR	NR	NR	NR	<400 U	NR	NR	NR	NR
Methyl ethyl ketone	500,000	300	<2.1 U	<680 U	<160 U	<780 U	<680 U	<2.5 U	<190 U	<11 U	<2.6 U
Methylene chloride	500,000	100	7.4 J (B)	290 J (B)	100 J (B)	1,000 J (B)	340 J (B)	13 J (B)	490 J (B)	21 J (B)	8.3 J (B)
Toluene	500,000	1,500	<1.0 U	<170 U	<39 U	210 J	<170 U	2.3 J	<47 U	13 J (B)	<1.2 U
trans-1,3-Dichloropropene	NE	NE	<1.1 U	<170 U	<39 U	<200 U	<170 U	<1.3 U	<47 U	<5.9 U	<1.3 U
Trichloroethene	200,000	700	4.1 J	99,000	6,000	3,000	69,000	260	8,200	440	33
Tetrachloroethene	150,000	1,400	<0.84 U	<280 U	<65 U	<330 J	<280 U	<0.98 U	910	9.7 J	<1.0 U
trans-1,2-Dichloroethene	500,000	300	0.96 J	<280 U	<65 U	1,200 J	520 J	2.8 J	<78 U	<3.7 U	<0.85 U
Total xylenes	500,000	1,200	<2.3 U	<570 U	<130 U	<650 U	<570 U	<2.7 U	<160 U	<13 U	<2.9 U
SVOCs (ppb)											
2,4-Dimethylphenol	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36,400	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylphenol	NE	100	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NE	900	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	500,000	41,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	5,600	224	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	1,000	61	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	5,600	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	56,000	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis (2-ethylhexyl) phthalate	NE	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	NE	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56,000	400	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	5,600	3,200	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	500,000	13,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	6,700	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	500,000	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	560	14	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butyl phthalate	NE	8,100	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York.

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046	GP-30 [5-10 ft bgs]	GP-31 [5-10 ft bgs]	GP-32 [5-10 ft bgs]	GP-33 [5-10 ft bgs]	GP-34 [5-10 ft bgs]	GP-36 [5-10ft bgs]	GP-37 [27-29 ft bgs]	GP-38 [5-10 ft bgs]
VOCs (ppb)										
1,1,2-Trichloroethane	NE	NE	<1.3 U	<2.6 U	<1.2 U	<73 U	<1.2 U	<5.9 U	NA	<6.1 U
2-Hexanone	NE	NE	<3.3 U	<6.4 U	<3.0 U	<97 U	<3.0 U	<14 U	NA	<15 U
1,1,2,2-Tetrachloroethane	NE	600	<1.6 U	<3.0 U	<1.4 U	<49 U	<1.4 U	<6.9 U	NA	<7.1 U
1,1-Dichloroethene	500,000	400	<1.4 U	<2.7 U	<1.3 U	<85 U	<1.3 U	<6.2 U	NA	<6.4 U
1,2-Dichloroethene	30,000	100	<1.3 U	<2.5 U	<1.2 U	<73 U	<1.2 U	<5.7 U	NA	<5.8 U
cis-1,2-Dichloroethene	500,000	NE	<1.3 U	<2.6 U	<1.2 U	<73 U	<1.2 U	<5.9 U	NA	<6.1 U
4-Methyl-2-pentanone	NE	1,000	<1.5 U	<3.0 U	<1.4 U	<85 U	<1.4 U	<6.7 U	NA	<7.0 U
Acetone	500,000	200	27	250	44	340 J	3.9 J	29 J	NA	69 J
Benzene	44,000	60	<1.1 U	<2.2 U	<1.0 U	<49 U	<1.0 U	<4.9 U	NA	<5.1 U
Bromomethane	NE	NE	<1.1 U	<2.1 U	<0.96 U	<150 U	<0.96 U	<4.7 U	NA	<4.8 U
Carbon Disulfide	NE	2,700	<0.79 U	2.7 J	1.0 J	<110 U	<0.72 U	<3.5 U (B)	NA	4.8 J (B)
Chlorobenzene	500,000	1,700	<1.0 U	<2.0 U	<0.93 U	<49 U	<0.93 U	<4.5 U	NA	<4.7 U
Chloroethane	NE	1,900	<2.4 U	<4.8 U	<2.2 U	<97 U	<2.2 U	<11 U	NA	<11 U
Chloromethane	NE	NE	<1.2 U	<2.3 U	<1.1 U	<61 U	<1.1 U	<5.1 U	NA	<5.3 U
Ethylbenzene	390,000	5,500	<1.0 U	<2.0 U	<0.93 U	6,200	<0.93 U	270	NA	210
1,2,4-Trimethylbenzene	190,000	NE	NR	<1.5	NR	48,000 (A)	NR	3,700 (A)	NA	<3.6
1,3,5-Trimethylbenzene	190,000	NE	NR	<2.1	NR	6,500	NR	1,300 (A)	NA	<4.9
Methyl ethyl ketone	500,000	300	<2.3 U	33	<2.1 U	<150 U	<2.1 U	<10 U	NA	<11 U
Methylene chloride	500,000	100	9.0 J (B)	14 J (B)	7.4 J (B)	110 J (B)	6.3 J (B)	17 J (B)	NA	18 J (B)
Toluene	500,000	1,500	<1.1 U	<2.1 U	<0.98 U	<36 U	<0.99 U	6.6 J (B)	NA	14 J (B)
trans-1,3-Dichloropropene	NE	NE	<1.2 U	<2.3 U	<1.1 U	<36 U	<1.1 U	<5.3 U	NA	<5.4 U
Trichloroethene	200,000	700	<0.88 U	2.3 J	<0.80 U	<85 U	<0.80 U	<3.9 U	NA	6.7 J
Tetrachloroethene	150,000	1,400	<0.90 U	<1.8 U	<0.82 U	<61 U	<0.82 U	<4.0	NA	<4.1 U
trans-1,2-Dichloroethene	500,000	300	<0.75 U	<1.5 U	<0.68 U	<61 U	<0.68 U	<3.3 U	NA	<3.4 U
Total xylenes	500,000	1,200	<2.5 U	<4.9 U	<2.3 U	2,700	<2.3 U	540	NA	33
SVOCs (ppb)										
2,4-Dimethylphenol	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	NE	36,400	NA	NA	NA	NA	NA	NA	5,100	360 J
2-Methylphenol	NE	100	NA	NA	NA	NA	NA	NA	NA	NA
4-Methylphenol	NE	900	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	500,000	50,000	NA	NA	NA	NA	NA	NA	1,200 (H)	1,300 (H)
Acenaphthylene	500,000	41,000	NA	NA	NA	NA	NA	NA	<44 U	<47 U
Anthracene	500,000	50,000	NA	NA	NA	NA	NA	NA	260 J	580
Benzo(a)anthracene	5,600	224	NA	NA	NA	NA	NA	NA	<48 U	<51 U
Benzo(a)pyrene	1,000	61	NA	NA	NA	NA	NA	NA	<44 U	<47 U
Benzo(b)fluoranthene	5,600	1,100	NA	NA	NA	NA	NA	NA	<99 U	<110 U
Benzo(g,h,i)perylene	500,000	50,000	NA	NA	NA	NA	NA	NA	<40 U	<42 U
Benzo(k)fluoranthene	56,000	1,100	NA	NA	NA	NA	NA	NA	<40 U	<42 U
Bis (2-ethylhexyl) phthalate	NE	50,000	NA	NA	NA	NA	NA	NA	NA	NA
Butyl benzyl phthalate	NE	50,000	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NE	NE	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	56,000	400	NA	NA	NA	NA	NA	NA	<45 U	<48 U
Fluoranthene	500,000	50,000	NA	NA	NA	NA	NA	NA	75 J	140 J
Fluorene	500,000	50,000	NA	NA	NA	NA	NA	NA	600	2,100 (H)
Indeno(1,2,3-cd)pyrene	5,600	3,200	NA	NA	NA	NA	NA	NA	<36 U	<39 U
Naphthalene	500,000	13,000	NA	NA	NA	NA	NA	NA	<61 U	<65 U
Pentachlorophenol	6,700	1,000	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	500,000	50,000	NA	NA	NA	NA	NA	NA	2,800	3,400
Pyrene	500,000	50,000	NA	NA	NA	NA	NA	NA	270 J	430
Dibenzo(a,h)anthracene	560	14	NA	NA	NA	NA	NA	NA	<40 U	<42 U
Di-n-butyl phthalate	NE	8,100	NA	NA	NA	NA	NA	NA	NA	NA

Table 3

Soil Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

** Site Background Metal Concentrations for Ohio (Cox & Colvin, 1996)
*** Site Background Metal Concentrations for Eastern U.S. (Galli, 2003)
SB = Site Background for Eastern U.S. (Shacklette & Boerngen, 1984)
ft bgs = feet below ground surface
Only compounds detected are listed
The qualifiers and values for the analytes from samples GP-20 through GP-38 are lab designated values, which have not been reviewed by a third party.
TAGM #4046 = Technical and Administrative Guidance Memorandum Soil Cleanup Objectives
Bold and Shading indicates exceedance of Track 4 Site-Specific SCOs
Shading indicates exceedance of TAGM Criteria
NA = Not Analyzed
NE = None Established by DEC
NR = Not Reported
ppm = parts per million
ppb = parts per billion
< = Less than the Laboratory Method Detection Limit (MDL)
J = (Organic Qualifiers) The result is an estimated value below the reporting limit.
B = (Inorganic Qualifiers) The result is less than the Low Level Standard Check - Secondary Dilution and Analysis/Reporting Limit, but greater than or equal to the Instrumment Detection Limit/Method Detection Limit.
U = (Organic/Inorganic Qualifiers) The analyte was not detected at or above the reporting limit.
R = (Organic/Inorganic Qualifiers) The result is rejected due to dificiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
UJ = (Orgainic Qualifiers) The analyte was not detected above the reported sample quantitation limit (QL). However, the reported QL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
NJ = (Organic Qualifiers) The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
" = (Flag) In description = dry weight
(A) = (Organic Flags) Concentration Exceeds the Instrument Calibration Range or Below the Reporting Limit
(B) = (Organic Flags) Compound was Found in the Blank and Sample
(H) = (Organic Flags) Alternate Peak Selection upon Analytical Review
(M) = (Organic Flags) Manually Integrated Compound
(N) = (Inorganic Flags) MS, MSD: Spike Recovery Exceeds the Upper or Lower Control Limits

Table 4

Soil Analytical Results
2006 Phase I and Phase II Hotspot Delineation
BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		GP-33 [70-72 ft bgs]	GP-39 [7-9 ft bgs]	GP-39 [15-17 ft bgs]	GP-40 [7-9 ft bgs]	GP-40 [15-17 ft bgs]	GP-41 [10-12 ft bgs]	GP-41 [20-22 ft bgs]	GP-43 [15-17 ft bgs]	GP-43 [40-45 ft bgs]
Date Sampled				10/20/2006	10/18/2006	10/18/206	10/18/2006	10/18/06	10/17/2006	10/17/2006	10/16/2006	10/24/2006
VOCs (ppb)												
cis-1,2-Dichloroethene	500,000	NE		<1.5 U	10,000	6.8	5.9 J	29 J	6.5	17	<1.2 U	<68 U
Acetone	500,000	200		98 J (B)	840 J (B)	5.9 J (B)	12 J (B)	29 J (B)	<3.6 U (B)	5.0 J (B)	9.2 J (B)	300 J (B)
Carbon Disulfide	NE	2,700		4.5 J	<220 U	<0.72 U	<0.74 U	<3.8 U	<0.70 U	<0.72 U	1.2 J	<100 U
Ethylbenzene	390,000	5,500		31	<250 U	<0.94 U	<0.96 U	<4.9 U	<0.90 U	<0.93 U	17	240 J
1,2,4-Trimethylbenzene	190,000	NE		110	NR	<0.72 U	<0.74 U	<3.8 U	<0.70 U	<0.72 U	<0.68 U	4,600
1,3,5-Trimethylbenzene	190,000	NE		100	NR	<0.98 U	<1.0 U	<5.2 U	<0.95 U	<0.98 U	<0.93 U	1,900
Methyl Ethyl Ketone	500,000	300		<2.8 U	<290 U	<2.1 U	<2.2 U	<11 U	<2.0 U	<2.1 U	<2.0 U	<140 U
Methylene chloride	500,000	100		26 J (B)	520 J (B)	11 J (B)	15 J (B)	51 J (B)	7.2 J (B)	7.9 J (B)	6.8 J (B)	100 J (B)
Toluene	500,000	1,500		<2.1 U	94 J	<1.0 U (B)	<1.0 U (B)	<5.2 U (B)	<0.96 U (B)	<0.99 U (B)	<0.94 U (B)	<34 U
Trichloroethene	200,000	700		<2.1 U	44,000	7.6	55	420	36	32	<0.76 U	<78 U
Tetrachloroethene	150,000	1,400		<2.3 U	<120 U	<0.83 U	<0.85 U	<4.4 U	<0.80 U	<0.82 U	<0.78 U	<57 U
Total xylenes	500,000	1,200		51	510 J	<2.3 U	<2.4 U	<12 U	<2.2 U	<2.3 U	17	550 J
SVOCs (ppb)												
Acenaphthene	500,000	50,000		440	<67 U	<64 U	<64 U	<67 U	<62 U	<64 U	3,600 J	800
Acenaphthylene	500,000	41,000		160 J	160 J	<48 U	<48 U	<50 U	<46 U	<48 U	1,100 J	310 J
Anthracene	500,000	50,000		200 J	93 J	<64 U	<64 U	<67 U	<62 U	<64 U	960 J	330 J
Benzo(a)anthracene	5,600	224		<54 U	290 J	<52 U	<53 U	150 J	<50 U	<53 U	<500 U	<100 U
Benzo(a)pyrene	1,000	61		<49 U	270 J	<48 U	<48 U	130 J	<46 U	<48 U	<460 U	<91 U
Benzo(b)fluoranthene	5,600	1,100		<110 U	200 J	<110 U	<110 U	130 J	<100 U	<110 U	<1,000 U	<210 U
Benzo(g,h,i)perylene	500,000	50,000		<44 U	290 J	<43 U	<43 U	160 J	<41 U	<43 U	<410 U	<82 U
Benzo(k)fluoranthene	56,000	1,100		<44 U	210 J	<43 U	<43 U	120 J	<41 U	<43 U	<410 U	<82 U
Chrysene	56,000	400		<50 U	320 J	<49 U	<49 U	170 J	<47 U	<49 U	<470 U	100 J
Fluorene	500,000	50,000		680	<52 U	<50 U	<50 U	<52 U	<48 U	<50 U	4,900	1,300
Fluoranthene	500,000	50,000		76 J	330 J	<49 U	<49 U	230 J	<47 U	<49 U	<470 U	210 J
Indeno(1,2,3-cd)pyrene	5,600	3,200		<40 U	210 J	<40 U	<40 U	120 J	40 J	<40 U	<380 U	<75 U
Naphthalene	500,000	13,000		180 J	2,300	<66 U	<67 U	300 J	<64 U	<67 U	4,200	1,100
2-Methylnapthalene	NE	36,400		640	82 J	<62 U	<62 U	<65 U	<59 U	<62 U	46,000	8,300
Phenanthrene	500,000	50,000		2,000	160 J	<45 U	<46 U	140 J	<44 U	<46 U	11,000	4,200
Pyrene	500,000	50,000		150 J	560	<53 U	<54 U	290 J	65 J	<54 U	720 J	450 J
Dibenzo(a,h)anthracene	560	14		<44 U	690	<43 U	<43 U	<45 U	<41 U	<43 U	<410 U	<82 U
TAL Metals, Total (ppm)		TAGM #4046	SB									
Aluminum	NE	SB	7,000 - 10,000	4,110	7,690	7,470	8,000	7,720	9,440	3,840	4,710	8,090
Arsenic	16	7.5 or SB	<0.1 - 73	<1.9 U (N)	3.8 B	1.9 B	<2.8 U	4.4 B	3.7 B	<1.9 U (N)	2.0 B	3.3 B
Barium	400	300 or SB	10 - 1,500	28.8	61 (N)	41.7 (N)	35.6 (N)	80.0 (N)	55.2 (N)	21.4 (N)	33.8 (N)	50.4
Cadmium	9.3	1 or SB	0.07 - 4.40 **	<0.98 U	<1.3 U	<0.97 U	<1.5 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<0.90 U (N)
Calcium	NE	SB	130 - 35,000 ***	3,710	3,660	1,680	1,060	21,300	1,320	500	1,550	4,360 (*)
Chromium - total	NE	10 or SB	1 - 1,000	13.4	27.2 (N)	22.9 N)	18.9 (N)	30.1 (N)	20.1 (N)	17.7 (N)	15.1 (N)	16.8 (N)
Cobalt	NE	30 or SB	<3 - 70	6.5	14.5 (N)	5.4 (N)	6.8 (N)	5.0 (N)	7.2 (N)	3.3 (N)	5.3 (N)	6.7
Copper	270	25 or SB	<1 - 700	12.8	35 (N)	53.3 (N)	14.5 (N)	55.2 (N)	80.7 (N)	16.9 (N)	17.4 (N)	80.3 (*)
Iron	NE	2,000 or SB	100 - >100,000	14,600	24,400	22,700	21,100	13,500	21,500	22,800	24,000	18,500
Lead	1,000	SB	<10 - 300	13.7	74.1	71.2	6.8 B	145	30.4	6.0 B	6.3 B	54.3 (*)
Magnesium	NE	SB	100 - 5,000 ***	1,860	2,220	2,050	2,480	2,290	1,710	996	1,570	2,090 (*)
Manganese	10,000	SB	<2 - 7,000	220	892	194	178	159	520	133	460	504
Mercury (elemental)	2.8	0.1	0.01 - 3.4	0.085	1.30	0.062	0.12	1.80	3.3	0.035 B	0.067	0.32
Nickel	310	13 or SB	<5 - 700	12.6	18.5 (N)	11.9 (N)	13.3 (N)	15.6 (N)	21.3 (N)	7.1 (N)	9.7 (N)	14.0
Potassium	NE	SB	50 - 37,000	594 (N)	770	662	680	612	676	433	508	723 (*)
Silver	1,500	SB	0.20 - 14.8 **	<0.29 U	<0.37 U (N)	<0.28 U (N)	<0.43 U (N)	<0.29 U (N)	<0.32 U (N)	<0.30 U (N)	<0.31 U (N)	<0.26 U
Sodium	NE	SB	6,000 - 8,000 ***	122	69.4 B	111	<65.6 U	120	50.4 B	<45.6 U	143	468
Thallium	NE	SB	2.2 - 23	<3.4 U (N)	<4.5 U	<3.4 U	<5.2 U	<3.5 U	<3.8 U	4.1 B	<3.7 U	<3.2 U (N)
Vanadium	NE	150 or SB	<7 - 300	15.6	30.8 (N)	26.9 (N)	23.5 (N)	20.1 (N)	31.1 (N)	27.2 (N)	23.5 (N)	23.5
Zinc	10,000	20 or SB	<5 - 2,900	397	99.3 (N)	38.3 (N)	35.3 (N)	223 (N)	164 (N)	22.3 (N)	25.4 (N)	259

Table 4

Soil Analytical Results
2006 Phase I and Phase II Hotspot Delineation
BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID [Depth in Feet]	Track 4 SCOs	NYSDEC Regulatory Criteria TAGM #4046		GP-44 [30-32 ft bgs]	MW-6 [10-12 ft bgs]	MW-6 [15-17 ft bgs]	MW-7 [10-12 ft bgs]	MW-7 [15-17 ft bgs]	MW-8 [10-12 ft bgs]	MW-8 [20-22 ft bgs]	MW-9 [10-12 ft bgs]	MW-9 [20-22 ft bgs]
Date Sampled				10/23/2006	10/26/2006	10/26/2006	10/27/2006	10/27/2006	10/26/2006	10/26/2006	10/26/2006	10/26/2006
VOCs (ppb)												
cis-1,2-Dichloroethene	500,000	NE		<6.7 U	<1.3 U	<1.2 U	<1.3 U	<1.3 U	<1.2 U	<1.2 U	<1.2 U	<1.2 U
Acetone	500,000	200		200	55 (B)	22 J (B)	38 (B)	26 B	13 J (B)	32 (B)	24 (B)	16 J (B)
Carbon Disulfide	NE	2,700		<3.9 U	0.8 J	<0.71 U	2.2 J	0.92 J	<0.68 U	<0.7 U	<0.7 U	<0.70 U
Ethylbenzene	390,000	5,500		<5.1 U	<0.97 U	<0.92 U	<0.99 U	<0.96 U	<0.88 U	<0.9 U	<0.9 U	<0.90 U
1,2,4-Trimethylbenzene	190,000	NE		46	<0.75 U	<0.71 U	<0.76 U	<0.74 U	<0.68 U	<0.70 U	<0.70 U	<0.70 U
1,3,5-Trimethylbenzene	190,000	NE		75	<1.0 U	<0.95 U	<1.0 U	<1.0 U	<0.93 U	<0.95 U	<0.95 U	<0.95 U
Methyl Ethyl Ketone	500,000	300		<12 U	8.4 J	<2.1 U	<2.2 U	<2.2 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U
Methylene chloride	500,000	100		52 J (B)	17 J (B)	17 J (B)	14 J (B)	21 J (B)	15 J (B)	16 J (B)	14 J (B)	15 J (B)
Toluene	500,000	1,500		<5.4 U	<1.0 U	<2.6 U	<1.0 U	<1.0 U	<0.94 U	<0.96 U	<0.96 U	<0.98 U
Trichloroethene	200,000	700		<4.4 U	<0.84 U	<0.79 U	<0.85 U	<0.83 U	<0.76 U	2.2 J	6.3	<0.78 U
Tetrachloroethene	150,000	1,400		<4.5 U	<0.86 U	<0.81 U	<0.88 U	<0.85 U	<0.78 U	1.1 J	<0.8 U	<0.80 U
Total xylenes	500,000	1,200		<13 U	<2.4 U	<2.3 U	<2.4 U	<2.4 U	<2.2 U	<2.2 U	<2.2 U	<2.2 U
SVOCs (ppb)												
Acenaphthene	500,000	50,000		<53 U	210 J	<65 U	150 J	<65 U	<59 U	<60 U	<61 U	<59 U
Acenaphthylene	500,000	41,000		73 J	<50	<47 U	66 J	<49 U	<43 U	<45 U	<46 U	<44 U
Anthracene	500,000	50,000		92 J	370 J	<63 U	560	<65 U	<58 U	<60 U	<61 U	<59 U
Benzo(a)anthracene	5,600	224		63 J	580	<52 U	1,700	190 J	<48 U	52 J	150 J	76 J
Benzo(a)pyrene	1,000	61		<53 U	490	<47 U	1,500	170 J	<43 U	47 J	140 J	74 J
Benzo(b)fluoranthene	5,600	1,100		<120 U	430	<110 U	1,200	170 J	<98 U	<100 U	<100 U	<100 U
Benzo(g,h,i)perylene	500,000	50,000		<48 U	420	<42 U	1,700	170 J	<39 U	<40 U	150 J	89 J
Benzo(k)fluoranthene	56,000	1,100		<48 U	360 J	<42 U	1,300	140 J	<39 U	<40 U	130 J	46 J
Chrysene	56,000	400		58 J	560	<48 U	1,700	200 J	46 J	55 J	150 J	84 J
Fluorene	500,000	50,000		120 J	180 J	<49 U	160 J	<51 U	<45 U	<47 U	<48 U	<46 U
Fluoranthene	500,000	50,000		110 J	1,300	<48 U	3,400	330 J	64 J	83 J	270 J	130 J
Indeno(1,2,3-cd)pyrene	5,600	3,200		<44 U	350 J	<39 U	1,300	140 J	<36 U	<37 U	120 J	66 J
Naphthalene	500,000	13,000		<73 U	120 J	<65 U	72 J	<68 U	<60 U	<62 U	<63 U	<61 U
2-Methylnapthalene	NE	36,400		<68 U	69 J	<61 U	<63 U	<63 U	<56 U	<58 U	<59 U	<57 U
Phenanthrene	500,000	50,000		310 J	1,600	<45 U	2,600	210 J	48 J	58 J	240 J	100 J
Pyrene	500,000	50,000		110 J	1,400	<53 U	3,800	370 J	74 J	96 J	310 J	130 J
Dibenzo(a,h)anthracene	560	14		<48 U	120 J (M)	<42 U	430	<44 U	<39 U	<40 U	<41 U	<40 U
TAL Metals, Total (ppm)		TAGM #4046	SB									
Aluminum	NE	SB	7,000 - 10,000	2,360	8,230	4,240	6,710	5,360	3,470	3,620	9,690	6,770
Arsenic	16	7.5 or SB	<0.1 - 73	<2.4 U	5 B (N)	<2.0 U (N)	8.7 B (N)	<2.3 U (N)	<1.5 U (N)	<1.9 U (N)	3.9 B (N)	<2.0 U (N)
Barium	400	300 or SB	10 - 1,500	25.1	101 (*)	27.7 (*)	136 (*)	68.6 (*)	15.8 (*)	74.2 (*)	89.6 (*)	52.8 (*)
Cadmium	9.3	1 or SB	0.07 - 4.40 **	<1.3 U (N)	1.3 B	<1.1 U	2.1 B	<1.2 U	<0.77 U359	<1.0 U	<0.97 U	<1.0 U
Calcium	NE	SB	130 - 35,000 ***	989 (*)	22,100	1,530	11,800	1,660	369	6,010	7,030	5,040
Chromium - total	NE	10 or SB	1 - 1,000	6.4 (N)	18.7 (N)	16.4 (N)	20.1 (N)	14.5	7.9 (N)	16.4 (N)	20.4 (N)	19.8 (N)
Cobalt	NE	30 or SB	<3 - 70	2.7	8.5 (*)	4.2 (*)	6.3(*)	6.7	3.9 (*)	5.5 (*)	8.2 (*)	5.7 (*)
Copper	270	25 or SB	<1 - 700	8.6 (*)	74.9	13	195	19.2	7.7	48.4	34.6	23.3
Iron	NE	2,000 or SB	100 - >100,000	8,010	25,300	20,700	16,000	20,900	11,200	21,500	22,100	20,900
Lead	1,000	SB	<10 - 300	6.6 B (*)	251 (*)	5 (B*)	459 (*)	13.4	4.9 B (*)	63.8 (*)	120 (*)	77.3 (*)
Magnesium	NE	SB	100 - 5,000 ***	1,090 (*)	2,200	1,160	2,300	1,740	912	1,600	2,710	1,950
Manganese	10,000	SB	<2 - 7,000	595	789 (*)	316 (*)	224 (*)	2,690	201 (*)	889 (*)	878 (*)	312 (*)
Mercury (elemental)	2.8	0.1	0.01 - 3.4	0.031 B	2.3	0.063	11.6	0.24	0.14	0.099	1.0	0.038 B
Nickel	310	13 or SB	<5 - 700	5.8 B	17.8	8.8	15.5	11.1	6.8	11	15.9	11.6
Potassium	NE	SB	50 - 37,000	307 (*)	642	427	573	652	314	522	880	744
Silver	1,500	SB	0.20 - 14.8 **	<0.37 U	<0.37 U	<0.31 U	0.38 B	<0.35 U	<0.23 U	<0.30 U	<0.28 U	<0.31 U
Sodium	NE	SB	6,000 - 8,000 ***	56.1 B	328 (*N)	72.5 B (*N)	320 (*N)	83.8	80.4 (*N)	167 (*N)	508 (*N)	376 (*N)
Thallium	NE	SB	2.2 - 23	<4.4 U (N)	<4.4 U (N)	<3.7 U (N)	<4.0 U (N)	<4.2 U (N)	<2.7 U (N)	<3.6 U (N)	<3.4 U (N)	<3.6 U (N)
Vanadium	NE	150 or SB	<7 - 300	9.3	29.5	21.7	25.6	22.6	12.5	21	31.1	22.2
Zinc	10,000	20 or SB	<5 - 2,900	16.6 B	193 (*)	22.8	435 (*)	48.7	14.5 B (*)	235 (*)	83.7 (*)	36.8 (*)

** Site Background Metal Concentrations for Ohio (Cox & Colvin, 1996)
*** Site Background Metal Concentrations for Eastern U.S. (Galli, 2003)
SB = Site Background for Eastern U.S. (Shacklette & Boerngen, 1984)
ft bgs = feet below ground surface
Only compounds detected are listed
TAGM #4046 = Technical and Administrative Guidance Memorandum Soil Cleanup Objectives
Bold and Shading Indicates exceedance of TAGM and Track 4 Site-Specific SCOs
Shading Indicates exceedence of TAGM Criteria
NE = None Established by NYSDEC
NR = Not Reported
ppm = parts per million
ppb = parts per billion
< = compound not detected at a concentration above the Laboratory Minimum Detection Limit (MDL)
NOTE: Qualifers presented in this table represent lab designated values and has not been reviewed by a third party
J = (Organic Qualifiers) The analyte was positively identified; The associated numerical value is the approximate concentration of the analyte in the sample.
B = (Inorganic Qualifiers) The result is less than the Low Level Standard Check - Secondary Dilution and Analysis/Reporting Limit,
ual to the Instrumment Detection Limit/Method Detection Lim
U = (Organic/Inorganic Qualifiers) The analyte was not detected at or above the reporting limit.
UJ = (Orgainic Qualifiers) The analyte was not detected above the reported sample quantitation limit (QL).
However, the reported QL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
* = (Flag) In description = dry weight
(B) = (Organic Flags) Compound was Found in the Blank and Sample
(H) = (Organic Flags) Alternate Peak Selection upon Analytical Review
(M) = (Organic Flags) Manually Integrated Compound
(N) = (Inorganic Flags) MS, MSD: Spike Recovery Exceeds the Upper or Lower Control Limits

Soil Laboratory Analytical Data collected by Galli Engineering presented in RI Report dated March 6, 2007

Table 5

Groundwater Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID	TOGS	MW-1 (S)	MW-2 (S)	MW-3 (S)	MW-4 (S)	MW-5 (S)
Date Sampled		12/19/05	12/19/05	12/19/05	12/19/05	12/19/05
Well Screen Interval		6-16'	8-18'	8-18'	6-16'	7-17'
TCL VOCs (ppb)						
Acetone	50	< 1.4 U	< 1.4 U	10 U	65 (H)	10 U
Benzene	1	< 0.40 U	< 0.40 U	0.89 J	0.79 J	0.94 J
Chloroethane	5**	< 0.80 U	< 0.80 U	2.7 J	< 0.80 U	6.3
Ethylbenzene	5**	< 1.0 U	< 1.0 U	1.8 J	< 1.0 U	< 1.0 U
Methylene chloride	5**	5.0 UJ	< 0.40 UJ	< 0.40 UJ	< 0.40 UJ	5.0 UJ
Trichloroethene	5**	50	30	< 0.70 U	< 0.70 U	< 0.70 U
Vinyl chloride	2	< 0.80 UJ	1.0 J	3.3 J	0.95 J	< 0.80 UJ
Total xylenes	5**	< 1.0 U	< 1.0 U	7.2	< 1.0 U	18
cis-1,2-Dichloroethene	5**	5.2	33	< 0.60 U	< 0.60 U	< 0.60 U
1,3,5-trimethylbenzene*	5**	<0.70 U	<0.70 U	<0.70 U	<0.70 U	5.4
1,2,4-Trimethylbenzene*	5**	<0.60 U	<.60 U	53	<0.60 U	67
TCL SVOCs (ppb)						
2-Chloronaphthalene	5	< 0.7 U	< 0.7 U	< 2 U	1 J	< 0.7 U
2-Methylnapthalene	NE	< 0.6 U	< 0.6 U	85	< 0.6 U	< 0.6 U
Acenaphthene	NE	< 0.8 U	< 0.8 U	12 J	4 J (H)	4 J
bis(2-Ethylhexyl)phthalate	5	< 1 U	< 1 U	4 J	< 1 U	3 J
Dibenzofuran	NE	< 0.8 U	< 0.8 U	11 J	5 J	< 0.8 U
Diethylphthalate	50	< 0.8 U	< 0.8 U	< 2 U	< 0.8 U	15
Flourene	50	< 0.8 U	< 0.8 U	10 J	3 J	3 J
Naphthalene	10	< 0.7 U	< 0.7 U	6 J	< 0.7 U	< 0.7 U
Carbazole	NE	< 1 U	< 1 U	11 J	2 J	< 1 U
Pheneanthrene	50	< 0.7 U	< 0.7 U	10 J	< 0.7 U	1 J
Phenol	1	< 0.4 U	< 0.4 U	1 J	< 0.4 U	< 0.4
TAL Metals / Total, (ppb)						
Aluminum	NE	119 B	154 B	1,900	< 92.0 U	1,240
Barium	1,000	19.1	20.0	571	319	73.0
Beryllium	3	< 0.54 U	< 0.54 U	< 0.54 U	< 0.54 U	< 0.54 U
Calcium	NE	444,000	400,000	154,000	206,000	466,000
Chromium	50	< 1.3 U	< 1.3 U	3.8 B	< 1.3 U	2.0 B
Cobalt	NE	2.8 B	8.9 B	2.3 B	< 1.8 U	2.7 B
Copper	200	< 4.3 U	< 4.3 U	9.1 B	< 4.3 U	5.7 B
Iron	300	790 (N)	17,600 (N)	26,300 (N)	27,400 (N)	18,700 (N)
Lead	25	3.5 B	< 3.0 U	9.6 B	< 3.0 U	11.5
Magnesium	35,000	23,600	47,100	93,400	73,400	52,900
Manganese	300	220	7,530	865	1,930	2,840
Nickel	100	3.3 B	3.6 B	3.4 B	< 1.9	< 1.9
Potassium	NE	14,400 JJ	26,100 JJ	36,400 JJ	36,000 JJ	31,300 JJ
Silver	50	1.2 B	1.3 B	1.2 B	< 1.1 U	1.2 B
Sodium	20,000	16,900 J	54,500 J	61,400 J	51,900 J	132,000 J
Thallium	0.5	< 10.0 R	< 10.0 R	< 10.0 R	10.8 R	< 10.0 R
Vanadium	NE	< 1.5 U	< 1.5 U	6.8	< 1.5 U	4.3 B
Zinc	2,000	55.1	< 11.0 U	14.6 B	< 11.0 U	17.9 B
Pesticides/PCBs Total, (ppb)						
alpha-BHC	NE	< 0.011 U	< 0.011 U	0.057 J	0.050 U	0.053 U
beta-BHC	NE	< 0.013 U	< 0.013 U	0.066 NJ	0.050 U	0.11
delta-BHC	NE	0.014 J	< 0.0022 U	0.057 U	0.050 U	0.053 U
Dieldrin	0.004	< 0.0057 U	< 0.0057 U	0.018 J	< 0.0057 U	0.016 J
Endosulfan I	NE	0.0064 J	< 0.0035 U	< 0.0040 U	< 0.0035 U	< 0.0037 U
Heptachlor	0.04	< 0.0078 U	< 0.0078 U	< 0.089 U	0.050 U	< 0.0083 U
Methoxychlor	35	0.11 J	< 0.041 U	< 0.046 U	< 0.041 U	< 0.043 U
Lindane	NE	0.0074 J	0.0098 J	0.060	0.050 U	0.053 U

NOTES

Only compounds detected are listed

TOGS = Technical and Operational Guidance Series (1.1.1).
Ambient water quality standards and guidance values and groundwater effluent limitations.

Bold and Shading indicates exceedence of TOGS Criteria

* = The qualifiers and values for these analytes are lab designated values, which have not been reviewed by a third party.

** = The principal organic contaminant standard for groundwater of 5 ug/L applies to this substance.

NE = None Established by NYSDEC

< = Less than Laboratory Method Detection Limit (MDL)

ppb = parts per billion

U = (Organic/Inorganic Qualifiers) The analyte was not detected at or above the reporting limit.

J and JJ = (Organic Qualifiers) The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = (Orgainic Qualifiers) The analyte was not detected above the reported sample quantitation limit (QL). However, the reported QL is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

B = (Inorganic Qualifiers) The result is less than the Low Level Standard Check - Secondary Dilution and Analysis/Reporting Limit, but greater than or equal to the Instrumment Detection Limit/Method Detection Limit.

R = (Organic/Inorganic Qualifiers) The result is rejected due to dificiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

NJ = The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

(H) = (Organic Flags) Alternate Peak Selection upon Analytical Review

(N) = (Inorganic Flags) MS, MSD: Spike Recovery Exceeds the Upper or Lower Control Limits

(S)= Shallow Wells

(D)= Deep Wells

Table 6

Ground Water Analytical Results

BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID		MW-5D (D)	MW-6 (S)	MW-7 (S)	MW-8 (S)	MW-9 (S)	MW-10 (D)	MW-11 (D)	MW-12 S)
Date Sampled	TOGS	11/16/2006	11/16/2006	11/16/2006	11/17/2006	11/17/2006	11/16/2006	11/16/2006	11/16/2006
Well Screen Interval		40-45'	9-19'	9-19'	8-18'	10-20'	40-45'	40-45'	7-17'
VOCs (ppb)									
1,1,1-Trichloroethane	5**	<0.4 U	<0.4 U	<0.4 U	<0.4 U	1.7 J(H)	<0.4 U	<0.4 U	<8 U
1,1-Dichloroethane	5**	<0.6 U	<0.6 U	<0.6 U	3.7 J	<0.6 U	<0.6 U	<0.6 U	<12 U
Acetone	50	2.5 J(B)	2.3 J(B)	1.4 J(B)	1.8 J(B)	2.0 J(B)	<1.4 U(B)	1.9 J(B)	80 J(B)
Chloroform	7	1.7 J	<0.7 U	<0.7 U	<0.7 U	<0.7 U	3.7 J	2.3 J	<14 U
cis-1,2-Dichloroethene	5**	0.83 J	4.4 J	<0.6 U	0.79 J	<0.6 U	<0.6 U	1.2 J	1,000
Methylene Chloride	5**	<0.4 U(B)	<0.4 U	<0.4 U	<0.4 U(B)	<0.4 U(B)	<0.4 U	<0.4 U(B)	9.6 J(B)
Tetrachloroethene	5**	55	<0.5 U	<0.5 U	<0.5 U	4.4 J	56	46	<10 U
trans-1,2-Dichlorethene	5**	<0.5 U(M)	<0.5 U(M)	<0.5 U	<0.5 U	<0.5 U	<0.5 U	<0.5 U(M)	20 J
Trichloroethene	5**	8.4	4.5 J	<0.7 U	0.85 J	2.7 J	8.7	13	1,600
Vinyl Chloride	2	<0.8 U	<0.8 U	<0.8 U(M)	<0.8 U	<0.8 U	<0.8 U	<0.8 U	25 J
SVOCs (ppb)									
Phenanthrene	50	2.0 J	<0.7 U	<0.7 U	<0.7 U	<0.7 U	<0.7 U	<0.7 U	<0.7 U
TAL Metals, Total (ug/L)									
Aluminum	NE	250 B	<80 U	10,600	290 B	<80 U	312 B	<80 U	<80 U
Barium	1,000	50.4	139	163	97	44.1	39.1	32.9	22.1
Beryllium	3	<0.21 U	<0.21 U	0.60 B	<0.21 U	<0.21 U	<0.21 U	<0.21 U	<0.21 U
Cadmium	5	<0.76 U	3.2 B	1.1 B	1.0 B	0.97 B	<0.76 U	<0.76 U	<0.76 U
Calcium	NE	29,700	231	28,400	26,300	55,200	63,200	80,200	452,000
Chromium - total	50	<2.0 U	<2.0 U	19.7	<2.0 U	<2.0 U	2.1 B	<2.0 U	<2.0 U
Cobalt	NE	7.4 B	11.7	15.4	4.1 B	1.6 B	1.7 B	6.1 B	13.3
Copper	200	<4.0 U	<4.0 U	30.5	4.8 B	<4.0 U	4.3 B	<4.0 U	<4.0 U
Iron	300	1,870	39,900	25,300	538	72.2 B	844	41.5 B	13,100
Lead	25	<3.0 U	5.0 B	28.3	3.3 B	<3.0 U	5.3 B	<3.0 U	<3.0 U
Magnesium	35,000	37,300	11,300	38,600	27,000	3,810	25,400	21,700	75,900
Manganese	300	16,600	1,520	17,300	6,540	1,120	110	498	9,430
Mercury (elemental)	0.7	<0.07 U	<0.07	0.19	<0.07 U	<0.07 U	<0.07 U	<0.07 U	<0.07 U
Nickel	100	4.3 B	23,300	18.7	4.1 B	1.8 B	4.2 B	6.4 B	8.3 B
Potassium	NE	36,900	<150 U	37,500	49,200	14,100	3,240	5,110	40,800
Selenium	10	7.7 B	<7.5 U	<7.5 U	8.1 B	<7.5 U	<7.5 U	<7.5 U	<7.5 U
Sodium	20,000	44,200	58,200	43,800	245,000	164,000	107,000	96,600	47,000
Vanadium	NE	<0.6 U	0.78 B	31.1	1.7 B	1.0 B	1.4 B	0.73 B	<0.6 U
Zinc	2,000	<10 U	1,210	44.3 B	18.7 B	11.6 B	17.9 B	23.3 B	25.1 B

NOTES

Only compounds detected are listed
TOGS = Technical and Operational Guidance Series (1.1.1).
Ambient water quality standards and guidance values and groundwater effluent limitations.
Bold and Shading indicates exceedence of TOGS Criteria
** = The principal organic contaminant standard for groundwater of 5 ug/L applies to this substance.
NE = None Established by NYSDEC
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ppb = parts per billion
Qualifiers presented in this table represent lab designated values, which have not been reviewed by a third party.
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J and JJ = (Organic Qualifiers) The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
B = (Inorganic Qualifiers) The result is less than the Low Level Standard Check - Secondary Dilution and Analysis/Reporting Limit, but greater than or equal to the Instrumment Detection Limit/Method Detection Limit.
(B) = (Organic Flags) The compound was found in the blank and the sample.
(M) = (Organic Flags) Manually Integrated Compound
(S) = Shallow Well
(D) = Deep Well

Table 7

Soil Gas Analytical Results
BL Companies Project No. 05L0567
353 McKibbin Street / NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Sample ID	Background Indoor Air Values				SV-1*		SV-2*		SV-3*	SV-4*		SG-1	SG-2	SG-3	SG-4
Date Sampled	NYSDOH	EPA	NYSDOH	NYSDOH Air	11/17/2006	2/9/2007	11/17/2006	2/9/2007	11/17/2006	11/17/2006	2/9/2007	1/26/2006	1/26/2006	1/26/2006	1/26/2006
	2003**	2001***	1997****	Guideline*****											
Method TO-14/15 (ug/m3)															
Dichlorodifluoromethane	180	183.7	<5	NA	3.1	3.7	<4.9 U	3.0	<12 U	<25 U	<49 U	5.9 UJ	6.9 UJ	6.4 UJ	2.9 U
Chloromethane	14	10.6	4.5	NA	1.3	1.7	<2.1 U	1.5	<5.2 U	<10 U	<21 U	1.7 U	1.7 U	1.6 U	1.3 U
Vinyl Chloride	0.8	<2.6	<2.6	NA	<0.51 U	<0.51 U	8.2	<0.51 U	<2.6 U	<5.1 U	<10 U	< 0.51 U	< 0.51 U	< 0.51 U	< 0.51 U
1,3-Butadiene	29	<2.6	<7.6	NA	<1.1 U	<1.1 U	<2.2 U	<1.1 U	<5.5 U	<11 U	<22 U	< 1.1 U	2.7	< 1.1 U	< 1.1 U
Trichlorofluoromethane	95	71.1	7.5	NA	1.6	2.0	<2.2 U	1.9	<5.6 U	<11 U	<22 U	2.6 U	2.8 U	2.8 U	1.5 U
1,1-Dichloroethene	6.3	<.08	<9	NA	<0.79 U	<0.79 U	10	<0.79 U	<4.0 U	<7.9 U	<16 U	< 0.79 U	< 0.79 U	< 0.79 U	< 0.79 U
Acetone	200	104.2	NA	NA	15	<12 U	<24 U	<12 U	<59 U	<120 U	<240 U	55 U	50 U	26 U	29 UJ
Isopropyl Alcohol	NA	NA	NA	NA	<12 U	<12 U	<25 U	<12 U	<61 U	<120 U	<250 U	39	32	< 12 U	< 12 UJ
Carbon Disulfide	NA	22	NA	NA	6.2	2.8	78	5.6	26	62	110	< 1.6 U	6.2	< 1.6 U	< 1.6 U
Methylene Chloride	310	63	240	60	3.4	<1.7 U	<3.5 U	<1.7 U	<8.7 U	<17 U	<35 U	< 1.7 U	1.9	< 1.7 U	< 1.7 U
Methyl tert-Butyl Ether	230	36	NA	NA	<1.8 U	<1.8 U	<3.6 U	<1.8 U	13	<18 U	<36 U	< 1.8 U	< 1.8 U	< 1.8 U	< 1.8 U
trans-1,2-Dichloroethene	NA	NA	<10	NA	<0.79 U	<0.79 U	<1.6 U	<0.79 U	5.9	<7.9 U	<16 U	< 0.79 U	< 0.79 U	< 0.79 U	< 0.79 U
n-Hexane	93	15.3	NA	NA	1.8	<1.8 U	5.3	<1.8 U	42	<18 U	<35 U	3.3	3.5	< 1.8 U	< 1.8 U
1,1-Dichloroethane	0.4	<0.8	<10	NA	<0.81 U	1.4	34	2.3	450	17	37	< 0.81 U	< 0.81 U	< 0.81 U	< 0.81 U
1,2-Dichloroethene (total)	6.3	<1.6	<9	NA	<0.79 U	1.2	44	2.4	59	71	91	< 0.79 U	< 0.79 U	< 0.79 U	< 0.79 U
Methyl Ethyl Ketone	79	43.1	NA	NA	86	<1.5 U	53	<1.5 U	14	<15 U	<29 U	< 1.5 U	1.5	< 1.5 U	< 1.5 UJ
cis-1,2-Dichloroethene	4.6	1.1	<10	NA	<0.79 U	1.2	44	2.4	56	71	91	< 0.79 U	< 0.79 U	< 0.79 U	< 0.79 U
Chloroform	13	13.8	17	NA	<0.98 U	<0.98 U	<2.0 U	<0.98 U	<4.9 U	22	54	< 0.98 U	< 0.98 U	< 0.98 U	< 0.98 U
1,1,1-Trichloroethane	41	8.4	180	NA	<1.1 U	<1.1 U	14	<1.1 U	32	130	280	< 1.1 U	< 1.1 U	< 1.1 U	< 1.1 U
Cyclohexane	88	NA	NA	NA	<0.69 U	<0.69 U	12	<0.69 U	10	<6.9 U	<14 U	< 0.69 U	7.2	< 0.69 U	< 0.69 U
Carbon Tetrachloride	3.2	1.5	5	NA	<1.3 U	<1.3 U	<2.5 U	<1.3 U	<6.3 U	<13 U	<25 U	< 1.3 U	1.3	< 1.3 U	< 1.3 U
2,2,4-Trimethylpentane	NA	NA	NA	NA	1.5	<0.93 U	22	<0.93 U	35	14	<19 U	< 0.93 U	8.4	1.0	< 0.93 U
Benzene	120	12.6	37	NA	1.7	1.4	4.5	1.6	21	<6.4 U	<13 U	2.0 U	2.4 U	1.4 U	1.1 U
n-Heptane	72	NA	NA	NA	1.7	1.1	4.9	<0.82 U	20	<8.2 U	<16 U	1.8	7.8	1.4	< 0.82 U
Trichloroethene	7.4	11.2	7.5	5	<1.1 U	3.1	220	3.5	12	1,300	3,000	< 1.1 U	1.1	< 1.1 U	11
Methyl Isobutyl Ketone	16	NA	NA	NA	<2.0 U	2.0 U	<4.1 U	<2.0 U	<10 U	<20 U	<41 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 UJ
Toluene	300	86.5	95	NA	7.2	3.3	8.3	4.1	28	<7.5 U	<15 U	6.8 U	7.5 U	5.3 U	4.9 U
Tetrachloroethene	20	24.8	77	100	<1.4 U	12	370	6.6	<6.8 U	880	2500	< 1.4 U	3.3	1.5	1.4
Methyl Butyl Ketone	NA	NA	NA	NA	13	<2.0 U	11	<2.0 U	<10 U	<20 U	<41 U	< 2.0 U	< 2.0 U	< 2.0 U	< 2.0 UJ
Ethylbenzene	26	7.6	15	NA	1.6	<0.87 U	2.9	<0.87 U	<4.3 U	<8.7 U	<17 U	1.8 U	1.6 U	1.0 U	2.0 U
Xylene (m,p)	46	24.8	64	NA	5.2	<2.2 U	6.9	<2.2 U	22	<22 U	<43 U	5.2 U	3.1 U	3.2 U	4.8 U
Xylene (o)	32	9.6	18	NA	1.7	<0.87 U	2.4	<0.87 U	7.4	<8.7 U	<17 U	1.7 U	1.0 U	1.1 U	1.2 U
Xylene (total)	78	34.4	82	NA	7.4	<0.87 U	9.6	<0.87 U	30	<8.7 U	<17 U	6.5 U	4.0 U	4.1 U	6.1 U
Styrene	2.3	34.1	5	NA	1.4	<0.85 U	<1.7 U	<0.85 U	<4.3 U	<8.5 U	<17 U	< 0.85 U	< 0.85 U	< 0.85 U	< 0.85 U
4-Ethyltoluene	NA	8	NA	NA	2	<0.98 U	<2.0 U	<0.98 U	5.4	<9.8 U	<20 U	1.4	< 0.98 U	< 0.98 U	< 0.98 U
1,2,4-Trimethylbenzene	26	19.1	43	NA	3.5	<0.98 U	2.7	<0.98 U	5.9	<9.8 U	<20 U	1.3 U	1.2 U	1.2 U	0.98 U

ug/m3 = micrograms per cubic meter
U = (Organic Qualifiers) The analyte was not detected at or above the reporting limit.
* = Qualifers presented for the samples collected November 17, 2006 and February 9, 2007 represent lab designated values, which have not been reviewed by a third party.
NA = No Standards Available
* Based on NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006.(99th percentile data usedfor comparison to field data)
** Based on NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006, APPENDIX C-2003 Study of VOCs in Air of Fuel Oil Heated Homes
*** Based on NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006. , Appendix C - 2001 Building Assessment and Survey Evaluation
**** Based on NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York dated October 2006, Appendix C- 1997 Control of Home Database
***** NYSDOH Soil Vapor Intrusion Guidance-Table 3.1 - Air Guideline Values derived by the NYSDOH
Bold = Soil Gas concentration exceeds background Indoor Air values.
SG= Temporary soil-gas wells
SV= Permanent soil-gas wells

Table 8

Mehadrin
Historic Water Level Summary
NYSDEC BCP Site No. C224102
BL Project # 05L0567

		Prior to Monitoring Well Development		After Monitoring Well Development					
		11/23/2005		12/14/2005		11/16/2006		1/3/2007	
Well	TOC Elevation	DTW	Elevation	DTW	Elevation	DTW	Elevation	DTW	Elevation
MW-1	96.55	11.14	85.41	11.75	84.80	11.91	84.64	12.10	84.45
MW-2	96.11	11.15	84.96	11.53	84.58	11.83	84.28	11.97	84.14
MW-3	96.14	10.02	86.12	14.41	81.73	11.52	84.62	11.74	84.40
MW-4	96.79	11.72	85.07	11.95	84.84	12.3	84.49	12.48	84.31
MW-5	97.19	12.02	85.17	12.38	84.81	12.76	84.43	12.94	84.25
Well	TOC Elevation								
MW-5D	96.81					12.34	84.47	12.54	84.27
MW-6	95.17					11.16	84.01	11.27	83.9
MW-7	96.73					12.44	84.29	12.64	84.09
MW-8	97.22					12.47	84.75	12.73	84.49
MW-9	99.44					14.8	84.64	15.00	84.44
MW-10	96.01					11.62	84.39	11.82	84.19
MW-11	96.30					11.74	84.56	11.93	84.37
MW-12	96.05					11.54	84.51	11.73	84.32

TOC = Top of casing, elevation in feet
DTW = Depth to water (in feet)

Table 9
Soil Laboratory Analytical Results Summary Sorted by TCE Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,860	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.8	0.25	1.9	23.3
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	26.1
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-6	4-6 ft bgs	78	7.0	125	480	18,180	4,838	33,890	53,480	41.98	505	5.3	8.0	70.9
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	16.9
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	28.1
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	18,110	21	2.7	0	0	22.6
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	58	0.059	182	371	0	75.0	0.31	3.0	13.2
GP-6	18-20 ft bgs	4.9	0	12.1	338.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-8	12-14 ft bgs	2.8	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.6
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	33.6	0.039	0	16.4
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
MW-4	5-6 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.6
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-4	10-11 ft bgs	0	586	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	816.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	6-8 ft bgs	0	0	0	183.5	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentratio0

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by BTEX Concentration
BI Companies Project No. 05I.0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-36	5-10 ft bgs	0	816.6	17	5,882.60	0	0	0	0	0	0	0	0	0
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,860	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
MW-5	13-17 ft bgs	14	163	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-16	18-20 ft bgs	0	152	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-43	15-17 ft bgs	0	34	6.6	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
GP-3	18-20 ft bgs	140	22	162	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-8	4-6 ft bgs	78	7.0	125	480	18,180	4,838	33,890	53,480	41.96	505	5.3	8.0	70.9
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
MW-2	17-19 ft bgs	0	0	0	188	0	0	0	0	100	5.0	0	1.5	17.3
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.6
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.026	0	16.3
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-40	15-17 ft bgs	420	0	449	529	540	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-17	18-20 ft bgs	0	0	0	182.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	6-8 ft bgs	0	0	0	122.3	702	130	860	1,562	0	424	0.33	3.9	12.9
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentratio0

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by TCVOCs Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,860	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.8	27.2
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-26	5-10 ft bgs	260	3.9	329.62	333.7	0	0	0	0	0	0	0	0	0
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
MW-8	20-22 ft bgs	2.2	0	172	48.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-6	4-6 ft bgs	78	7.0	125	480	18,180	4,838	33,890	53,480	41.98	505	5.3	8.0	70.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,380	0	8.0	0.014	2.2	13.4
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-36	5-10 ft bgs	0	816.6	17	5,882.40	0	0	0	0	0	0	0	0	0
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.50	2.6	14.4
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,980	2,863	16.9	54.6	0.42	3.2	18.6
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.9	0	1.5	17.3
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-18	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	6-8 ft bgs	0	0	0	163.8	799	150	860	1,569	0	424	0.33	3.9	15.9
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	18-20 ft bgs	0	0	0	193.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1

NOTES

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by TVOCs Concentration
BI Companies Project No 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-2	7-8 ft bgs	250,000	660	261,000	282,600	6,860	1,867	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-36	5-10 ft bgs	0	816.6	17	5,852.60	0	0	0	0	0	0	0	0	0
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
GP-6	4-6 ft bgs	78	7.0	125	480	18,180	4,838	33,890	53,480	41.98	505	5.3	6.0	70.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.064	2.3	19.5
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-18	6-8 ft bgs	9.2	8.8	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	18.7
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	5.5	0.035	3.1	24.2
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.6	15.7
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	5.1	0	0	10.1
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.8	0	1.9	13.9
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	8.5
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	15.9
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	5,314	140	105	1.3	4.2	17.6
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,526	21,656	0	459	11.6	8.7	20.1
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	126	1	3.9	20.4
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.6
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	18.2
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentratio0

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by CPAHs Concentration
BI Companies Project No. 05I.0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-6	4-6 ft bgs	78	7.0	125	480	18,160	4,838	33,690	53,480	41.98	505	5.3	8.0	70.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	9.7	20.1
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,860	1,867	17,690	26,540	9.8	119	0.61	3.2	17.9
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	185	1.3	4.2	17.6
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.8	13.1
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,589	411	3,125	4,694	0	74.1	1.3	3.6	27.2
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,516	68	113	0.92	4.2	19.6
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,843	18.9	54.6	0.42	3.2	18.6
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-16	6-8 ft bgs	0	0	0	183.8	709	158	860	1,569	0	424	0.33	3.9	15.9
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
GP-3	7-8 ft bgs	180	1,297	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-13	6-8 ft bgs	5.6	0	10.3	261.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-7	10-12 ft bgs	41	7.0	74	199.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	63	1.9	8.5	0.029	0	16.3
GP-43	40-45 ft bgs	0	790	100	7,460	0	0	17,060	17,600	0	5.3	0.33	3.3	18.6
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	816.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-33	5-10 ft bgs	0	6,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	446	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	88,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.8	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	3.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.8	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6

NOTES

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft - feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by CPAH BaP Equivalents Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <,1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-6	4-6 ft bgs	78	7.0	125	480	18,180	4,636	33,690	53,480	41.96	505	5.3	8.0	70.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
GP-2	7-8 ft bgs	250,000	660	281,008	282,690	6,860	1,807	17,690	26,640	9.8	119	0.81	3.2	17.9
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-8	12-14 ft bgs	2.6	0	12.4	19.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.6
GP-7	16-20 ft bgs	0	2.0	8.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-16	6-8 ft bgs	0	0	0	193.8	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.6
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-13	6-8 ft bgs	5.6	0	10.3	283.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.9	0	1.5	17.3
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-5	18-20 ft bgs	4.7	0	14	359	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-43	40-45 ft bgs	0	790	190	7,220	0	0	17,000	17,000	0	5.5	0.39	0.5	15.3
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-41	20-22 ft bgs	32	0	39.9	51.9	0	0	0	0	0	6	0.035	0	17.7
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-4	10-11 ft bgs	0	560	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	616.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33a	70-72 ft bgs	0	62	26	420.5	0	0	5,877	5,877	0	13.7	0.065	0	13.4
GP-33	5-10 ft bgs	0	9,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-2	10-12 ft bgs	85	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	8-10 ft bgs	0	0	24	295.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-12	18-20 ft bgs	0	0	0	185.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	8.5	0.035	3.1	24.2
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by non-CPAHs Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	19.1
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-6	4-6 ft bgs	78	7.8	125	480	18,180	4,838	33,890	53,480	41.98	505	5.3	8.0	70.9
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	8.0	0.014	2.2	13.4
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,860	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-33a	70-72 ft bgs	0	82	26	429.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	16.7
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	195	1.3	4.2	17.6
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,261	2,878	0.57	8.6	0.25	1.9	23.3
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,618	68	113	0.92	4.2	19.6
GP-7	18-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	39.1
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.6
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	129	1	3.9	20.4
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
GP-13	6-8 ft bgs	5.6	0	10.3	263.1	59	0.059	162	371	0	75.8	0.31	3.8	13.2
GP-7	10-12 ft bgs	41	7.8	74	109.5	0	0	89	89	1.2	6.4	0.027	2.1	19.7
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	870	4.9	0	0	9.5
MW-2	17-19 ft bgs	0	0	0	188	0	0	0	0	100	5.0	0	1.5	17.3
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.5
GP-8	18-20 ft bgs	2.4	0	10.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	7-8 ft bgs	8.8	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-5	18-20 ft bgs	4.7	0	14	350	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-41	20-22 ft bgs	32	0	39.8	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-36	5-10 ft bgs	0	816.6	17	5,982.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	8-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.18	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	61	0	10.7	0.072	2.4	18.4
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-1	10-12 ft bgs	0	0	8.8	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by TSVOCs Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	8.3	0.067	2	15.1
GP-6	4-6 ft bgs	78	7.0	125	480	16,180	4,838	33,890	53,460	41.96	505	5.3	8.9	70.9
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,860	1,807	17,690	25,640	9.8	119	0.61	3.2	17.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-38	5-10 ft bgs	6.7	257	36.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-9	14 -16 ft bgs	0	0	30	260	0	0	8,070	8,121	0	3.4	0	0	11
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.065	0	13.4
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
GP-4	6-8 ft bgs	800	141	851	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.8
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	12.7	0.048	2.5	19.2
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	162	371	0	75.0	0.31	3.0	13.2
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-8	18-20 ft bgs	2.4	0	16.8	22.4	0	0	0	220	4.28	2.3	0.076	0	13.1
MW-8	10-12 ft bgs	0	0	18	26	46	0.05	186	232	0	4.9	0.14	0	7.9
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	6.5	0.029	0	16.3
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.9	14.6
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
MW-4	5-6 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	8.2	0	1.7	10.6
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-36	5-10 ft bgs	0	816.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	18.2	0	0	0	0	0	0	0	0	0
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	8,240	8,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,060	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentratio0

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by PCBs Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-6	4-6 ft bgs	78	7.0	125	460	18,188	4,838	33,890	53,460	41.96	505	5.3	8.0	70.9
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.6	0.42	3.2	18.6
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,660	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	6.5	0.029	0	16.3
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	19.6
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.6	4.4	30.1
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	616.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-33	5-10 ft bgs	0	6,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-19	6-8 ft bgs	0	0	0	138	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-16	18-20 ft bgs	0	162	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-11	18-20 ft bgs	0	0	0	386	0	0	0	0	0	2.1	0	0	10.1
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by Lead Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-6	4-6 ft bgs	78	7.0	125	480	16,160	4,838	33,890	53,485	41.98	505	5.3	8.0	70.9
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	16.9
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
GP-2	7-8 ft bgs	250,000	660	261,000	282,600	5,860	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.6
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,099	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
GP-39	7-9 ft bgs	44,000	1030	54,526	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-39	15-17 ft bgs	7.6	0	29.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	18.9	54.8	0.42	3.2	18.6
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
MW-1	15-22 ft bgs	3.6	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,095	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.086	0	13.4
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.6	0.12	0	19.9
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	9.4
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-10	6-8 ft bgs	11	0	38	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	16.8
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	16.1
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-4	10-11 ft bgs	0	580	120	480	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.9
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	816.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by Mercury Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.8	8.7	29.1
GP-6	4-6 ft bgs	78	7.0	125	490	18,180	4,836	33,890	53,480	41.98	505	5.3	8.9	70.9
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
MW-1	15-22 ft bgs	3.0	0	3.0	223	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,569	411	3,125	4,694	0	74.1	1.3	3.6	27.2
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-3	7-9 ft bgs	5.8	10	7.2	171.2	1,110	247	1,636	3,616	68	113	0.92	4.2	19.8
GP-2	7-8 ft bgs	250,000	660	281,080	282,600	6,860	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.8	0	0	60	60	0	42.5	0.56	2.8	14.4
GP-8	12-14 ft bgs	2.8	0	12.4	15.2	1,879	298	1,080	2,883	18.9	54.6	0.42	3.2	18.6
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-43	40-45 ft bgs	0	790	100	7,696	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.099	182	371	0	75.0	0.31	3.0	13.2
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.8	0.25	1.8	23.3
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	166	232	0	4.9	0.14	0	7.9
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	10.7	0.072	2.4	18.4
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.8	22.9
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
GP-7	18-20 ft bgs	0	2.0	6.8	8.8	1,005	285	1,285	2,650	35.6	17.7	0.048	2.5	19.2
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	5.5	0.035	3.1	24.2
GP-5	7-8 ft bgs	4.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.8	0.031	0	6.4
GP-5	18-20 bgs	4.7	0	14	356	0	0	0	63	1.9	8.5	0.029	0	16.3
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
MW-5	13-17 ft bgs	14	163	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
MW-4	5-8 ft bgs	0	0	0	230	0	0	0	57	41	5.6	0	1.9	13.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	616.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33	5-10 ft bgs	0	6,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	35	0	0	0	0	0	0	0	0	0
GP-3	18-20 ft bgs	140	22	162	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-19	18-20 ft bgs	0	137	0	320	0	0	29,680	29,680	0.34	3.9	0	0	9.6
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	18-20 ft bgs	0	162	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by Arsenic Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
GP-6	4-6 ft bgs	78	7.0	125	480	16,180	4,638	33,890	53,480	41.98	505	5.3	8.0	70.9
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,616	88	113	0.92	4.2	19.6
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-9	10-12 ft bgs	6.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	860	1,569	0	424	0.33	3.9	15.9
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	0.5	540	734	1.5	8.7	0.40	3.7	28.1
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,560	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
GP-43	40-45 ft bgs	0	790	100	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,687	2,724	0	16.1	0.11	3.3	22.8
GP-8	12-14 ft bgs	2.8	0	12.4	15.2	1,079	298	1,680	2,863	18.9	54.6	0.42	3.2	18.6
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.8
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,850	1,607	17,690	26,540	9.8	119	0.61	3.2	17.9
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	78.0	0.31	3.0	13.2
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-18	6-8 ft bgs	8.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,650	35.6	17.7	0.848	2.5	19.2
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	81	0	18.7	0.072	2.4	18.4
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-4	10-11 ft bgs	0	980	126	460	0	0	22,360	22,360	0	6.0	0.014	2.2	13.4
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,261	2,878	0.57	8.6	0.25	1.9	23.3
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	19.6
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.28	1.6	13.1
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6
MW-2	17-19 ft bgs	0	0	0	198	0	0	0	0	100	5.0	0	1.5	17.3
GP-10	18-20 ft bgs	0	150	1,210	4,705	0	0	43,060	43,060	1.3	5.5	0.074	1.5	16.7
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
MW-7	15-17 ft bgs	0	0	21	47	1,019	592	1,080	2,090	0	13.4	0.24	0	14.5
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	18,110	21	2.7	0	0	22.6
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.929	0	16.3
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	816.6	17	5,862.90	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	299.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.6	36	0	0	0	0	0	0	0	0	0
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	88,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	41	0	41.5	41.5	0	0	0	0	0	0	0	0	0
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.6
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-14	18-20 ft bgs	560	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-11	18-20 ft bgs	0	0	0	396	0	0	0	0	0	2.1	0	0	10.1

NOTES:

See laboratory analytical reports for complete analytical results

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 9
Soil Laboratory Analytical Results Summary Sorted by Chromium Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION and DEPTH		TCE (ppb)	BTEX (ppb)	TCVOCs (ppb)	TVOCs (ppb)	CPAHs (ppb)	CPAH BaP Equivalents (ppb)	non-CPAHs (ppb)	TSVOCs (ppb)	PCBs (ppb)	Lead (ppm)	Mercury (ppm)	Arsenic (ppm)	Chromium (ppm)
TAGM #4046 Track 1 Unrestricted		700	NA	NA	10,000	NA	NA	NA	500,000	10,000 (subsurface)	SB= <10-300	0.1 or SB=0.01-3.4	7.5 or SB= <.1 - 73	10 or SB= 1-1,000
Track 4 SCOs		200,000	NA	NA	NA	NA	NA	NA	NA	NA	1,000	2.8	16	NA
GP-6	4-6 ft bgs	78	7.6	125	480	18,180	4,838	33,890	53,480	41.98	505	5.3		70.9
GP-1	10-12 ft bgs	0	0	8.9	38.9	0	0	0	0	0	5.4	0.016	2.9	36.3
GP-2	10-12 ft bgs	65	0	95	373	0	0	342	342	0	5.3	0.014	3.4	32.8
MW-1	15-22 ft bgs	3.0	0	3.0	233	2,540	747	3,239	6,330	170	35.5	2.2	2.7	30.7
GP-40	15-17 ft bgs	420	0	449	529	840	191	1,120	1,960	0	145	1.8	4.4	30.1
GP-3	7-8 ft bgs	180	1,287	2,425	4,874	194	9.5	540	734	1.5	6.7	0.40	3.7	28.1
GP-39	7-9 ft bgs	44,000	1030	54,520	55,964	1,589	411	3,125	4,694	0	74.1	1.3	3.6	27.2
GP-10	6-8 ft bgs	11	0	39	317	0	0	39,850	39,850	0	6.5	0.035	3.1	24.2
GP-4	6-8 ft bgs	800	141	951	2,232	597	132	2,281	2,878	0.57	8.6	0.25	1.9	23.3
GP-39	15-17 ft bgs	7.6	0	25.4	31.3	0	0	0	0	0	71.2	0.062	1.9	22.9
MW-5	13-17 ft bgs	14	183	14	6,097	0	0	18,250	19,110	21	2.7	0	0	22.6
GP-19	6-8 ft bgs	0	0	0	139	965	204	1,697	2,724	0	16.1	0.11	3.3	22.0
MW-9	10-12 ft bgs	8.3	0	203	44.3	690	158	970	1,660	0	120	1	3.9	20.4
MW-7	10-12 ft bgs	0	0	14	54.2	9,130	3,535	12,528	21,658	0	459	11.6	8.7	20.1
GP-41	10-12 ft bgs	36	0	49.7	49.7	40	4	65	105	0	30.4	3.3	3.7	20.1
MW-9	20-22 ft bgs	0	0	15	31	346	89	449	795	0	77.3	0.038	0	19.8
GP-7	10-12 ft bgs	41	7.0	74	109.5	0	0	69	69	1.2	6.4	0.027	2.1	19.7
MW-3	7-9 ft bgs	5.6	10	7.2	171.2	1,110	247	1,636	3,016	68	113	0.92	4.2	19.6
GP-5	7-8 ft bgs	8.6	0	24.43	453.4	0	0	0	0	0	7.8	0.033	3.2	19.6
MW-2	11-13 ft bgs	0	0	0	433	792	192	1,149	2,051	46	4.5	0.084	2.3	19.5
GP-7	16-20 ft bgs	0	2.0	6.6	8.6	1,005	285	1,285	2,850	30.6	17.7	0.048	2.5	19.2
GP-40	7-9 ft bgs	55	0	75.9	87.9	0	0	189	189	0	6.8	0.12	0	18.9
MW-6	10-12 ft bgs	0	0	17	81.2	2,880	750	5,669	8,549	0	251	2.3	5	18.7
GP-8	12-14 ft bgs	2.6	0	12.4	15.2	1,079	298	1,080	2,863	16.9	54.6	0.42	3.2	18.6
GP-12	8-10 ft bgs	0	0	24	205.9	0	0	0	51	0	10.7	0.072	2.4	18.4
GP-2	7-8 ft bgs	250,000	660	281,000	282,600	6,660	1,807	17,690	26,640	9.8	119	0.61	3.2	17.9
GP-41	20-22 ft bgs	32	0	39.9	61.9	0	0	0	0	0	6	0.035	0	17.7
MW-1	5-7 ft bgs	3.4	0	3.4	136.4	2,089	519	3,186	6,314	140	105	1.3	4.2	17.6
MW-2	17-19 ft bgs	0	0	0	138	0	0	0	0	100	5.0	0	1.5	17.3
GP-3	18-20 ft bgs	140	22	182	334	0	0	18,200	18,200	0	6.4	0	2.4	17.3
GP-43	40-45 ft bgs	0	790	160	7,690	0	0	17,000	17,000	0	54.3	0.32	3.3	16.8
GP-17	6-8 ft bgs	0	18.3	0	322.3	0	0	0	0	0	15.9	0.19	4.4	16.7
GP-10	18-20 ft bgs	0	150	1,210	4,760	0	0	49,060	49,060	1.4	5.3	0.074	1.5	16.7
MW-8	20-22 ft bgs	2.2	0	172	49.2	154	52	237	391	0	53.8	0.099	0	16.4
MW-6	15-17 ft bgs	0	0	17	39	0	0	0	0	0	5	0.063	0	16.4
GP-5	18-20 ft bgs	4.7	0	14	356	0	0	0	83	1.9	8.5	0.029	0	16.3
GP-14	18-20 ft bgs	580	820	1,080	1,900	0	0	0	0	0	5.2	0	0	16.2
GP-13	18-20 bgs	0	0	0	33	0	0	0	170	0	4.3	0	0	16.2
GP-16	6-8 ft bgs	0	0	0	183.8	709	150	980	1,589	0	424	0.33	3.9	15.9
GP-6	18-20 ft bgs	4.9	0	12.1	339.1	0	0	0	0	0	7.1	0	3.4	15.8
GP-11	8-10 ft bgs	7	14.5	9.3	309.8	2,330	554	3,075	5,472	0	122	0.15	2.8	15.7
GP-43	15-17 ft bgs	0	34	6.8	51.2	0	0	71,480	71,480	0	6.3	0.067	2	15.1
GP-1	18-20 ft bgs	0	0	11	240	0	0	0	78	0.31	4.6	0	1.6	14.6
MW-7	15-17 ft bgs	0	0	21	47	1,010	592	1,080	2,090	0	13.4	0.24	0	14.5
GP-18	6-8 ft bgs	9.2	8.0	16.1	352.6	0	0	60	60	0	42.5	0.56	2.6	14.4
MW-4	5-8 ft bgs	0	0	0	236	0	0	0	57	41	5.6	0	1.9	13.9
GP-15	20-24 ft bgs	0	0	0	122.3	0	0	0	0	0	4.3	0	0	13.5
GP-4	10-11 ft bgs	0	580	120	460	0	0	22,360	22,360	0	6.8	0.014	2.2	13.4
GP-33a	70-72 ft bgs	0	82	26	420.5	0	0	5,877	5,877	0	13.7	0.085	0	13.4
GP-13	6-8 ft bgs	5.6	0	10.3	263.3	59	0.059	182	371	0	75.0	0.31	3.0	13.2
MW-3	17-19 ft bgs	0	27	0	27	2,010	434	4,624	7,291	420	37.3	0.26	1.6	13.1
GP-8	18-20 ft bgs	2.4	0	16.8	23.1	0	0	0	320	4.39	3.3	0.076	0	13.1
GP-14	8-10 ft bgs	0	0	1.9	130.4	0	0	0	0	0	3.4	0	0	12.7
GP-9	14 -16 ft bgs	0	0	30	280	0	0	8,070	8,121	0	3.4	0	0	11
GP-9	8-10 ft bgs	0	0	7.4	49.4	0	0	0	0	0	6.2	0	1.7	10.6
GP-16	18-20 ft bgs	0	182	0	263	0	0	43,370	43,370	0	6.1	0	0	10.1
GP-11	18-20 ft bgs	0	0	0	386	0	0	0	0	0	2.1	0	0	10.1
GP-17	18-20 ft bgs	0	0	0	102.5	0	0	0	0	0	4.5	0	0	9.7
MW-4	15-17 ft bgs	0	0	0	519	0	0	0	97	670	4.9	0	0	9.5
GP-12	18-20 ft bgs	0	0	0	195.2	0	0	0	91	0	3.7	0	0	9.5
GP-19	18-20 ft bgs	0	137	0	220	0	0	29,600	29,600	0.34	3.9	0	0	9.0
MW-5	25-27 ft bgs	0	0	0	271.7	653	155	1,978	2,731	1,200	6.5	0.055	0	8.9
MW-8	10-12 ft bgs	0	0	15	28	46	0.05	186	232	0	4.9	0.14	0	7.9
GP-15	26-28 ft bgs	0	0	0	0	0	0	0	0	0	2.2	0	0	7.7
GP-44	30-32 ft bgs	0	0	52	373	121	6.3	815	936	0	6.6	0.031	0	6.4
GP-38	5-10 ft bgs	6.7	257	38.7	355.5	0	0	8,310	8,310	0	0	0	0	0
GP-37	27-29 ft bgs	0	0	0	0	0	0	10,325	10,325	0	0	0	0	0
GP-36	5-10 ft bgs	0	816.6	17	5,862.60	0	0	0	0	0	0	0	0	0
GP-34	5-10 ft bgs	0	0	6.3	10.2	0	0	0	0	0	0	0	0	0
GP-33	5-10 ft bgs	0	8,900	110	63,850	0	0	0	0	0	0	0	0	0
GP-32	5-10 ft bgs	0	0	7.4	52.4	0	0	0	0	0	0	0	0	0
GP-31	5-10 ft bgs	2.3	0	16.3	239.3	0	0	0	0	0	0	0	0	0
GP-30	5-10 ft bgs	0	0	9.0	36	0	0	0	0	0	0	0	0	0
GP-29	7-10 ft bgs	33	0	45.5	104.5	0	0	0	0	0	0	0	0	0
GP-28	5-10 ft bgs	440	13	509.7	522.7	0	0	0	0	0	0	0	0	0
GP-27	5-10 ft bgs	8,200	0	10,160	10,900	0	0	0	0	0	0	0	0	0
GP-26	5-10 ft bgs	260	3.9	329.82	333.7	0	0	0	0	0	0	0	0	0
GP-24	7-10 ft bgs	69,000	0	73,460	73,460	0	0	0	0	0	0	0	0	0
GP-23	5-10 ft bgs	3,000	210	86,200	86,210	0	0	0	0	0	0	0	0	0
GP-22	7-9 ft bgs	6,000	0	6,240	6,240	0	0	0	0	0	0	0	0	0
GP-21	7-9 ft bgs	99,000	0	99,770	99,770	0	0	0	0	0	0	0	0	0
GP-20	6-10 ft bgs	4.1	0	41.5	41.5	0	0	0	0	0	0	0	0	0

NOTES:

See laboratory analytical reports for complete analytical results.

VOCs, SVOCs, and PCBs are in units of parts per billion (ppb)

Metals are in units of parts per million (ppm)

0- Not sampled for this parameter

NA - Not applicable/ no standards

bgs-below ground surface

ft- feet

Below TAGMS 4046 and/or site background concentration

Above TAGMS 4046

No Standards

Below MDL

Not Analyzed for Compound

Table 10
Ground Water Laboratory Analytical Results Summary Sorted by TCE Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION	TCE (ppb)	PCE (ppb)	1,2,4-Trimethylbenzene (ppb)	1,3,5-Trimethylbenzene (ppb)	TCVOCs (ppb)	TVOCs (ppb)
TOGS	5	5	5	5	NA	NA
MW-12 (S)	1600	0	0	0	2654.6	2735
MW-1 (S)	50	0	0	0	60.2	60.2
MW-2 (S)	30	0	0	0	64	64
MW-11 (D)	13	46	0	0	62.5	64.4
MW-10 (D)	8.7	56	0	0	68.4	68.4
MW-5D (D)	8.4	55	0	0	65.93	68.43
MW-9 (S)	2.7	4.4	0	0	8.8	10.8
MW-8 (S)	0.85	0	0	0	5.34	7.14
MW-3 (S)	0	0	53	0	6	78.89
MW-4 (S)	0	0	0	0	0.95	66.74
MW-5 (S)	0	0	67	5.4	11.3	112.64
MW-6 (S)	0	0	0	0	8.9	11.2
MW-7 (S)	0	0	0	0	0	1.4

See laboratory analytical reports for complete analytical results.

VOCs are in units of parts per billion (ppb)

0- Concentration less than laboratory detection limit

NA - Not applicable (no standard)

MDL-laboratory method detection limit

Below NYSDEC Water Quality Standards (TOGS 1.1.1)
Above TOGS 1.1.1
No Standard
Below MDL

Table 10
Ground Water Laboratory Analytical Results Summary Sorted by PCE Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION	PCE (ppb)	TCE (ppb)	TCVOCs (ppb)	1,2,4-Trimethylbenzene (ppb)	1,3,5-Trimethylbenzene (ppb)	TVOCs (ppb)
TOGS	5	5	NA	5	5	NA
MW-10 (D)	56	8.7	68.4	0	0	68.4
MW-5D (D)	55	8.4	65.93	0	0	68.43
MW-11 (D)	46	13	62.5	0	0	64.4
MW-9 (S)	4.4	2.7	8.8	0	0	10.8
MW-1 (S)	0	50	60.2	0	0	60.2
MW-2 (S)	0	30	64	0	0	64
MW-3 (S)	0	0	6	53	0	78.89
MW-4 (S)	0	0	0.95	0	0	66.74
MW-5 (S)	0	0	11.3	67	5.4	112.64
MW-6 (S)	0	4.5	8.9	0	0	11.2
MW-7 (S)	0	0	0	0	0	1.4
MW-8 (S)	0	0.85	5.34	0	0	7.14
MW-12 (S)	0	1600	2,654.6	0	0	2,735

See laboratory analytical reports for complete analytical results.

VOCs are in units of parts per billion (ppb)

0- Concentration less than laboratory detection limit

NA - Not applicable (no standard)

MDL-laboratory method detection limit

Below NYSDEC Water Quality Standards (TOGS 1.1.1)

Above TOGS 1.1.1

No Standard

Below MDL

Table 10
Ground Water Laboratory Analytical Results Summary Sorted by TCVOCs Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION	TCOVs (ppb)	TCE (ppb)	PCE (ppb)	1,2,4-Trimethylbenzene (ppb)	1,3,5-Trimethylbenzene	TVOCs (ppb)
TOGS	NA	5	5	5	5	NA
MW-12 (S)	2,654.6	1600	0	0	0	2,735
MW-10 (D)	68.4	8.7	56	0	0	68.4
MW-5D (D)	65.93	8.4	55	0	0	68.43
MW-2 (S)	64	30	0	0	0	64
MW-11 (D)	62.5	13	46	0	0	64.4
MW-1 (S)	60.2	50	0	0	0	60.2
MW-5 (S)	11.3	0	0	67	5.4	112.64
MW-6 (S)	8.9	0	0	0	0	11.2
MW-9 (S)	8.8	2.7	4.4	0	0	10.8
MW-3 (S)	6	0	0	53	0	78.89
MW-8 (S)	5.38	0	0	0	0	7.14
MW-4 (S)	0.95	0	0	0	0	66.74
MW-7 (S)	0	0	0	0	0	1.4

See laboratory analytical reports for complete analytical results.

VOCs are in units of parts per billion (ppb)

0- Concentration less than laboratory detection limit

NA - Not applicable (no standard)

MDL-laboratory method detection limit

Below NYSDEC Water Quality Standards (TOGS 1.1.1)
Above TOGS 1.1.1
No Standard
Below MDL

Table 10
Ground Water Laboratory Analytical Results Summary Sorted by TVOCs Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION	TVOCs (ppb)	PCE (ppb)	TCE (ppb)	1,2,4-Trimethylbenzene (ppb)	1,3,5-Trimethylbenzene (ppb)	TCVOCs (ppb)
TOGS	NA	5	5	5	5	NA
MW-12 (S)	2,735	0	1600	0	0	2,654.6
MW-5 (S)	112.64	0	0	67	5.4	11.3
MW-3 (S)	78.89	0	0	53	0	6
MW-5D (D)	68.43	55	8.4	0	0	65.93
MW-10 (D)	68.4	56	8.7	0	0	68.4
MW-4 (S)	66.74	0	0	0	0	0.95
MW-11 (D)	64.4	46	13	0	0	62.5
MW-2 (S)	64	0	30	0	0	64
MW-1 (S)	60.2	0	50	0	0	60.2
MW-6 (S)	11.2	0	0	0	0	8.9
MW-9 (S)	10.8	4.4	2.7	0	0	8.8
MW-8 (S)	7.14	0	0	0	0	5.38
MW-7 (S)	1.4	0	0	0	0	0

See laboratory analytical reports for complete analytical results.

VOCs are in units of parts per billion (ppb)

0- Concentration less than laboratory detection limit

NA - Not applicable (no standard)

MDL-laboratory method detection limit

Below NYSDEC Water Quality Standards (TOGS 1.1.1)
Above TOGS 1.1.1
No Standard
Below MDL

Table 10
Ground Water Laboratory Analytical Results Summary Sorted by 1,2,4-Trimethylbenzene Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION	1,2,4-Trimethylbenzene (ppb)	1,3,5-Trimethylbenzene (ppb)	PCE (ppb)	TCE (ppb)	TCVOCs (ppb)	TVOCs (ppb)
TOGS	5	5	5	5	NA	NA
MW-2 (S)	67	0	0	30	64	64
MW-3 (S)	53	0	0	0	6	78.89
MW-1 (S)	0	0	0	50	60.2	60.2
MW-4 (S)	0	0	0	0	0.95	66.74
MW-5 (S)	0	5.4	0	0	11.3	112.64
MW-5D (D)	0	0	55	8.4	65.93	68.43
MW-6 (S)	0	0	0	0	8.9	11.2
MW-7 (S)	0	0	0	0	0	1.4
MW-8 (S)	0	0	0	0	5.38	7.14
MW-9 (S)	0	0	4.4	2.7	8.8	10.8
MW-10 (D)	0	0	56	8.7	68.4	68.4
MW-11 (D)	0	0	46	13	62.5	64.4
MW-12 (S)	0	0	0	0	2,654.6	2,735

See laboratory analytical reports for complete analytical results.

VOCs are in units of parts per billion (ppb)

0- Concentration less than laboratory detection limit

NA - Not applicable (no standard)

MDL-laboratory method detection limit

Below NYSDEC Water Quality Standards (TOGS 1.1.1)
Above TOGS 1.1.1
No Standard
Below MDL

Table 10
Ground Water Laboratory Analytical Results Summary Sorted by 1,2,4-Trimethylbenzene Concentration
BI Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP SITE No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

SAMPLE LOCATION	1,3,5-Trimethylbenzene (ppb)	1,2,4-Trimethylbenzene (ppb)	PCE (ppb)	TCE (ppb)	TCVOCs (ppb)	TVOCs (ppb)
TOGS	5	5	5	5	NA	NA
MW-5 (S)	5.4	0	0	0	11.3	112.64
MW-1 (S)	0	0	0	50	60.2	60.2
MW-2 (S)	0	67	0	30	64	64
MW-3 (S)	0	53	0	0	6	78.89
MW-4 (S)	0	0	0	0	0.95	66.74
MW-5D (D)	0	0	55	8.4	65.93	68.43
MW-6 (S)	0	0	0	0	8.9	11.2
MW-7 (S)	0	0	0	0	0	1.4
MW-8 (S)	0	0	0	0	5.38	7.14
MW-9 (S)	0	0	4.4	2.7	8.8	10.8
MW-10 (D)	0	0	56	8.7	68.4	68.4
MW-11 (D)	0	0	46	13	62.5	64.4
MW-12 (S)	0	0	0	0	2654.60	2735

See laboratory analytical reports for complete analytical results.

VOCs are in units of parts per billion (ppb)

0- Concentration less than laboratory detection limit

NA - Not applicable (no standard)

MDL-laboratory method detection limit

Below NYSDEC Water Quality Standards (TOGS 1.1.1)
Above TOGS 1.1.1
No Standard
Below MDL

YORK

ANALYTICAL LABORATORIES, INC.

Technical Report

prepared for:

Ted Yen & Associates, Inc.
217-42 54th Ave
Oakland Gardens NY, 11364
Attention: Ted Yen

Report Date: 09/16/2010
Client Project ID: BBM-2010-02
York Project (SDG) No.: 10I0444

Report Date: 09/16/2010
Client Project ID: BBM-2010-02
York Project (SDG) No.: 10I0444

Ted Yen & Associates, Inc.
217-42 54th Ave
Oakland Gardens NY, 11364
Attention: Ted Yen

Purpose and Results

This report contains the analytical data for the sample(s) identified on the attached chain-of-custody received in our laboratory on September 15, 2010 and listed below. The project was identified as your project: **BBM-2010-02.**

The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the data summary tables.

All samples were received in proper condition meeting the customary acceptance requirements for environmental samples except those indicated under the Notes section of this report.

All analyses met the method and laboratory standard operating procedure requirements except as indicated by any data flags, the meaning of which are explained in the attachment to this report, and case narrative if applicable.

The results of the analyses, which are all reported on dry weight basis (soils) unless otherwise noted, are detailed in the following pages.

Please contact Client Services at 203.325.1371 with any questions regarding this report.

York Sample ID	Client Sample ID	Matrix	Date Collected	Date Received
10I0444-01	ST-11	Soil	09/15/2010	09/15/2010
10I0444-02	ST-1	Soil	09/15/2010	09/15/2010
10I0444-03	ST-2	Soil	09/15/2010	09/15/2010
10I0444-04	ST-3	Soil	09/15/2010	09/15/2010
10I0444-05	ST-4	Soil	09/15/2010	09/15/2010
10I0444-06	ST-5	Soil	09/15/2010	09/15/2010
10I0444-07	ST-6	Soil	09/15/2010	09/15/2010
10I0444-08	ST-7	Soil	09/15/2010	09/15/2010
10I0444-09	ST-8	Soil	09/15/2010	09/15/2010
10I0444-10	ST-9	Soil	09/15/2010	09/15/2010
10I0444-11	ST-10	Soil	09/15/2010	09/15/2010
10I0444-12	MS-1	Soil	09/15/2010	09/15/2010
10I0444-13	MS-2	Soil	09/15/2010	09/15/2010
10I0444-14	FB-1	Water	09/15/2010	09/15/2010
10I0444-15	TB-1 (Trip Blanks)	Water	09/15/2010	09/15/2010

General Notes for York Project (SDG) No.: 10I0444

1. The RLs and MDLs (Reporting Limit and Method Detection Limit respectively) reported are adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. The RL(REPORTING LIMIT) is based upon the lowest standard utilized for the calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. York's liability for the above data is limited to the dollar value paid to York for the referenced project.
4. This report shall not be reproduced without the written approval of York Analytical Laboratories, Inc.
5. All samples were received in proper condition for analysis with proper documentation, unless otherwise noted.
6. All analyses conducted met method or Laboratory SOP requirements. See the Qualifiers and/or Narrative sections for further information.
7. It is noted that no analyses reported herein were subcontracted to another laboratory, unless noted in the report.
8. This report reflects results that relate only to the samples submitted on the attached chain-of-custody form(s) received by York.

Approved By: Robert Q. Bradley

Date: 09/16/2010

Robert Q. Bradley
Managing Director

YORK

Sample Information

Client Sample ID: ST-11 **York Sample ID:** 10I0444-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.0	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.51	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.0	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.1	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
67-64-1	**Acetone**	**10**	**J, B**	ug/kg dry	7.2	21	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
71-43-2	Benzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-25-2	Bromoform	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.9	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-00-3	Chloroethane	ND		ug/kg dry	1.8	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
67-66-3	Chloroform	ND		ug/kg dry	0.83	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	1.9	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.88	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-09-2	**Methylene chloride**	**19**	**J, B**	ug/kg dry	2.4	21	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.3	21	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS

Sample Information

Client Sample ID: ST-11 **York Sample ID:** 10I0444-01

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-42-5	Styrene	ND		ug/kg dry	0.99	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
108-88-3	Toluene	ND		ug/kg dry	0.53	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS
	Xylenes, Total	ND		ug/kg dry	2.4	32	2	EPA SW846-8260B	09/16/2010 11:50	09/16/2010 11:50	SS

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	93.6		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

Sample Information

Client Sample ID: ST-1 **York Sample ID:** 10I0444-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.0	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.51	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
78-93-3	2-Butanone	ND		ug/kg dry	5.9	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS

Sample Information

Client Sample ID: ST-1 **York Sample ID:** 10I0444-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.1	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
67-64-1	Acetone	7.5	J, B	ug/kg dry	7.2	21	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
71-43-2	Benzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-25-2	Bromoform	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.9	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-00-3	Chloroethane	ND		ug/kg dry	1.8	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
67-66-3	Chloroform	ND		ug/kg dry	0.83	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	1.9	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.88	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-09-2	Methylene chloride	18	J, B	ug/kg dry	2.4	21	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.3	21	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
100-42-5	Styrene	ND		ug/kg dry	0.99	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
108-88-3	Toluene	ND		ug/kg dry	0.53	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS
	Xylenes, Total	ND		ug/kg dry	2.4	32	2	EPA SW846-8260B	09/16/2010 12:36	09/16/2010 12:36	SS

Sample Information

Client Sample ID: ST-1 **York Sample ID:** 10I0444-02

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	93.8		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

Sample Information

Client Sample ID: ST-2 **York Sample ID:** 10I0444-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	3.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.9	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	2.0	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.1	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	4.5	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.6	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	4.5	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.75	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
78-93-3	2-Butanone	ND		ug/kg dry	8.8	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
591-78-6	2-Hexanone	ND		ug/kg dry	3.0	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	8.9	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
67-64-1	Acetone	ND		ug/kg dry	11	31	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
71-43-2	Benzene	ND		ug/kg dry	1.6	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.1	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-25-2	Bromoform	ND		ug/kg dry	2.0	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
74-83-9	Bromomethane	ND		ug/kg dry	4.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	3.5	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	1.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.6	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
67-66-3	Chloroform	ND		ug/kg dry	1.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS

Sample Information

Client Sample ID: ST-2 **York Sample ID:** 10I0444-03

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
74-87-3	Chloromethane	ND		ug/kg dry	3.0	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	3.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	1.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.8	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	1.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	1.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-09-2	**Methylene chloride**	**26**	J, B	ug/kg dry	3.6	31	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.7	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.9	31	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
100-42-5	Styrene	ND		ug/kg dry	1.5	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.8	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
108-88-3	Toluene	ND		ug/kg dry	0.78	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.2	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.9	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	3.1	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	3.3	16	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS
	Xylenes, Total	ND		ug/kg dry	3.6	47	2	EPA SW846-8260B	09/16/2010 13:22	09/16/2010 13:22	SS

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	63.7		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

Sample Information

Client Sample ID: ST-3 **York Sample ID:** 10I0444-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.6	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS

Sample Information

Client Sample ID: ST-3 **York Sample ID:** 10I0444-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.9	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.3	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.9	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.8	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.61	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
78-93-3	2-Butanone	ND		ug/kg dry	7.2	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.4	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	7.4	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
67-64-1	Acetone	ND		ug/kg dry	8.7	26	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
71-43-2	Benzene	ND		ug/kg dry	1.3	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-25-2	Bromoform	ND		ug/kg dry	1.6	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
74-83-9	Bromomethane	ND		ug/kg dry	3.5	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.8	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.9	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.98	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.1	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
67-66-3	Chloroform	ND		ug/kg dry	1.0	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.5	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.98	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.9	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.3	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.98	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	1.1	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-09-2	Methylene chloride	21	J, B	ug/kg dry	3.0	26	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.4	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.5	26	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
100-42-5	Styrene	ND		ug/kg dry	1.2	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.5	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS

Sample Information

Client Sample ID: ST-3 **York Sample ID:** 10I0444-04

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/kg dry	0.64	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.8	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.9	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.6	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.5	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.7	13	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS
	Xylenes, Total	ND		ug/kg dry	2.9	39	2	EPA SW846-8260B	09/16/2010 14:08	09/16/2010 14:08	SS

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	77.3		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

Sample Information

Client Sample ID: ST-4 **York Sample ID:** 10I0444-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.3	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.7	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.53	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.4	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS

Sample Information

Client Sample ID: ST-4 **York Sample ID:** 10I0444-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
67-64-1	Acetone	ND		ug/kg dry	7.5	22	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
71-43-2	Benzene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-25-2	Bromoform	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
74-83-9	Bromomethane	ND		ug/kg dry	3.0	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.5	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.85	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-00-3	Chloroethane	ND		ug/kg dry	1.8	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
67-66-3	Chloroform	ND		ug/kg dry	0.87	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.3	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.85	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.0	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.85	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.92	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-09-2	Methylene chloride	21	J, B	ug/kg dry	2.6	22	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.3	22	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
100-42-5	Styrene	ND		ug/kg dry	1.0	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
108-88-3	Toluene	ND		ug/kg dry	0.56	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.3	11	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS
	Xylenes, Total	ND		ug/kg dry	2.5	34	2	EPA SW846-8260B	09/16/2010 14:56	09/16/2010 14:56	SS

Sample Information

Client Sample ID: ST-4 **York Sample ID:** 10I0444-05

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	89.3		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

Sample Information

Client Sample ID: ST-5 **York Sample ID:** 10I0444-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	3.5	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	2.1	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	2.2	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.6	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	5.0	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.8	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	4.9	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.5	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.4	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.82	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
78-93-3	2-Butanone	ND		ug/kg dry	9.6	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
591-78-6	2-Hexanone	ND		ug/kg dry	3.2	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	9.8	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
67-64-1	Acetone	13	J, B	ug/kg dry	12	34	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
71-43-2	Benzene	ND		ug/kg dry	1.8	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-25-2	Bromoform	ND		ug/kg dry	2.2	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
74-83-9	Bromomethane	ND		ug/kg dry	4.6	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.4	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	3.9	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	1.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.8	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
67-66-3	Chloroform	ND		ug/kg dry	1.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS

Sample Information

Client Sample ID: ST-5 **York Sample ID:** 10I0444-06

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
74-87-3	Chloromethane	ND		ug/kg dry	3.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	3.6	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	1.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.5	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	3.1	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	1.3	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	1.4	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-09-2	Methylene chloride	32	J, B	ug/kg dry	3.9	34	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.9	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	2.0	34	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
100-42-5	Styrene	ND		ug/kg dry	1.6	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.9	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
108-88-3	Toluene	ND		ug/kg dry	0.86	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.4	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.5	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	2.1	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	3.4	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	3.6	17	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS
	Xylenes, Total	ND		ug/kg dry	3.9	52	2	EPA SW846-8260B	09/16/2010 15:42	09/16/2010 15:42	SS

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	58.0		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

Sample Information

Client Sample ID: ST-6 **York Sample ID:** 10I0444-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS

Sample Information

Client Sample ID: ST-6 **York Sample ID:** 10I0444-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.4	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.2	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.4	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.57	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.7	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.3	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.8	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
67-64-1	Acetone	ND		ug/kg dry	8.1	24	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
71-43-2	Benzene	ND		ug/kg dry	1.2	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-25-2	Bromoform	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
74-83-9	Bromomethane	ND		ug/kg dry	3.2	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.91	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.0	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
67-66-3	Chloroform	ND		ug/kg dry	0.93	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.3	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.91	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.2	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.91	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.99	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-09-2	**Methylene chloride**	**21**	J, B	ug/kg dry	2.7	24	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.3	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.4	24	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
100-42-5	Styrene	ND		ug/kg dry	1.1	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.3	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS

Sample Information

Client Sample ID: ST-6 **York Sample ID:** 10I0444-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List)

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-88-3	Toluene	ND		ug/kg dry	0.60	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.4	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS
	Xylenes, Total	ND		ug/kg dry	2.7	36	2	EPA SW846-8260B	09/16/2010 16:28	09/16/2010 16:28	SS

Semi-Volatiles, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	109	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	87.5	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	95.3	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	68.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	54.4	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	97.9	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	81.7	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	64.2	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	168	400	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	87.5	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	95.3	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	61.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
95-57-8	2-Chlorophenol	ND		ug/kg dry	117	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	69.7	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
95-48-7	2-Methylphenol	ND		ug/kg dry	73.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
88-74-4	2-Nitroaniline	ND		ug/kg dry	104	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
88-75-5	2-Nitrophenol	ND		ug/kg dry	68.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	50.4	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
99-09-2	3-Nitroaniline	ND		ug/kg dry	72.5	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	151	400	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	83.4	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	21.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
106-47-8	4-Chloroaniline	ND		ug/kg dry	79.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	57.7	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD

Sample Information

Client Sample ID: ST-6 **York Sample ID:** 10I0444-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
100-01-6	4-Methylphenol	ND		ug/kg dry	90.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
100-02-7	4-Nitroaniline	ND		ug/kg dry	66.4	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
56-57-5	4-Nitrophenol	ND		ug/kg dry	72.4	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
83-32-9	Acenaphthene	ND		ug/kg dry	116	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
208-96-8	Acenaphthylene	ND		ug/kg dry	56.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
120-12-7	**Anthracene**	**59.2**	J	ug/kg dry	49.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
56-55-3	**Benzo(a)anthracene**	**166**	J	ug/kg dry	77.4	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
50-32-8	**Benzo(a)pyrene**	**269**		ug/kg dry	52.2	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
205-99-2	**Benzo(b)fluoranthene**	**249**		ug/kg dry	76.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
191-24-2	**Benzo(g,h,i)perylene**	**187**	J	ug/kg dry	60.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
207-08-9	**Benzo(k)fluoranthene**	**109**	J	ug/kg dry	77.5	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
65-85-0	Benzoic acid	ND		ug/kg dry	137	400	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
100-51-6	Benzyl alcohol	ND		ug/kg dry	64.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	83.5	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	73.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	67.9	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	74.3	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/kg dry	67.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
218-01-9	**Chrysene**	**200**		ug/kg dry	80.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
53-70-3	**Dibenzo(a,h)anthracene**	**89.6**	J	ug/kg dry	50.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
132-64-9	Dibenzofuran	ND		ug/kg dry	64.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
84-66-2	Diethyl phthalate	ND		ug/kg dry	105	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
131-11-3	Dimethyl phthalate	ND		ug/kg dry	57.7	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	59.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	90.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
206-44-0	**Fluoranthene**	**324**		ug/kg dry	116	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
86-73-7	Fluorene	ND		ug/kg dry	56.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
118-74-1	Hexachlorobenzene	ND		ug/kg dry	32.6	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	80.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	149	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
67-72-1	Hexachloroethane	ND		ug/kg dry	72.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
193-39-5	**Indeno(1,2,3-cd)pyrene**	**170**	J	ug/kg dry	73.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
78-59-1	Isophorone	ND		ug/kg dry	74.3	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
91-20-3	Naphthalene	ND		ug/kg dry	59.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
98-95-3	Nitrobenzene	ND		ug/kg dry	90.0	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD

Sample Information

Client Sample ID: ST-6 **York Sample ID:** 10I0444-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	52.2	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	116	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
87-86-5	Pentachlorophenol	ND		ug/kg dry	56.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
85-01-8	**Phenanthrene**	**214**		ug/kg dry	73.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
108-95-2	Phenol	ND		ug/kg dry	80.1	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD
129-00-0	**Pyrene**	**334**		ug/kg dry	71.8	200	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:11	TD

Metals, Target Analyte

Log-in Notes: **Sample Notes:**

Sample Prepared by Method: EPA SW 846-3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	**Aluminum**	**7250**		mg/kg dry	1.51	2.40	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-36-0	**Antimony**	**0.450**		mg/kg dry	0.168	0.360	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-38-2	**Arsenic**	**4.29**		mg/kg dry	0.228	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-39-3	**Barium**	**84.4**		mg/kg dry	0.288	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.010	0.120	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.156	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-70-2	**Calcium**	**4400**		mg/kg dry	0.052	2.40	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-47-3	**Chromium**	**19.6**		mg/kg dry	0.096	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-48-4	**Cobalt**	**8.00**		mg/kg dry	0.096	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-50-8	**Copper**	**42.9**		mg/kg dry	0.168	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7439-89-6	**Iron**	**26100**		mg/kg dry	0.660	1.20	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7439-92-1	**Lead**	**101**		mg/kg dry	0.120	0.360	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7439-95-4	**Magnesium**	**2200**		mg/kg dry	0.984	2.40	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7439-96-5	**Manganese**	**430**		mg/kg dry	0.096	1.20	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-02-0	**Nickel**	**22.4**		mg/kg dry	0.084	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-09-7	**Potassium**	**1150**		mg/kg dry	3.26	12.0	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7782-49-2	**Selenium**	**3.75**		mg/kg dry	0.253	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-22-4	Silver	ND		mg/kg dry	0.108	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-23-5	**Sodium**	**246**		mg/kg dry	8.07	12.0	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-28-0	Thallium	ND		mg/kg dry	0.228	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-62-2	**Vanadium**	**29.5**		mg/kg dry	0.096	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW
7440-66-6	**Zinc**	**150**		mg/kg dry	0.084	0.600	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 10:39	MW

Sample Information

Client Sample ID: ST-6 **York Sample ID:** 10I0444-07

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Mercury by 7470/7471 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW846-7471

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.116	0.120	1	EPA SW846-7471	09/16/2010 16:00	09/16/2010 16:00	AA

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	83.3		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.28		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: ST-7 **York Sample ID:** 10I0444-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.3	24	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.58	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.8	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.3	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.9	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
67-64-1	Acetone	10	J, B	ug/kg dry	8.2	24	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
71-43-2	Benzene	ND		ug/kg dry	1.3	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS

Sample Information

Client Sample ID: ST-7 **York Sample ID:** 10I0444-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-25-2	Bromoform	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
74-83-9	Bromomethane	ND		ug/kg dry	3.3	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.92	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.0	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
67-66-3	Chloroform	ND		ug/kg dry	0.95	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.3	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.92	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.2	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.92	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	1.0	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-09-2	**Methylene chloride**	**21**	J, B	ug/kg dry	2.8	24	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.3	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.4	24	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
100-42-5	Styrene	ND		ug/kg dry	1.1	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.4	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
108-88-3	Toluene	ND		ug/kg dry	0.60	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.4	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS
	Xylenes, Total	ND		ug/kg dry	2.8	36	2	EPA SW846-8260B	09/16/2010 12:13	09/16/2010 12:13	SS

Sample Information

Client Sample ID: ST-7 **York Sample ID:** 10I0444-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	111	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	88.7	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	96.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	69.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	55.1	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	99.1	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	82.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	65.0	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	170	405	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	88.7	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	96.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	61.9	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
95-57-8	2-Chlorophenol	ND		ug/kg dry	118	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	70.6	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
95-48-7	2-Methylphenol	ND		ug/kg dry	74.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
88-74-4	2-Nitroaniline	ND		ug/kg dry	105	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
88-75-5	2-Nitrophenol	ND		ug/kg dry	69.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	51.0	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
99-09-2	3-Nitroaniline	ND		ug/kg dry	73.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	153	405	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	84.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	21.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
106-47-8	4-Chloroaniline	ND		ug/kg dry	80.0	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	58.4	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
100-01-6	4-Methylphenol	ND		ug/kg dry	91.2	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
100-02-7	4-Nitroaniline	ND		ug/kg dry	67.3	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
56-57-5	4-Nitrophenol	ND		ug/kg dry	73.3	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
83-32-9	Acenaphthene	ND		ug/kg dry	117	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
208-96-8	Acenaphthylene	ND		ug/kg dry	56.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
120-12-7	**Anthracene**	**92.8**	J	ug/kg dry	50.2	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
56-55-3	**Benzo(a)anthracene**	**250**		ug/kg dry	78.4	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
50-32-8	**Benzo(a)pyrene**	**299**		ug/kg dry	52.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
205-99-2	**Benzo(b)fluoranthene**	**289**		ug/kg dry	77.1	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
191-24-2	**Benzo(g,h,i)perylene**	**107**	J	ug/kg dry	60.9	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
207-08-9	**Benzo(k)fluoranthene**	**172**	J	ug/kg dry	78.4	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD

Sample Information

Client Sample ID: ST-7 **York Sample ID:** 10I0444-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
65-85-0	Benzoic acid	ND		ug/kg dry	139	405	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
100-51-6	Benzyl alcohol	ND		ug/kg dry	65.6	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	84.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	74.7	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	68.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	75.3	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
117-81-7	**Bis(2-ethylhexyl)phthalate**	**331**		ug/kg dry	67.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
218-01-9	**Chrysene**	**283**		ug/kg dry	81.7	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
53-70-3	Dibenzo(a,h)anthracene	ND		ug/kg dry	51.2	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
132-64-9	Dibenzofuran	ND		ug/kg dry	65.4	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
84-66-2	Diethyl phthalate	ND		ug/kg dry	106	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
131-11-3	Dimethyl phthalate	ND		ug/kg dry	58.4	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	60.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	91.2	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
206-44-0	**Fluoranthene**	**549**		ug/kg dry	117	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
86-73-7	Fluorene	ND		ug/kg dry	56.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
118-74-1	Hexachlorobenzene	ND		ug/kg dry	33.0	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	81.1	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	151	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
67-72-1	Hexachloroethane	ND		ug/kg dry	72.9	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
193-39-5	**Indeno(1,2,3-cd)pyrene**	**96.8**	J	ug/kg dry	74.7	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
78-59-1	Isophorone	ND		ug/kg dry	75.3	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
91-20-3	Naphthalene	ND		ug/kg dry	60.5	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
98-95-3	Nitrobenzene	ND		ug/kg dry	91.2	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	52.9	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	117	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
87-86-5	Pentachlorophenol	ND		ug/kg dry	56.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
85-01-8	**Phenanthrene**	**386**		ug/kg dry	74.8	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
108-95-2	Phenol	ND		ug/kg dry	81.1	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD
129-00-0	**Pyrene**	**532**		ug/kg dry	72.7	203	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 11:43	TD

Sample Information

Client Sample ID: ST-7 **York Sample ID:** 10I0444-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Metals, Target Analyte **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW 846-3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	7700		mg/kg dry	1.53	2.43	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-36-0	Antimony	0.483		mg/kg dry	0.170	0.365	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-38-2	Arsenic	4.32		mg/kg dry	0.231	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-39-3	Barium	88.1		mg/kg dry	0.292	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.010	0.122	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.158	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-70-2	Calcium	7790		mg/kg dry	0.053	2.43	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-47-3	Chromium	17.6		mg/kg dry	0.097	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-48-4	Cobalt	6.92		mg/kg dry	0.097	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-50-8	Copper	862		mg/kg dry	0.170	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7439-89-6	Iron	21700		mg/kg dry	0.669	1.22	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7439-92-1	Lead	123		mg/kg dry	0.122	0.365	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7439-95-4	Magnesium	2420		mg/kg dry	0.997	2.43	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7439-96-5	Manganese	365		mg/kg dry	0.097	1.22	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-02-0	Nickel	20.2		mg/kg dry	0.085	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-09-7	Potassium	1100		mg/kg dry	3.31	12.2	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7782-49-2	Selenium	2.66		mg/kg dry	0.256	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-22-4	Silver	ND		mg/kg dry	0.109	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-23-5	Sodium	228		mg/kg dry	8.17	12.2	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-28-0	Thallium	ND		mg/kg dry	0.231	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-62-2	Vanadium	27.2		mg/kg dry	0.097	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW
7440-66-6	Zinc	146		mg/kg dry	0.085	0.608	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:07	MW

Mercury by 7470/7471 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW846-7471

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.118	0.122	1	EPA SW846-7471	09/16/2010 16:00	09/16/2010 16:00	AA

Sample Information

Client Sample ID: ST-7 **York Sample ID:** 10I0444-08

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	82.3		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.31		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: ST-8 **York Sample ID:** 10I0444-09

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	3.0	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.8	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.9	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	2.0	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	2.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	4.3	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.5	30	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	4.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	2.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	2.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.71	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
78-93-3	2-Butanone	ND		ug/kg dry	8.3	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.8	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	8.5	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
67-64-1	Acetone	12	J, B	ug/kg dry	10	30	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
71-43-2	Benzene	ND		ug/kg dry	1.5	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	2.0	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-25-2	Bromoform	ND		ug/kg dry	1.9	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
74-83-9	Bromomethane	ND		ug/kg dry	4.0	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	2.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS

Sample Information

Client Sample ID: ST-8 **York Sample ID:** 10I0444-09

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
56-23-5	Carbon tetrachloride	ND		ug/kg dry	3.3	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	1.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.4	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
67-66-3	Chloroform	ND		ug/kg dry	1.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.9	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	3.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	1.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	2.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.7	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	1.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	1.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-09-2	Methylene chloride	26	J, B	ug/kg dry	3.4	30	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.6	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.8	30	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
100-42-5	Styrene	ND		ug/kg dry	1.4	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.7	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
108-88-3	Toluene	ND		ug/kg dry	0.74	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	2.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	2.2	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.8	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.9	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	3.1	15	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS
	Xylenes, Total	ND		ug/kg dry	3.4	45	2	EPA SW846-8260B	09/16/2010 12:59	09/16/2010 12:59	SS

Sample Information

Client Sample ID: ST-8 **York Sample ID:** 10I0444-09

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	67.3		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.18		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: ST-9 **York Sample ID:** 10I0444-10

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.4	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.4	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.2	24	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.4	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.57	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.7	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.2	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.8	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
67-64-1	Acetone	10	J, B	ug/kg dry	8.0	24	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
71-43-2	Benzene	ND		ug/kg dry	1.2	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.6	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-25-2	Bromoform	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
74-83-9	Bromomethane	ND		ug/kg dry	3.2	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS

Sample Information

Client Sample ID: ST-9 **York Sample ID:** 10I0444-10

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.7	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.90	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-00-3	Chloroethane	ND		ug/kg dry	2.0	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
67-66-3	Chloroform	ND		ug/kg dry	0.93	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.3	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.90	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	2.1	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.90	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.98	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-09-2	**Methylene chloride**	**22**	J, B	ug/kg dry	2.7	24	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.3	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.4	24	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
100-42-5	Styrene	ND		ug/kg dry	1.1	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.3	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
108-88-3	Toluene	ND		ug/kg dry	0.59	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.7	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.8	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.5	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.3	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.5	12	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS
	Xylenes, Total	ND		ug/kg dry	2.7	36	2	EPA SW846-8260B	09/16/2010 13:45	09/16/2010 13:45	SS

Sample Information

Client Sample ID: ST-9 **York Sample ID:** 10I0444-10

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	83.8		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.16		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: ST-10 **York Sample ID:** 10I0444-11

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.1	22	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.51	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.0	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.1	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
67-64-1	Acetone	7.8	J, B	ug/kg dry	7.2	22	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
71-43-2	Benzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-25-2	Bromoform	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.9	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS

Sample Information

Client Sample ID: ST-10 **York Sample ID:** 10I0444-11

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-00-3	Chloroethane	ND		ug/kg dry	1.8	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
67-66-3	Chloroform	ND		ug/kg dry	0.84	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	1.9	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.81	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.88	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-09-2	Methylene chloride	19	J, B	ug/kg dry	2.5	22	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.3	22	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
100-42-5	Styrene	ND		ug/kg dry	1.0	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
108-88-3	Toluene	ND		ug/kg dry	0.54	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.3	11	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS
	Xylenes, Total	ND		ug/kg dry	2.4	32	2	EPA SW846-8260B	09/16/2010 14:34	09/16/2010 14:34	SS

Sample Information

Client Sample ID: ST-10 **York Sample ID:** 10I0444-11

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	92.8		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.21		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: MS-1 **York Sample ID:** 10I0444-12

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.1	22	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.51	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.0	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.2	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
67-64-1	Acetone	8.1	J, B	ug/kg dry	7.3	22	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
71-43-2	Benzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-25-2	Bromoform	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.9	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS

Sample Information

Client Sample ID: MS-1 **York Sample ID:** 10I0444-12

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.82	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-00-3	Chloroethane	ND		ug/kg dry	1.8	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
67-66-3	Chloroform	ND		ug/kg dry	0.84	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.82	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	1.9	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.82	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.89	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-09-2	Methylene chloride	18	J, B	ug/kg dry	2.5	22	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.3	22	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
100-42-5	Styrene	ND		ug/kg dry	1.0	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
108-88-3	Toluene	ND		ug/kg dry	0.54	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.3	11	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS
	Xylenes, Total	ND		ug/kg dry	2.5	33	2	EPA SW846-8260B	09/16/2010 15:19	09/16/2010 15:19	SS

Sample Information

Client Sample ID: MS-1 **York Sample ID:** 10I0444-12

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	98.5	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	79.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	86.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	61.9	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	49.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	88.4	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	73.8	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	57.9	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	152	361	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	79.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	86.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	55.2	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
95-57-8	2-Chlorophenol	ND		ug/kg dry	105	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	62.9	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
95-48-7	2-Methylphenol	ND		ug/kg dry	66.4	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
88-74-4	2-Nitroaniline	ND		ug/kg dry	93.8	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
88-75-5	2-Nitrophenol	ND		ug/kg dry	61.9	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	45.5	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
99-09-2	3-Nitroaniline	ND		ug/kg dry	65.5	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	137	361	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	75.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	19.5	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
106-47-8	4-Chloroaniline	ND		ug/kg dry	71.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	52.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
100-01-6	4-Methylphenol	ND		ug/kg dry	81.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
100-02-7	4-Nitroaniline	ND		ug/kg dry	60.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
56-57-5	4-Nitrophenol	ND		ug/kg dry	65.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
83-32-9	Acenaphthene	ND		ug/kg dry	105	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
208-96-8	Acenaphthylene	ND		ug/kg dry	50.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
120-12-7	**Anthracene**	**75.8**	J	ug/kg dry	44.8	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
56-55-3	**Benzo(a)anthracene**	**170**	J	ug/kg dry	69.9	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
50-32-8	**Benzo(a)pyrene**	**237**		ug/kg dry	47.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
205-99-2	**Benzo(b)fluoranthene**	**191**		ug/kg dry	68.7	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
191-24-2	**Benzo(g,h,i)perylene**	**83.4**	J	ug/kg dry	54.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
207-08-9	**Benzo(k)fluoranthene**	**118**	J	ug/kg dry	69.9	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD

Sample Information

Client Sample ID: MS-1 **York Sample ID:** 10I0444-12

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
65-85-0	Benzoic acid	ND		ug/kg dry	124	361	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
100-51-6	Benzyl alcohol	ND		ug/kg dry	58.5	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	75.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	66.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	61.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	67.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
117-81-7	**Bis(2-ethylhexyl)phthalate**	**77.3**	J	ug/kg dry	60.5	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
218-01-9	**Chrysene**	**213**		ug/kg dry	72.8	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
53-70-3	Dibenzo(a,h)anthracene	ND		ug/kg dry	45.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
132-64-9	Dibenzofuran	ND		ug/kg dry	58.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
84-66-2	Diethyl phthalate	ND		ug/kg dry	94.8	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
131-11-3	Dimethyl phthalate	ND		ug/kg dry	52.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	54.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	81.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
206-44-0	**Fluoranthene**	**340**		ug/kg dry	105	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
86-73-7	Fluorene	ND		ug/kg dry	50.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
118-74-1	Hexachlorobenzene	ND		ug/kg dry	29.4	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	72.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	134	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
67-72-1	Hexachloroethane	ND		ug/kg dry	65.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
193-39-5	**Indeno(1,2,3-cd)pyrene**	**79.5**	J	ug/kg dry	66.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
78-59-1	Isophorone	ND		ug/kg dry	67.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
91-20-3	Naphthalene	ND		ug/kg dry	54.0	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
98-95-3	Nitrobenzene	ND		ug/kg dry	81.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	47.1	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	105	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
87-86-5	Pentachlorophenol	ND		ug/kg dry	50.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
85-01-8	**Phenanthrene**	**284**		ug/kg dry	66.6	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
108-95-2	Phenol	ND		ug/kg dry	72.3	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD
129-00-0	**Pyrene**	**345**		ug/kg dry	64.8	181	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:15	TD

Sample Information

Client Sample ID: MS-1 **York Sample ID:** 10I0444-12

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Metals, Target Analyte **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW 846-3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	7490		mg/kg dry	1.37	2.17	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-36-0	Antimony	0.501		mg/kg dry	0.152	0.325	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-38-2	Arsenic	4.23		mg/kg dry	0.206	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-39-3	Barium	82.6		mg/kg dry	0.260	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.009	0.108	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.141	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-70-2	Calcium	5020		mg/kg dry	0.047	2.17	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-47-3	Chromium	17.8		mg/kg dry	0.087	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-48-4	Cobalt	6.68		mg/kg dry	0.087	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-50-8	Copper	47.7		mg/kg dry	0.152	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7439-89-6	Iron	21300		mg/kg dry	0.596	1.08	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7439-92-1	Lead	109		mg/kg dry	0.108	0.325	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7439-95-4	Magnesium	2070		mg/kg dry	0.889	2.17	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7439-96-5	Manganese	347		mg/kg dry	0.087	1.08	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-02-0	Nickel	19.9		mg/kg dry	0.076	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-09-7	Potassium	1070		mg/kg dry	2.95	10.8	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7782-49-2	Selenium	2.79		mg/kg dry	0.229	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-22-4	Silver	ND		mg/kg dry	0.098	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-23-5	Sodium	188		mg/kg dry	7.28	10.8	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-28-0	Thallium	ND		mg/kg dry	0.206	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-62-2	Vanadium	28.6		mg/kg dry	0.087	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW
7440-66-6	Zinc	114		mg/kg dry	0.076	0.542	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:14	MW

Mercury by 7470/7471 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW846-7471

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	0.650		mg/kg dry	0.105	0.108	1	EPA SW846-7471	09/16/2010 16:00	09/16/2010 16:00	AA

Sample Information

Client Sample ID: MS-1 **York Sample ID:** 10I0444-12

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	92.3		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.25		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: MS-2 **York Sample ID:** 10I0444-13

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-34-3	1,1-Dichloroethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-35-4	1,1-Dichloroethylene	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	1.1	22	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/kg dry	3.1	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
106-93-4	1,2-Dibromoethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
107-06-2	1,2-Dichloroethane	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
78-87-5	1,2-Dichloropropane	ND		ug/kg dry	0.51	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
78-93-3	2-Butanone	ND		ug/kg dry	6.0	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
591-78-6	2-Hexanone	ND		ug/kg dry	2.0	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
108-10-1	4-Methyl-2-pentanone	ND		ug/kg dry	6.1	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
67-64-1	Acetone	10	J, B	ug/kg dry	7.2	22	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
71-43-2	Benzene	ND		ug/kg dry	1.1	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-27-4	Bromodichloromethane	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-25-2	Bromoform	ND		ug/kg dry	1.4	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
74-83-9	Bromomethane	ND		ug/kg dry	2.9	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-15-0	Carbon disulfide	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS

Sample Information

Client Sample ID: MS-2 **York Sample ID:** 10I0444-13

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5035B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
56-23-5	Carbon tetrachloride	ND		ug/kg dry	2.4	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
108-90-7	Chlorobenzene	ND		ug/kg dry	0.82	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-00-3	Chloroethane	ND		ug/kg dry	1.8	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
67-66-3	Chloroform	ND		ug/kg dry	0.84	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
74-87-3	Chloromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/kg dry	2.2	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/kg dry	0.82	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
124-48-1	Dibromochloromethane	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-71-8	Dichlorodifluoromethane	ND		ug/kg dry	1.9	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
100-41-4	Ethyl Benzene	ND		ug/kg dry	0.82	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/kg dry	0.88	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-09-2	**Methylene chloride**	**19**	J, B	ug/kg dry	2.5	22	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
95-47-6	o-Xylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/kg dry	1.3	22	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
100-42-5	Styrene	ND		ug/kg dry	1.0	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
127-18-4	Tetrachloroethylene	ND		ug/kg dry	1.2	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
108-88-3	Toluene	ND		ug/kg dry	0.54	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/kg dry	1.5	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/kg dry	1.6	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
79-01-6	Trichloroethylene	ND		ug/kg dry	1.3	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-69-4	Trichlorofluoromethane	ND		ug/kg dry	2.1	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
75-01-4	Vinyl Chloride	ND		ug/kg dry	2.3	11	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS
	Xylenes, Total	ND		ug/kg dry	2.4	32	2	EPA SW846-8260B	09/16/2010 16:05	09/16/2010 16:05	SS

Sample Information

Client Sample ID: MS-2 **York Sample ID:** 10I0444-13

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
120-82-1	1,2,4-Trichlorobenzene	ND		ug/kg dry	98.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
95-50-1	1,2-Dichlorobenzene	ND		ug/kg dry	78.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
541-73-1	1,3-Dichlorobenzene	ND		ug/kg dry	85.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
106-46-7	1,4-Dichlorobenzene	ND		ug/kg dry	61.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
95-95-4	2,4,5-Trichlorophenol	ND		ug/kg dry	48.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
88-06-2	2,4,6-Trichlorophenol	ND		ug/kg dry	87.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
120-83-2	2,4-Dichlorophenol	ND		ug/kg dry	73.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
105-67-9	2,4-Dimethylphenol	ND		ug/kg dry	57.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
51-28-5	2,4-Dinitrophenol	ND		ug/kg dry	151	359	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
121-14-2	2,4-Dinitrotoluene	ND		ug/kg dry	78.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
606-20-2	2,6-Dinitrotoluene	ND		ug/kg dry	85.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
91-58-7	2-Chloronaphthalene	ND		ug/kg dry	54.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
95-57-8	2-Chlorophenol	ND		ug/kg dry	105	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
91-57-6	2-Methylnaphthalene	ND		ug/kg dry	62.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
95-48-7	2-Methylphenol	ND		ug/kg dry	66.1	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
88-74-4	2-Nitroaniline	ND		ug/kg dry	93.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
88-75-5	2-Nitrophenol	ND		ug/kg dry	61.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
91-94-1	3,3'-Dichlorobenzidine	ND		ug/kg dry	45.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
99-09-2	3-Nitroaniline	ND		ug/kg dry	65.2	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/kg dry	136	359	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
101-55-3	4-Bromophenyl phenyl ether	ND		ug/kg dry	75.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
59-50-7	4-Chloro-3-methylphenol	ND		ug/kg dry	19.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
106-47-8	4-Chloroaniline	ND		ug/kg dry	71.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/kg dry	51.8	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
100-01-6	4-Methylphenol	ND		ug/kg dry	80.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
100-02-7	4-Nitroaniline	ND		ug/kg dry	59.7	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
56-57-5	4-Nitrophenol	ND		ug/kg dry	65.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
83-32-9	Acenaphthene	ND		ug/kg dry	104	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
208-96-8	Acenaphthylene	ND		ug/kg dry	50.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
120-12-7	**Anthracene**	**118**	J	ug/kg dry	44.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
56-55-3	**Benzo(a)anthracene**	**215**		ug/kg dry	69.5	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
50-32-8	**Benzo(a)pyrene**	**259**		ug/kg dry	46.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
205-99-2	**Benzo(b)fluoranthene**	**190**		ug/kg dry	68.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
191-24-2	**Benzo(g,h,i)perylene**	**106**	J	ug/kg dry	54.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
207-08-9	**Benzo(k)fluoranthene**	**142**	J	ug/kg dry	69.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD

Sample Information

Client Sample ID: MS-2 **York Sample ID:** 10I0444-13

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3550B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
65-85-0	Benzoic acid	ND		ug/kg dry	123	359	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
100-51-6	Benzyl alcohol	ND		ug/kg dry	58.2	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
85-68-7	Benzyl butyl phthalate	ND		ug/kg dry	75.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/kg dry	66.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
111-44-4	Bis(2-chloroethyl)ether	ND		ug/kg dry	61.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/kg dry	66.8	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
117-81-7	**Bis(2-ethylhexyl)phthalate**	**184**		ug/kg dry	60.2	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
218-01-9	**Chrysene**	**262**		ug/kg dry	72.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
53-70-3	**Dibenzo(a,h)anthracene**	**62.9**	J	ug/kg dry	45.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
132-64-9	Dibenzofuran	ND		ug/kg dry	58.0	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
84-66-2	Diethyl phthalate	ND		ug/kg dry	94.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
131-11-3	Dimethyl phthalate	ND		ug/kg dry	51.8	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
84-74-2	Di-n-butyl phthalate	ND		ug/kg dry	53.7	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
117-84-0	Di-n-octyl phthalate	ND		ug/kg dry	80.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
206-44-0	**Fluoranthene**	**508**		ug/kg dry	104	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
86-73-7	Fluorene	ND		ug/kg dry	50.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
118-74-1	Hexachlorobenzene	ND		ug/kg dry	29.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
87-68-3	Hexachlorobutadiene	ND		ug/kg dry	71.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
77-47-4	Hexachlorocyclopentadiene	ND		ug/kg dry	134	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
67-72-1	Hexachloroethane	ND		ug/kg dry	64.6	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
193-39-5	**Indeno(1,2,3-cd)pyrene**	**119**	J	ug/kg dry	66.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
78-59-1	Isophorone	ND		ug/kg dry	66.8	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
91-20-3	Naphthalene	ND		ug/kg dry	53.7	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
98-95-3	Nitrobenzene	ND		ug/kg dry	80.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
621-64-7	N-nitroso-di-n-propylamine	ND		ug/kg dry	46.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
86-30-6	N-Nitrosodiphenylamine	ND		ug/kg dry	104	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
87-86-5	Pentachlorophenol	ND		ug/kg dry	50.4	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
85-01-8	**Phenanthrene**	**393**		ug/kg dry	66.3	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
108-95-2	Phenol	ND		ug/kg dry	71.9	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD
129-00-0	**Pyrene**	**459**		ug/kg dry	64.5	180	1	EPA SW846-8270C	09/16/2010 07:25	09/16/2010 12:47	TD

Sample Information

Client Sample ID: MS-2 **York Sample ID:** 10I0444-13

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Metals, Target Analyte **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW 846-3050B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	6650		mg/kg dry	1.36	2.16	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-36-0	Antimony	0.472		mg/kg dry	0.151	0.323	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-38-2	Arsenic	3.51		mg/kg dry	0.205	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-39-3	Barium	73.6		mg/kg dry	0.259	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-41-7	Beryllium	ND		mg/kg dry	0.009	0.108	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-43-9	Cadmium	ND		mg/kg dry	0.140	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-70-2	Calcium	3560		mg/kg dry	0.047	2.16	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-47-3	Chromium	15.9		mg/kg dry	0.086	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-48-4	Cobalt	7.23		mg/kg dry	0.086	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-50-8	Copper	35.6		mg/kg dry	0.151	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7439-89-6	Iron	18500		mg/kg dry	0.593	1.08	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7439-92-1	Lead	95.0		mg/kg dry	0.108	0.323	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7439-95-4	Magnesium	1850		mg/kg dry	0.884	2.16	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7439-96-5	Manganese	346		mg/kg dry	0.086	1.08	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-02-0	Nickel	23.9		mg/kg dry	0.075	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-09-7	Potassium	1020		mg/kg dry	2.93	10.8	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7782-49-2	Selenium	2.39		mg/kg dry	0.227	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-22-4	Silver	ND		mg/kg dry	0.097	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-23-5	Sodium	155		mg/kg dry	7.25	10.8	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-28-0	Thallium	ND		mg/kg dry	0.205	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-62-2	Vanadium	22.2		mg/kg dry	0.086	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW
7440-66-6	Zinc	108		mg/kg dry	0.075	0.539	1	EPA SW846-6010B	09/16/2010 07:47	09/16/2010 11:18	MW

Mercury by 7470/7471 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW846-7471

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/kg dry	0.105	0.108	1	EPA SW846-7471	09/16/2010 16:00	09/16/2010 16:00	AA

Sample Information

Client Sample ID: MS-2 **York Sample ID:** 10I0444-13

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Soil	September 15, 2010 3:00 pm	09/15/2010

Total Solids **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: % Solids

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	% Solids	92.7		%	0.100	0.100	1	SM 2540G	09/16/2010 13:36	09/16/2010 13:36	MZ

pH **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: Analysis Preparation

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
	pH	9.17		pH Units		0.500	1	EPA SW846-9045D	09/16/2010 15:37	09/16/2010 15:37	MZ

Sample Information

Client Sample ID: FB-1 **York Sample ID:** 10I0444-14

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.95	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.57	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.60	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.61	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-34-3	1,1-Dichloroethane	ND		ug/L	0.69	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.3	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.48	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.3	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
106-93-4	1,2-Dibromoethane	ND		ug/L	0.68	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
107-06-2	1,2-Dichloroethane	ND		ug/L	0.65	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
78-87-5	1,2-Dichloropropane	ND		ug/L	0.22	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
78-93-3	2-Butanone	ND		ug/L	2.6	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
591-78-6	2-Hexanone	ND		ug/L	0.87	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
67-64-1	Acetone	4.6	J, B	ug/L	3.1	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
71-43-2	Benzene	ND		ug/L	0.48	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-27-4	Bromodichloromethane	ND		ug/L	0.62	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-25-2	Bromoform	ND		ug/L	0.58	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
74-83-9	Bromomethane	ND		ug/L	1.2	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-15-0	Carbon disulfide	ND		ug/L	0.64	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
56-23-5	Carbon tetrachloride	ND		ug/L	1.0	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS

Sample Information

Client Sample ID: FB-1 **York Sample ID:** 10I0444-14

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, TCL (Target Compound List) **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
108-90-7	Chlorobenzene	ND		ug/L	0.35	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-00-3	Chloroethane	ND		ug/L	0.76	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
67-66-3	Chloroform	ND		ug/L	0.36	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
74-87-3	Chloromethane	ND		ug/L	0.89	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.96	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.35	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
124-48-1	Dibromochloromethane	ND		ug/L	0.67	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.83	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
100-41-4	Ethyl Benzene	ND		ug/L	0.35	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
98-82-8	Isopropylbenzene	ND		ug/L	0.39	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
108-10-1	Methyl isobutyl ketone	ND		ug/L	5.6	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.38	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-09-2	**Methylene chloride**	**4.3**	J, B	ug/L	1.1	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
95-47-6	o-Xylene	ND		ug/L	0.50	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/L	0.55	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
100-42-5	Styrene	ND		ug/L	0.43	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
127-18-4	Tetrachloroethylene	ND		ug/L	0.52	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
108-88-3	Toluene	ND		ug/L	0.23	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.65	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.68	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
79-01-6	Trichloroethylene	ND		ug/L	0.57	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-69-4	Trichlorofluoromethane	ND		ug/L	0.91	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
75-01-4	Vinyl Chloride	ND		ug/L	0.97	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS
	Xylenes, Total	ND		ug/L	1.0	15	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 13:40	SS

Sample Information

Client Sample ID: FB-1 **York Sample ID:** 10I0444-14

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3510C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	1.75	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
95-50-1	1,2-Dichlorobenzene	ND		ug/L	2.18	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
541-73-1	1,3-Dichlorobenzene	ND		ug/L	3.66	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
106-46-7	1,4-Dichlorobenzene	ND		ug/L	4.30	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
95-95-4	2,4,5-Trichlorophenol	ND		ug/L	4.81	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
88-06-2	2,4,6-Trichlorophenol	ND		ug/L	4.36	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
120-83-2	2,4-Dichlorophenol	ND		ug/L	4.12	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
105-67-9	2,4-Dimethylphenol	ND		ug/L	4.91	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
51-28-5	2,4-Dinitrophenol	ND		ug/L	12.8	13.3	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
121-14-2	2,4-Dinitrotoluene	ND		ug/L	3.16	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
606-20-2	2,6-Dinitrotoluene	ND		ug/L	4.68	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
91-58-7	2-Chloronaphthalene	ND		ug/L	4.65	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
95-57-8	2-Chlorophenol	ND		ug/L	4.55	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
91-57-6	2-Methylnaphthalene	ND		ug/L	4.10	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
95-48-7	2-Methylphenol	ND		ug/L	1.14	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
88-74-4	2-Nitroaniline	ND		ug/L	4.01	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
88-75-5	2-Nitrophenol	ND		ug/L	4.14	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
91-94-1	3,3'-Dichlorobenzidine	ND		ug/L	4.68	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
99-09-2	3-Nitroaniline	ND		ug/L	2.13	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
534-52-1	4,6-Dinitro-2-methylphenol	ND		ug/L	8.93	13.3	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
101-55-3	4-Bromophenyl phenyl ether	ND		ug/L	4.60	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
59-50-7	4-Chloro-3-methylphenol	ND		ug/L	4.84	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
106-47-8	4-Chloroaniline	ND		ug/L	4.99	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
7005-72-3	4-Chlorophenyl phenyl ether	ND		ug/L	4.16	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
100-01-6	4-Methylphenol	ND		ug/L	4.96	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
100-02-7	4-Nitroaniline	ND		ug/L	5.03	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
56-57-5	4-Nitrophenol	ND		ug/L	5.25	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
83-32-9	Acenaphthene	ND		ug/L	4.31	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
208-96-8	Acenaphthylene	ND		ug/L	5.70	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
120-12-7	Anthracene	ND		ug/L	4.88	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
56-55-3	Benzo(a)anthracene	ND		ug/L	5.42	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
50-32-8	Benzo(a)pyrene	ND		ug/L	6.46	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
205-99-2	Benzo(b)fluoranthene	ND		ug/L	5.49	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
191-24-2	Benzo(g,h,i)perylene	ND		ug/L	5.54	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
207-08-9	Benzo(k)fluoranthene	ND		ug/L	4.61	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD

Sample Information

Client Sample ID: FB-1 **York Sample ID:** 10I0444-14

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Semi-Volatiles, EPA TCL List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 3510C

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
65-85-0	Benzoic acid	ND		ug/L	11.6	13.3	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
100-51-6	Benzyl alcohol	ND		ug/L	5.33	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
85-68-7	Benzyl butyl phthalate	ND		ug/L	3.07	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
111-91-1	Bis(2-chloroethoxy)methane	ND		ug/L	6.46	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
111-44-4	Bis(2-chloroethyl)ether	ND		ug/L	5.49	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
108-60-1	Bis(2-chloroisopropyl)ether	ND		ug/L	5.54	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
117-81-7	Bis(2-ethylhexyl)phthalate	ND		ug/L	3.43	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
218-01-9	Chrysene	ND		ug/L	5.54	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
53-70-3	Dibenzo(a,h)anthracene	ND		ug/L	4.13	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
132-64-9	Dibenzofuran	ND		ug/L	3.87	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
84-66-2	Diethyl phthalate	ND		ug/L	2.93	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
131-11-3	Dimethyl phthalate	ND		ug/L	6.46	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
84-74-2	Di-n-butyl phthalate	ND		ug/L	5.49	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
117-84-0	Di-n-octyl phthalate	ND		ug/L	5.54	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
206-44-0	Fluoranthene	ND		ug/L	2.13	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
86-73-7	Fluorene	ND		ug/L	4.30	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
118-74-1	Hexachlorobenzene	ND		ug/L	3.94	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
87-68-3	Hexachlorobutadiene	ND		ug/L	4.41	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
77-47-4	Hexachlorocyclopentadiene	ND		ug/L	4.60	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
67-72-1	Hexachloroethane	ND		ug/L	4.84	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
193-39-5	Indeno(1,2,3-cd)pyrene	ND		ug/L	3.66	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
78-59-1	Isophorone	ND		ug/L	4.30	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
91-20-3	Naphthalene	ND		ug/L	5.15	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
98-95-3	Nitrobenzene	ND		ug/L	2.62	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
621-64-7	N-nitroso-di-n-propylamine	ND		ug/L	3.43	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
86-30-6	N-Nitrosodiphenylamine	ND		ug/L	4.83	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
87-86-5	Pentachlorophenol	ND		ug/L	5.02	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
85-01-8	Phenanthrene	ND		ug/L	4.81	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
108-95-2	Phenol	ND		ug/L	4.36	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD
129-00-0	Pyrene	ND		ug/L	3.16	6.67	1	EPA SW846-8270C	09/16/2010 09:24	09/16/2010 13:19	TD

Sample Information

Client Sample ID: FB-1 **York Sample ID:** 10I0444-14

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Metals, Target Analyte **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW 846-3010A

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7429-90-5	Aluminum	ND		mg/L	0.007	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-36-0	Antimony	ND		mg/L	0.002	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-38-2	Arsenic	ND		mg/L	0.001	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-39-3	Barium	ND		mg/L	0.004	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-41-7	Beryllium	ND		mg/L	0.0009	0.001	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-43-9	Cadmium	ND		mg/L	0.001	0.003	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-70-2	Calcium	9.18		mg/L	0.009	0.020	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-47-3	Chromium	ND		mg/L	0.0009	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-48-4	Cobalt	ND		mg/L	0.001	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-50-8	Copper	ND		mg/L	0.002	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7439-89-6	Iron	ND		mg/L	0.006	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7439-92-1	Lead	ND		mg/L	0.001	0.003	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7439-95-4	Magnesium	1.26		mg/L	0.008	0.020	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7439-96-5	Manganese	ND		mg/L	0.001	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-02-0	Nickel	ND		mg/L	0.0008	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-09-7	Potassium	0.716		mg/L	0.026	0.050	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7782-49-2	Selenium	ND		mg/L	0.002	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-22-4	Silver	ND		mg/L	0.001	0.005	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-23-5	Sodium	7.73		mg/L	0.066	0.100	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-28-0	Thallium	ND		mg/L	0.002	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-62-2	Vanadium	ND		mg/L	0.001	0.010	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW
7440-66-6	Zinc	ND		mg/L	0.0009	0.020	1	EPA SW846-6010B	09/16/2010 07:44	09/16/2010 10:07	MW

Mercury by 7470/7471 **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA SW846-7470

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
7439-97-6	Mercury	ND		mg/L	0.0000390	0.0002000	1	EPA SW846-7470	09/16/2010 15:58	09/16/2010 15:58	AA

Sample Information

Client Sample ID: TB-1 (Trip Blanks) **York Sample ID:** 10I0444-15

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, 8260 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst

Sample Information

Client Sample ID: TB-1 (Trip Blanks) **York Sample ID:** 10I0444-15

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, 8260 List **Log-in Notes:** **Sample Notes:**

Sample Prepared by Method: EPA 5030B

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
630-20-6	1,1,1,2-Tetrachloroethane	ND		ug/L	0.54	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
71-55-6	1,1,1-Trichloroethane	ND		ug/L	0.95	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
79-34-5	1,1,2,2-Tetrachloroethane	ND		ug/L	0.57	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND		ug/L	0.60	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
79-00-5	1,1,2-Trichloroethane	ND		ug/L	0.61	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-34-3	1,1-Dichloroethane	ND		ug/L	0.69	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-35-4	1,1-Dichloroethylene	ND		ug/L	1.3	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
563-58-6	1,1-Dichloropropylene	ND		ug/L	0.43	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
87-61-6	1,2,3-Trichlorobenzene	ND		ug/L	0.37	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
96-18-4	1,2,3-Trichloropropane	ND		ug/L	1.1	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
120-82-1	1,2,4-Trichlorobenzene	ND		ug/L	0.48	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
95-63-6	1,2,4-Trimethylbenzene	ND		ug/L	0.53	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
96-12-8	1,2-Dibromo-3-chloropropane	ND		ug/L	1.3	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
106-93-4	1,2-Dibromoethane	ND		ug/L	0.68	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
95-50-1	1,2-Dichlorobenzene	ND		ug/L	0.59	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
107-06-2	1,2-Dichloroethane	ND		ug/L	0.65	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
78-87-5	1,2-Dichloropropane	ND		ug/L	0.22	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
108-67-8	1,3,5-Trimethylbenzene	ND		ug/L	0.37	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
541-73-1	1,3-Dichlorobenzene	ND		ug/L	0.47	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
142-28-9	1,3-Dichloropropane	ND		ug/L	0.69	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
106-46-7	1,4-Dichlorobenzene	ND		ug/L	0.68	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
594-20-7	2,2-Dichloropropane	ND		ug/L	0.96	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
95-49-8	2-Chlorotoluene	ND		ug/L	0.49	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
106-43-4	4-Chlorotoluene	ND		ug/L	0.49	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
71-43-2	Benzene	ND		ug/L	0.48	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
108-86-1	Bromobenzene	ND		ug/L	0.61	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
74-97-5	Bromochloromethane	ND		ug/L	1.3	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-27-4	Bromodichloromethane	ND		ug/L	0.62	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-25-2	Bromoform	ND		ug/L	0.58	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
74-83-9	Bromomethane	ND		ug/L	1.2	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
56-23-5	Carbon tetrachloride	ND		ug/L	1.0	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
108-90-7	Chlorobenzene	ND		ug/L	0.35	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-00-3	Chloroethane	ND		ug/L	0.76	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
67-66-3	Chloroform	ND		ug/L	0.36	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS

Sample Information

Client Sample ID: TB-1 (Trip Blanks) **York Sample ID:** 10I0444-15

York Project (SDG) No.	Client Project ID	Matrix	Collection Date/Time	Date Received
10I0444	BBM-2010-02	Water	September 15, 2010 3:00 pm	09/15/2010

Volatile Organics, 8260 List

Sample Prepared by Method: EPA 5030B

Log-in Notes:

Sample Notes:

CAS No.	Parameter	Result	Flag	Units	MDL	RL	Dilution	Reference Method	Date/Time Prepared	Date/Time Analyzed	Analyst
74-87-3	Chloromethane	ND		ug/L	0.89	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
156-59-2	cis-1,2-Dichloroethylene	ND		ug/L	0.96	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
10061-01-5	cis-1,3-Dichloropropylene	ND		ug/L	0.35	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
124-48-1	Dibromochloromethane	ND		ug/L	0.67	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
74-95-3	Dibromomethane	ND		ug/L	1.3	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-71-8	Dichlorodifluoromethane	ND		ug/L	0.83	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
100-41-4	Ethyl Benzene	ND		ug/L	0.35	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
87-68-3	Hexachlorobutadiene	ND		ug/L	0.43	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
98-82-8	Isopropylbenzene	ND		ug/L	0.39	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
1634-04-4	Methyl tert-butyl ether (MTBE)	ND		ug/L	0.38	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-09-2	Methylene chloride	5.0	J, B	ug/L	1.1	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
91-20-3	Naphthalene	ND		ug/L	0.50	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
104-51-8	n-Butylbenzene	ND		ug/L	0.32	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
103-65-1	n-Propylbenzene	ND		ug/L	0.58	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
95-47-6	o-Xylene	ND		ug/L	0.50	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
1330-20-7P/M	p- & m- Xylenes	ND		ug/L	0.55	10	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
99-87-6	p-Isopropyltoluene	ND		ug/L	0.25	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
135-98-8	sec-Butylbenzene	ND		ug/L	0.52	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
100-42-5	Styrene	ND		ug/L	0.43	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
98-06-6	tert-Butylbenzene	ND		ug/L	0.46	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
127-18-4	Tetrachloroethylene	ND		ug/L	0.52	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
108-88-3	Toluene	ND		ug/L	0.23	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
156-60-5	trans-1,2-Dichloroethylene	ND		ug/L	0.65	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
10061-02-6	trans-1,3-Dichloropropylene	ND		ug/L	0.68	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
79-01-6	Trichloroethylene	ND		ug/L	0.57	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-69-4	Trichlorofluoromethane	ND		ug/L	0.91	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
75-01-4	Vinyl Chloride	ND		ug/L	0.97	5.0	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS
	Xylenes, Total	ND		ug/L	1.0	15	1	EPA SW846-8260B	09/16/2010 11:01	09/16/2010 14:17	SS

Notes and Definitions

QL-02	This LCS analyte is outside Laboratory Recovery limits due the analyte behavior using the referenced method. The reference method has certain limitations with respect to analytes of this nature.
J	Detected below the Reporting Limit but greater than or equal to the Method Detection Limit (MDL); therefore, the result is an estimated concentration.
B	Analyte is found in the associated analysis batch blank.

ND	Analyte NOT DETECTED at the stated Reporting Limit (RL) or above.
RL	REPORTING LIMIT - the minimum reportable value based upon the lowest point in the analyte calibration curve.
MDL	METHOD DETECTION LIMIT - the minimum concentration that can be measured and reported with a 99% confidence that the concentration is greater than zero. If requested or required, a value reported below the RL and above the MDL is considered estimated and is noted with a "J" flag.
NR	Not reported
RPD	Relative Percent Difference
Wet	The data has been reported on an as-received (wet weight) basis
Low Bias	Low Bias flag indicates that the recovery of the flagged analyte is below the laboratory or regulatory lower control limit. The data user should take note that this analyte may be biased low but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
High Bias	High Bias flag indicates that the recovery of the flagged analyte is above the laboratory or regulatory upper control limit. The data user should take note that this analyte may be biased high but should evaluate multiple lines of evidence including the LCS and site-specific MS/MSD data to draw bias conclusions. In cases where no site-specific MS/MSD was requested, only the LCS data can be used to evaluate such bias.
Non-Dir.	Non-dir. flag (Non-Directional Bias) indicates that the Relative Percent Difference (RPD) (a measure of precision) among the MS and MSD data is outside the laboratory or regulatory control limit. This alerts the data user where the MS and MSD are from site-specific samples that the RPD is high due to either non-homogeneous distribution of target analyte between the MS/MSD or indicates poor reproducibility for other reasons.

Corrective Action: Lab received 2oz jar labeled ST-11 that is not on COC.
PG 9-15-10

YORK
ANALYTICAL LABORATORIES, INC.
120 RESEARCH DR. STRATFORD, CT 06615
(203) 325-1371 FAX (203) 357-0166

Field Chain-of-Custody Record

NOTE: York's Std. Terms & Conditions are listed on the back side of this document. This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions unless superseded by written contract.

York Project No. 10D0444

YOUR Information
Company: Ted Yen P.E.
Address: 217-42 54th Ave
Oakland Gardens, NY
Phone No. 917-584-6299
Contact Person: Ted Yen
E-Mail Address:

Report To:
Company:
Address:
Phone No.
Attention:
E-Mail Address:

Invoice To:
Company:
Address:
Phone No.
Attention:
E-Mail Address:

YOUR Project ID
BBM-2010-02

Purchase Order No.

Turn-Around Time
- RUSH - Same Day ☐
- RUSH - Next Day ☒
- RUSH - Two Day ☐
- RUSH - Three Day ☐
- RUSH - Four Day ☐
- Standard(5-7 Days) ☐

Samples from: CT ___ NY X NJ ___

Report Type/Deliverables
- Summary Report X
- Summary w/ QA Summary ___
- CT RCP Package ___
- NY ASP A Package ___
- NY ASP B Package X
- *Electronic Deliverables:*
- EDD (Specify Type) ___
- Excel X

Print Clearly and Legibly. All information must be complete. Samples will NOT be logged in and the turn-around time clock will not begin until any questions by York are resolved.

Samples Collected/Authorized By (Signature)
Ted Yen
Name (printed)

Matrix Codes
S - soil
Other - specify(oil, etc.)
WW - wastewater
GW - groundwater
DW - drinking water
Air-A - ambient air
Air-SV - soil vapor

Volatiles		Semi-Vols.	Pest/PCB/Herb.	Metals	Misc. Org.	Full Lists
8260 full	TICs	8270 or 625	8082PCB	RCRA8	TPH GRO	Pri.Poll.
624	Site Spec.	STARS list	8081Pest	PP13 list	TPH DRO	TCL Organics
STARS list	Nassau Co.	BN Only	8151Herb	TAL	CT ETPH	TAL Met/CN
BTEX	Suffolk Co.	Acids Only	CT RCP	CT15 list	NY 310-13	Full TCLP
MTBE	Ketones	PAH list	App. IX	TAGM list	TPH 1664	Full App. IX
TCL list	Oxygenates	TAGM list	Site Spec.	NJDEP list	Air TO14A	Part 360 Routine
TAGM list	TCLP list	CT RCP list	SPLP or TCLP	Total	Air TO15	Part 360 Baseline
CT RCP list	524.2	TCL list	TCLP Pest	Dissolved	Air STARS	Part 360 Expanded (No Dioxins/Furans)
Arom. only	502.2	NJDEP list	TCLP Herb	SPLP or TCLP	Air VPH	Part 360 Expanded (Full List)
Halog.only	NJDEP list	App. IX	Chlordane	Index Metals	Air TICs	NYCDEP Sewer
App.IX list	SPLP or TCLP	TCLP BNA	608 Pest	LIST Below	Methane	NYSDEC Sewer
8021B list		SPLP or TCLP	608 PCB		Helium	TAGM

Common Miscellaneous Parameters		
Corrosivity	Nitrate	Color
Reactivity	Nitrite	Phenols
Ignitability	TKN	Cyanide-T
Flash Point	Tot. Nitrogen	Cyanide-A
Sieve Anal.	Ammonia-N	BOD5
Heterotrophs	Chloride	CBOD5
TOX	Phosphate	BOD28
BTU/lb.	Tot. Phos.	COD
Aquatic Tox.	Oil&Grease	TSS
TOC	F.O.G.	Total Solids
Asbestos	pH	TDS
Silica	MBAS	TPH-1664

Special Instructions
Field Filtered ☐
Lab to Filter ☐

Sample Identification	Date Sampled	Sample Matrix	Choose Analyses Needed from the Menu Above and Enter Below	Container Description(s)
ST-1	9/15/10	S	TCL - VOA	1-2oz Jar
ST-2				
ST-3				
ST-4				
ST-5				
ST-6			pH, TCL (VOA + SVOA), TAL (Metals)	1-2oz, 1-8oz
ST-7			pH, TCL (VOA + SVOA); TAL (Metals)	1-2oz, 1-8oz
ST-8			pH, TCL (VOA)	1-2oz
ST-9			pH, TCL (VOA)	
ST-10			pH, TCL (VOA)	

Comments

Preservation Check those Applicable
4°C X Frozen ___ HCl ___ MeOH ___ HNO3 ___ H2SO4 ___ NaOH ___
ZnAc ___ Ascorbic Acid ___ Other ___

Ted Yen 9/15/10 10:35
Samples Relinquished By — Date/Time

Samples Relinquished By — Date/Time

HB Horton 9/15/10 1040AM
Samples Received By — Date/Time

Price 9/15/10 1605
Samples Received in LAB by — Date/Time

Temperature on Receipt 4.7 °C

YORK
ANALYTICAL LABORATORIES, INC.

120 RESEARCH DR. STRATFORD, CT 06615
(203) 325-1371 FAX (203) 357-0166

Field Chain-of-Custody Record

NOTE: York's Std. Terms & Conditions are listed on the back side of this document. This document serves as your written authorization to York to proceed with the analyses requested and your signature binds you to York's Std. Terms & Conditions unless superseded by written contract.

York Project No. 10D0444

YOUR Information
Company: Ted Yen, P.E.
Address: 217-42 54th Ave
Oakland Gardens, NY
Phone No. 917-584-6299
Contact Person: Ted Yen
E-Mail Address:

Report To:
Company:
Address:
Phone No.
Attention:
E-Mail Address:

Invoice To:
Company:
Address:
Phone No.
Attention:
E-Mail Address:

YOUR Project ID
BBM-2010-02

Purchase Order No.

Samples from: CT ___ NY X NJ ___

Turn-Around Time
- RUSH - Same Day ☐
- RUSH - Next Day ☒
- RUSH - Two Day ☐
- RUSH - Three Day ☐
- RUSH - Four Day ☐
- Standard(5-7 Days) ☐

Report Type/Deliverables
- Summary Report X
- Summary w/ QA Summary ___
- CT RCP Package ___
- NY ASP A Package ___
- NY ASP B Package X
- Electronic Deliverables:
- EDD (Specify Type) ___
- Excel X

Print Clearly and Legibly. All information must be complete. Samples will NOT be logged in and the turn-around time clock will not begin until any questions by York are resolved.

Ted Yen
Samples Collected/Authorized By (Signature)
Ted Yen
Name (printed)

Matrix Codes
S - soil
Other - specify(oil, etc.)
WW - wastewater
GW - groundwater
DW - drinking water
Air-A - ambient air
Air-SV - soil vapor

Volatiles		Semi-Vols.	Pest/PCB/Herb	Metals	Misc. Org.	Full Lists	Common Miscellaneous Parameters		
8260 full	TICs	8270 or 625	8082PCB	RCRA8	TPH GRO	Pri.Poll.	Corrosivity	Nitrate	Color
624	Site Spec.	STARS list	8081Pest	PP13 list	TPH DRO	TCL Organics	Reactivity	Nitrite	Phenols
STARS list	Nassau Co.	BN Only	8151Herb	TAL	CT ETPH	TAL Met/CN	Ignitability	TKN	Cyanide-T
BTEX	Suffolk Co.	Acids Only	CT RCP	CT15 list	NY 310-13	Full TCLP	Flash Point	Tot.Nitrogen	Cyanide-A
MTBE	Ketones	PAH list	App. IX	TAGM list	TPH 1664	Full App. IX	Sieve Anal.	Ammonia-N	BOD5
TCL list	Oxygenates	TAGM list	Site Spec.	NJDEP list	Air TO14A	Part360-Routine	Heterotrophs	Chloride	CBOD5
TAGM list	TCLP list	CT RCP list	SPLP or TCLP	Total	Air TO15	Part360-Baseline	TOX	Phosphate	BOD28
CT RCP list	524.2	TCL list	TCLP Pest	Dissolved	Air STARS	Part360-Expanded (No Dioxin/Furans)	BTU/lb.	Tot. Phos.	COD
Arom. only	502.2	NJDEP list	TCLP Herb	SPLP or TCLP	Air VPH	Part360-Expanded Full List	Aquatic Tox.	Oil&Grease	TSS
Halog.only	NJDEP list	App. IX	Chlordane	Indiv. Metals	Air TICs	NYCDEP Sewer	TOC	F.O.G.	Total Solids
App.IX list	SPLP or TCLP	TCLP BNA	608 Pest	LIST Below	Methane	NYSDEC Sewer	Asbestos	pH	TDS
8021B list		SPLP or TCLP	608 PCB		Helium	TAGM	Silica	MBAS	TPH-1664

Special Instructions
Field Filtered ☐
Lab to Filter ☐

Sample Identification	Date Sampled	Sample Matrix	Choose Analyses Needed from the Menu Above and Enter Below	Container Description(s)
MS-1	9/15/10	S	TCL (VOA + SVOA), TAL (Metals), pH	1-2oz, 1-8oz
MS-2	9/15/10	S	↓ ↓ ↓	1-2oz, 1-8oz
FB-1	9/15/10	W	"	2-40ml, 1-4oz, 1-16oz, 3-vials
TB-1	9/15/10	W	VOA	2-40ml vials

Comments

Preservation Check those Applicable: 4°C X Frozen ___ HCl ___ MeOH ___ HNO3 ___ H2SO4 ___ NaOH ___ ZnAc ___ Ascorbic Acid ___ Other ___

Ted Yen 9/15/10 10:35
Samples Relinquished By Date/Time

Samples Relinquished By Date/Time

H B Hoxton 9/15/10 1040AM
Samples Received By Date/Time

Phase 9/15/10 1605
Samples Received in LAB by Date/Time

Temperature on Receipt 4.7°C

TABLE 11

Track 4 Site-Specific Soil Cleanup Objectives
BL Companies Project No. 05L0567
353 McKibbin Street/NYSDEC BCP Site No. C224102
City of New York, Borough of Brooklyn, Kings County, New York

Contaminant	Track 4 SCOs
Metals	
Arsenic	16
Barium	400
Beryllium	590
Cadmium	9.3
Copper	270
Lead	1,000
Manganese	10,000
Total Mercury	2.8
Nickel	310
Selenium	1,500
Silver	1,500
Zinc	10,000
PCBs/Pesticides	
4,4'-DDE	62
4,4'-DDT	47
4,4'-DDD	92
Aldrin	0.68
alpha-BHC	3.4
beta-BHC	3
Chlordane (alpha)	24
delta-BHC	500
Dibenzofuran	350
Dieldrin	1.4
Endosulfan I	200
Endosulfan II	200
Endosulfan sulfate	200
Endrin	89
Heptachlor	15
Lindane	9.2
Polychlorinated biphenyls	1

Contaminant	Track 4 SCOs
Semivolatiles	
Acenaphthene	500
Acenapthylene	500
Anthracene	500
Benz(a)anthracene	5.6
Benzo(a)pyrene	1
Benzo(b)fluoranthene	5.6
Benzo(g,h,i)perylene	500
Benzo(k)fluoranthene	56
Chrysene	56
Dibenz(a,h)anthracene	0.56
Fluoranthene	500
Fluorene	500
Indeno(1,2,3-cd)pyrene	5.6
m-Cresol	500
Naphthalene	500
o-Cresol	500
p-Cresol	500
Pentachlorophenol	6.7
Phenanthrene	500
Phenol	500
Pyrene	500

Contaminant	Track 4 SCOs
Volatiles	
1,1,1-Trichlorethane	500
1,1-Dichloroethane	240
1,1-Dichloroethene	500
1,2-Dichlorobenzene	500
1,2-Dichloroethene	30
cis-1,2-Dichloroethene	500
trans-1,2-Dichoroethene	500
1,3-Dichlorobenzene	280
1,4-Dichlorobenzene	130
1,4-Dioxane	130
Acetone	500
Benzene	44
Butylbenzene	500
Carbon tetrachloride	22
Chlorobenzene	500
Chloroform	350
Ethylbenzene	390
Hexachlorobenzene	6
Methyl ethyl ketone	500
Methyl tert-butyl ether	500
Methylene chloride	500
n-Propylbenzene	500
sec-Butylbenzene	500
tert-Butylbenzene	500
Tetrachloroethene	150
Toluene	500
Trichloroethene	200
1,2,4-Trimethylbenzene	190
1,3,5-Tremethylbenzene	190
Vinyl chloride	13
Xylene (mixed)	500

TABLE 12
Preliminary Schedule - Mehadrin Dairy Remediation

Task Description	Month													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Final Draft RWP Public Notice Process (including public and NYSDEC review)														
NYSDEC Approval of Final RWP and Issue Construction Notice														
Prepare Final Remedial Document (1)														
Contractor/Subcontractor Procurement/Bidding														
Pre-Construction Preparation														
Remedial Construction (2)														
Prepare Post-Remediation Reports (e.g. SMP)														
NYSDEC Review of Post-Remediation Reports														
Non-Remedial Construction														
Facility Opening Activity														

Notes:

1. Final remedial documents include SWPP, Erosion & Sediment Control Plan, Construction Quality Assurance Plan, and contractor estimated construction schedule

2. Includes remedial excavation, remedial backfilling, installation of foundation, installation of demarcation barrier, and installation of a portion of the clean cover fill/gravel subbase in parking and loading areas. Clean cover fill/gravel subbase will be placed to redevelopment grade, minus the thickness of pavement, or other surface features to be placed on top of clean cover fill/gravel subbase during final non-remedial construction activities

3. Post-Remediation reports include a Site Management Plan and Final Engineering Report

APPENDICES

APPENDIX A:	METES AND BOUNDS
APPENDIX B:	REMEDIAL INVESTIGATION REPORT FACT SHEET #3, MARCH 2007
APPENDIX C:	SANBORN FIRE INSURANCE MAPS
APPENDIX D:	AIR SPARGING AND SOIL VAPOR EXTRACTION SYSTEM PLANS AND SPECIFICATIONS
APPENDIX E:	CITIZEN PARTICIPATION PLAN
APPENDIX F:	HEALTH AND SAFETY PLAN
APPENDIX G:	QUALITY ASSURANCE PROJECT PLAN
APPENDIX H:	COMMUNITY AIR MONITORING PLAN
APPENDIX I:	RESUMES OF KEY PERSONNEL
APPENDIX J:	NYSDEC BCP SIGNAGE
APPENDIX K:	REMEDIATION COST ESTIMATE

APPENDIX A

METES AND BOUNDS

A 201

Standard N.Y.B.T.U. Form 2007
Bargain & sale deed, with covenant against grantor's acts—Ind. or Corp.

JULIUS BLUMBERG, INC., LAW BLANK PUBLISHERS

SL 10160

CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT—THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY

SL 10160

TT#1,040.00

THIS INDENTURE, made the 5th day of August, nineteen hundred and ninety-six

BETWEEN HARRY J. BASHTI & CO., INC., a New York corporation, having an address at 112 West 34th Street, Suite 921, New York, New York 10120

RECORDED 3826 PG 0015

party of the first part, and

BEH LLC, a New York limited liability company, having an address at 42 Thames Street, Brooklyn, New York 11237

party of the second part,

WITNESSETH, that the party of the first part, in consideration of TEN ($10.00)

dollars,

lawful money of the United States, paid

by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the County of Kings, City and State of New York being more particularly bounded and described as follows:

BEGINNING at the corner formed by the intersection of the westerly side of Bogart Street with the southerly side of Boerum Street;

RUNNING THENCE Southerly along the westerly side of Bogart Street, 200 feet 1-3/4 inches to the corner formed by the intersection of the northerly side of McKibbin Street with the westerly side of Bogart Street;

THENCE Westerly along the northerly side of McKibbin Street, 229 feet 4 inches;

THENCE Northerly at right angles to the northerly side of McKibbin Street and the southerly side of Boerum Street, 200 feet to the southerly side of Boerum Street;

THENCE Easterly along the southerly side of Boerum Street, 236 feet 10 inches to the first above mentioned corner of the point or place of BEGINNING.

APPENDIX B

REMEDIAL INVESTIGATION REPORT FACT SHEET #3, MARCH 2007

NEW YORK STATE DEPARTMENT OF

ENVIRONMENTAL CONSERVATION

Document Repositories

Brooklyn Public Library
Bushwick Branch
340 Bushwick Avenue
Brooklyn, NY 11206
(718) 602-1348

Monday: 1 to 8 pm
Tuesday: 10 am to 6 pm
Wednesday: 10am to 6 pm
Thursday: 1 to 6 pm
Friday: 1 to 6 pm
Saturday: 11 am to 3 pm

NYSDEC, Region 2 Office
47-40 21st Street
Long Island City, New York 11101
(call in advance) (718) 482-4900
Hours: Mon. to Fri. 9am to 5pm

Project Contacts

For Project Related Questions:
Shaun Bollers
Project Manager
NYS Department of Environmental Conservation
Division of Environmental Remediation
Region 2
47-40 21st Street
Long Island City, NY 11101-5407
718-482-4608
snboller@gw.dec.state.ny.us

For public health related questions:

Bridget Callaghan
Public Health Specialist
NYSDOH
Bureau of Environmental Exposure Investigation
547 River Street
Troy, New York 12180-2216
1 (800) 458-1158 x27880
bkc01@health.state.ny.us

FACT SHEET #3
353 McKibbin Street Site

MARCH 2007
Proposed Mehadrin Dairy Facility
353 McKibbin Street
Brooklyn, NY
Site No: C224102

Remedial Investigation Report Under Review; Report Recommends Remediation of Brownfield Site Contamination

An investigation has been completed for the 353 McKibbin Street Site located in the Borough of Brooklyn, City of New York, Kings County, New York under New York's Brownfield Cleanup Program (BCP). See map for the location of the site. Mehadrin Dairy Corporation, BBM, LLC, and LWF Dairy Corporation have submitted to the New York State Department of Environmental Conservation (NYSDEC) a "Remedial Investigation Report" which is under review. The Remedial Investigation (RI) Report describes the results of the environmental investigation of the site and recommends actions to address contamination. The RI Report (dated March 8, 2007) is available at the document repository identified in this fact sheet.

NYSDEC previously accepted an application submitted by Mehadrin Dairy Corporation, BBM, LLC and LWD Dairy Corporation to participate in the BCP. The application proposes that the site will be used for commercial purposes, and is the proposed location of a food warehouse and distribution facility.

Highlights of the Remedial Investigation Report

The RI Report has several goals:

1) describe the investigation activities completed;
2) describe the nature and extent of contamination at the brownfield site;
3) provide information about potential off-site contamination issues, and;
4) recommend whether the Applicant believes that remediation is required. "Remediation" means all necessary actions to address any known or suspected contamination associated with the site.

Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation completed the RI field activities between October 2005 and February 2007, and included the collection and detailed laboratory analyses of more than 100 samples.

The following are some of the major findings and recommendations presented in the RI Report.

- Subsurface soils, soil gas and ground water at the site contained chemical substances likely related to filling and former on-site industrial operations.
- Two contamination release areas, designated as Hotspots HS-1 and HS-2, have been identified on site.
- Volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals were identified as chemical substances that are present at concentrations that exceed applicable screening standards in on-site subsurface soils.
- VOCs and metals have been detected at concentrations that exceed applicable screening standards in on-site ground water.
- VOCs have been detected in the soil gas samples taken from beneath the Site and the perimeter of the Site.
- Remediation of the site is necessary, and data collected during RI activities will be used to aid in the selection of the most effective long-term remedial measures consistent with the contemplated commercial use of the site.

Next Steps

NYSDEC will complete its review and, if appropriate, approve the RI Report. Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation will develop a Remedial Work Plan. This work plan will describe how the Applicant will address the contamination related to the brownfield site. The remedial work will be performed with oversight by NYSDEC and NYSDOH. When Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation submits a Remedial Action Work Plan for approval, NYSDEC will announce the availability of the draft work plan for public review and a 45-day comment period.

NYSDEC will keep the public informed throughout the investigation and remediation of the McKibbin Street Site.

Background

The site consists of approximately 1 acre of land and covers the following address, 353 McKibbin Street (see Site Plan). The site is located in an industrial area and is zoned MI-2 for "Manufacturing District." Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation has entered the NYSDEC's "Brownfield Cleanup Program" as a volunteer to ensure that the site is investigated to determine presence or absence of any chemical substances related to the site's former industrial history, define the nature and extent of detected chemical substances, and provide data to aid the environmentally responsible clean up of the site. A Brownfield Cleanup Agreement between Mehadrin Dairy Corporation, BBM, LLC, LWF Dairy Corporation and NYSDEC was initiated on April 19, 2005.

Prior to the early 1900's, the site was undeveloped land. From circa 1907 through circa 1995, the site was the location of numerous industrial operations, including a chemical works facility, lacquer spraying processes, and paper box storage. Chemical substances likely related to these former industrial operations included chlorinated hydrocarbon compounds and polycyclic aromatic hydrocarbons (PAHs). Chlorinated hydrocarbon compounds include methylene chloride, trichloroethene and tetrachloroethene. These are volatile organic compounds commonly used as solvents and found in soil and groundwater at many industrial sites. PAHs are also found in many petroleum products, such as fuel oil and asphalt.

The Site is currently undeveloped and covered with grass/shrubs and domestic litter. The uppermost layer of soils on the site consists of urban fill. The Site is currently unoccupied and secured with fencing.

As previously discussed in this fact sheet, the RI field work was completed between October 2005 and February 2007, and included the collection and detailed laboratory analyses of more than 100 samples. The RI Report concluded that subsurface soils, soil gas and ground water contained chemical substances most-likely related to filling and former industrial operations, and the remediation of the site is necessary. To address the contamination identified at the site, a Remedial Action Work Plan will be prepared by Mehadrin Dairy Corporation, BBM, LLC and LWF Diary Corporation in cooperation with the NYSDEC and NYSDOH. The Remedial Action Work Plan will describe the proposed remedy that the NYSDEC and NYSDOH have found to be approvable for the site.

Significant Threat

NYSDEC and NYSDOH have determined that this site poses a significant threat to human health and the environment. The site will not be placed on the Registry of Inactive Hazardous Waste Disposal Sites unless:

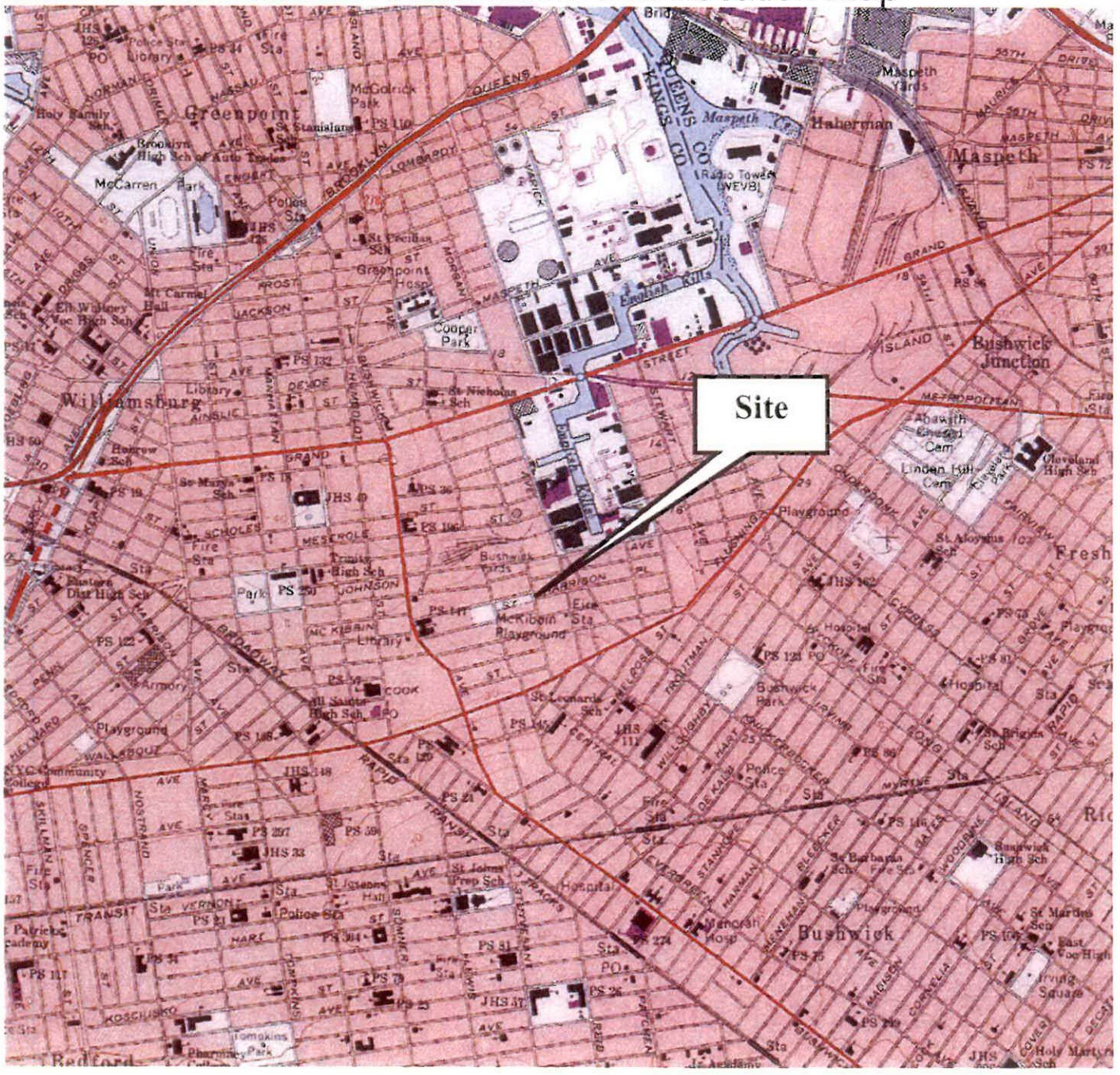
1. The project is not meeting the objectives of the Brownfield Cleanup Agreement (BCA) executed by the volunteers, Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation, and NYSDEC, or
2. The volunteers as defined above or NYSDEC terminates the BCA.

BROWNFIELD CLEANUP PROGRAM (BCP) OVERVIEW: New York established its BCP to address the environmental, legal, and financial barriers that often hinder the redevelopment and reuse of contaminated properties and to enhance private sector cleanups. New York's BCP is a cooperative approach among the NYSDEC, the NYSDOH, and Volunteers or Participants to investigate and/or remediate contaminated Sites. Under the BCP, a Volunteer or Participant enters into a Brownfield Cleanup Agreement with the NYSDEC and thereafter submits one or more work plans to investigate and, if necessary, remediate a site. The goal under the BCP is to remediate sites to a level that is protective to public health and the environment consistent with the proposed uses of the site.

For information regarding New York State's Brownfield Cleanup Program, please visit our website at:
http://www.dec.state.ny.us/webSite/der/bcp

Brownfield Cleanup Program

353 McKibbin Street Site Location Map

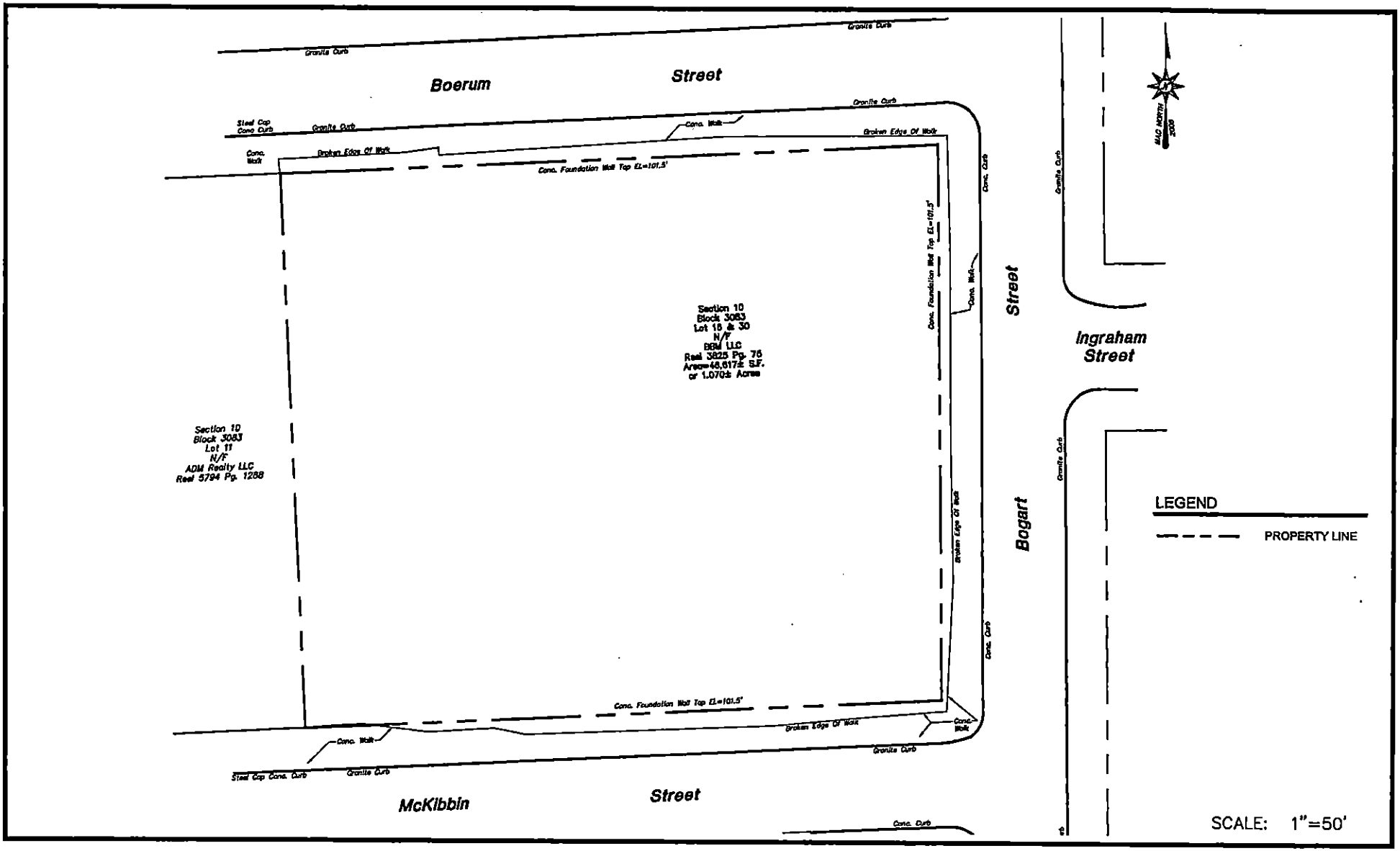


Base map is a reproduction of the U.S.G.S. 7.5 Minute Topographic Quadrangle of Brooklyn, New York, 1967, photorevised 1979.

N

SITE LOCATION MAP

PROPOSED MEHADRIN DAIRY FACILITY
NYSDEC BCP SITE No. C224102
353 McKIBBIN STREET
CITY OF NEW YORK, KINGS COUNTY, BROOKLYN, NEW



SITE PLAN

PROPOSED MEHADRIN DAIRY FACILITY
NYSDEC BCP SITE No. C224102
353 McKIBBIN STREET
CITY OF NEW YORK, KINGS COUNTY, BROOKLYN, NEW YORK

APPENDIX C

SANBORN FIRE INSURANCE MAPS

Attachment B
Sanborn Map
1907

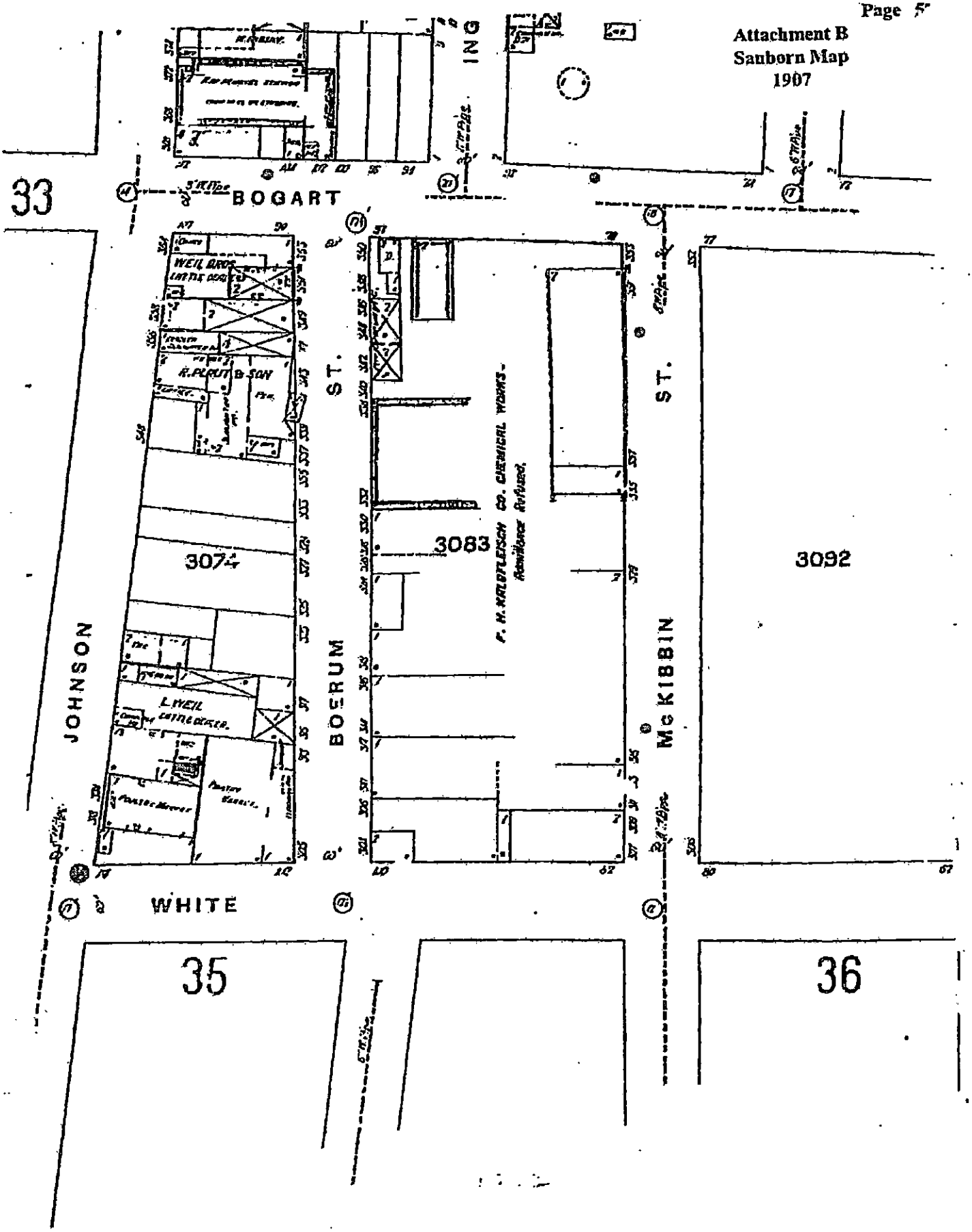
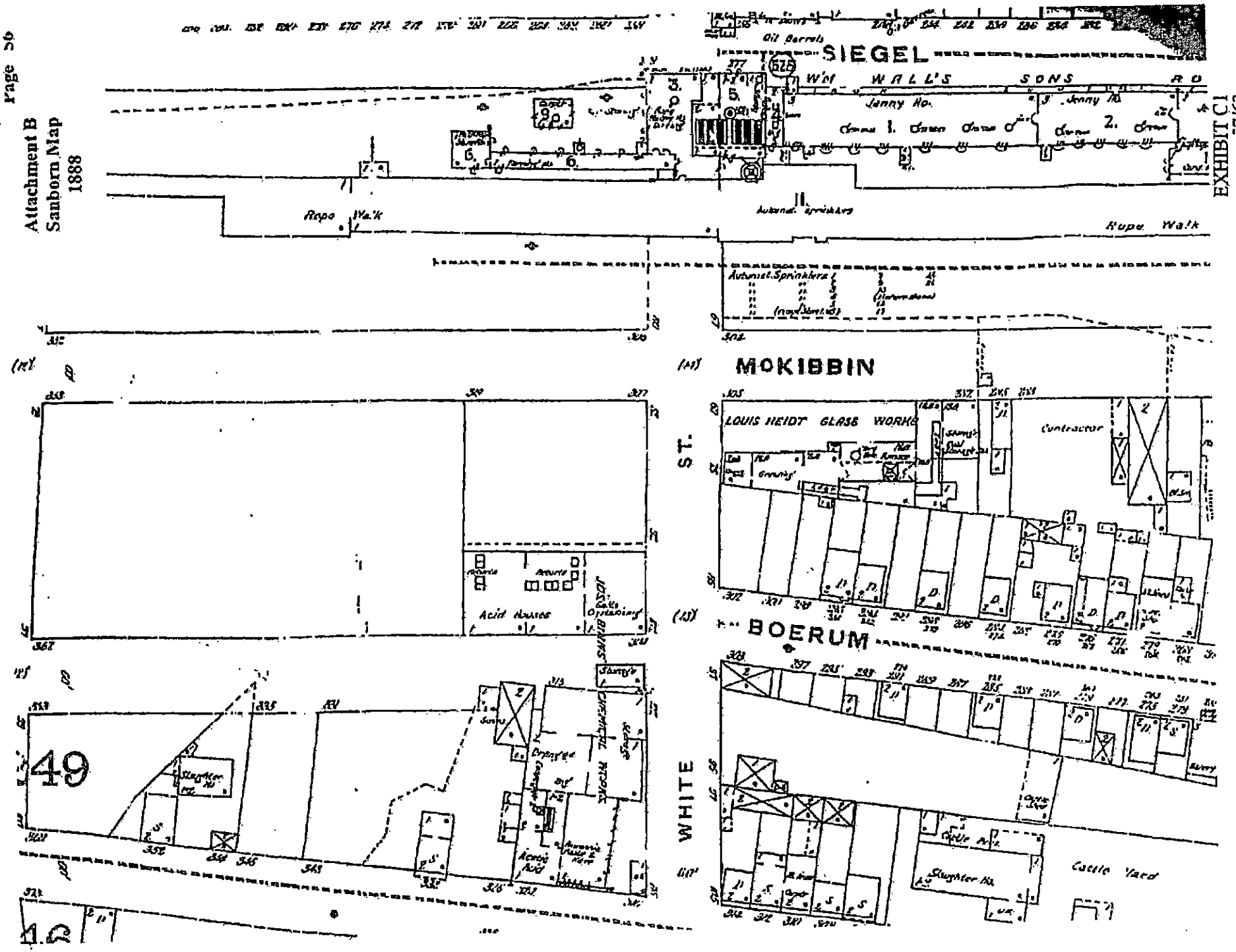


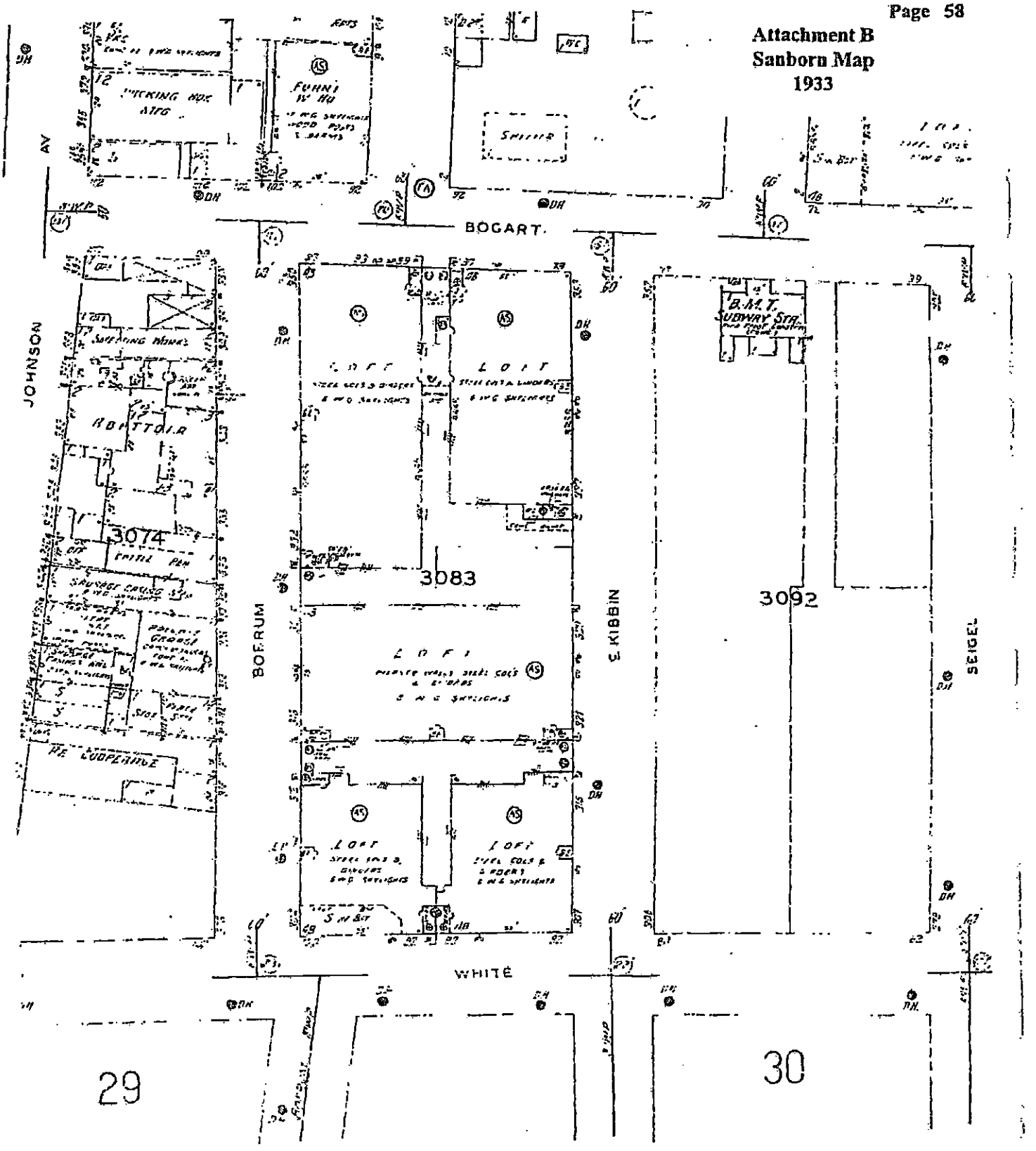
EXHIBIT C1
56/63

Attachment B
Sanborn Map
1888

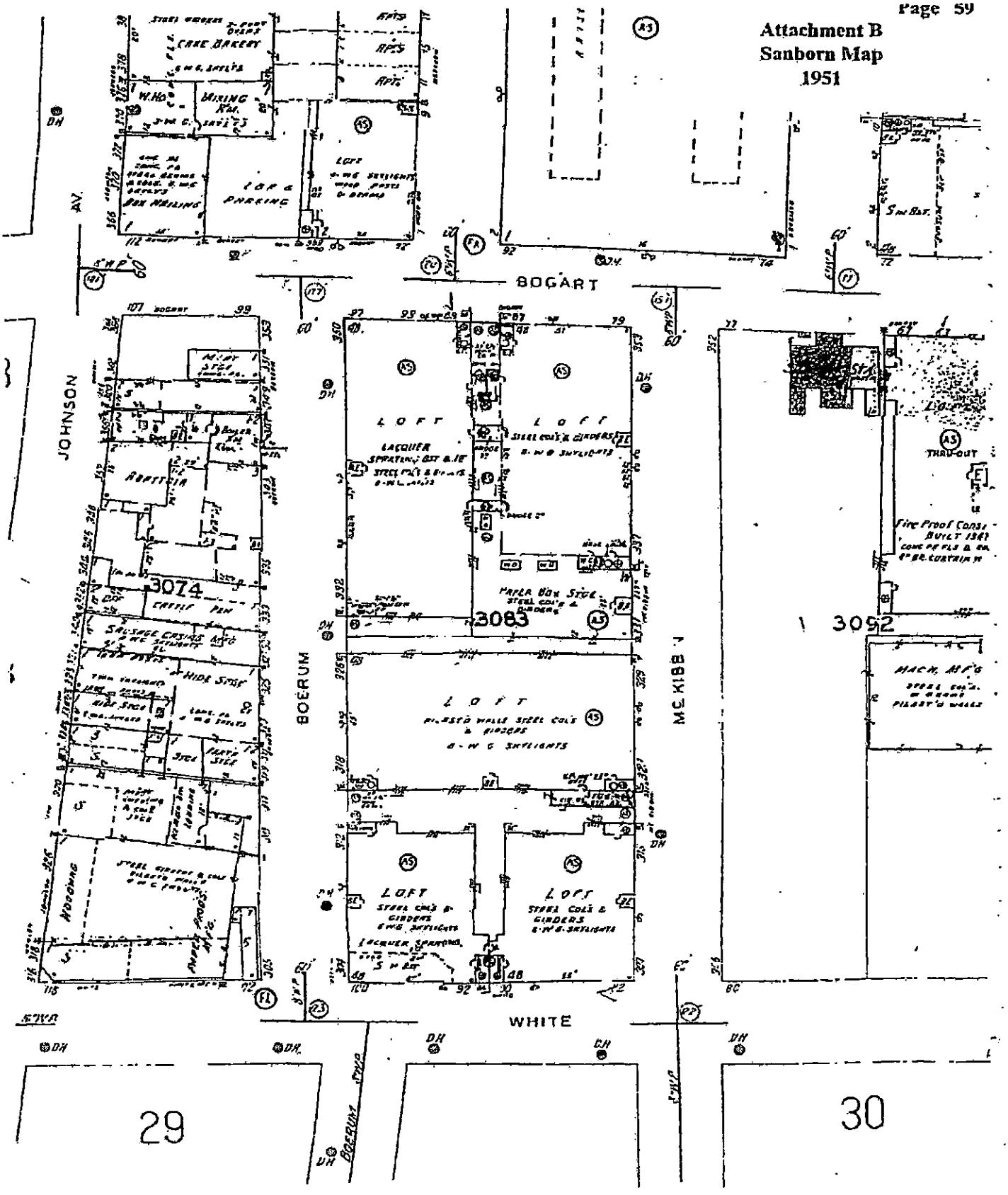
EXHIBIT C1
57/63



Attachment B
Sanborn Map
1933


BOGART
JOHNSON AV
BOERUM
S. KIBBIN
SEIGEL
WHITE
3074
3083
3092
29
30
B.M.T. SUBWAY STA.
LOFT
LOFT
LOFT
LOFT
LOFT
ROOFING
ROOFING
ROOFING
SHEDS
SHEDS
SHEDS

Attachment B
Sanborn Map
1951



Attachment B
Sanborn Map
1990

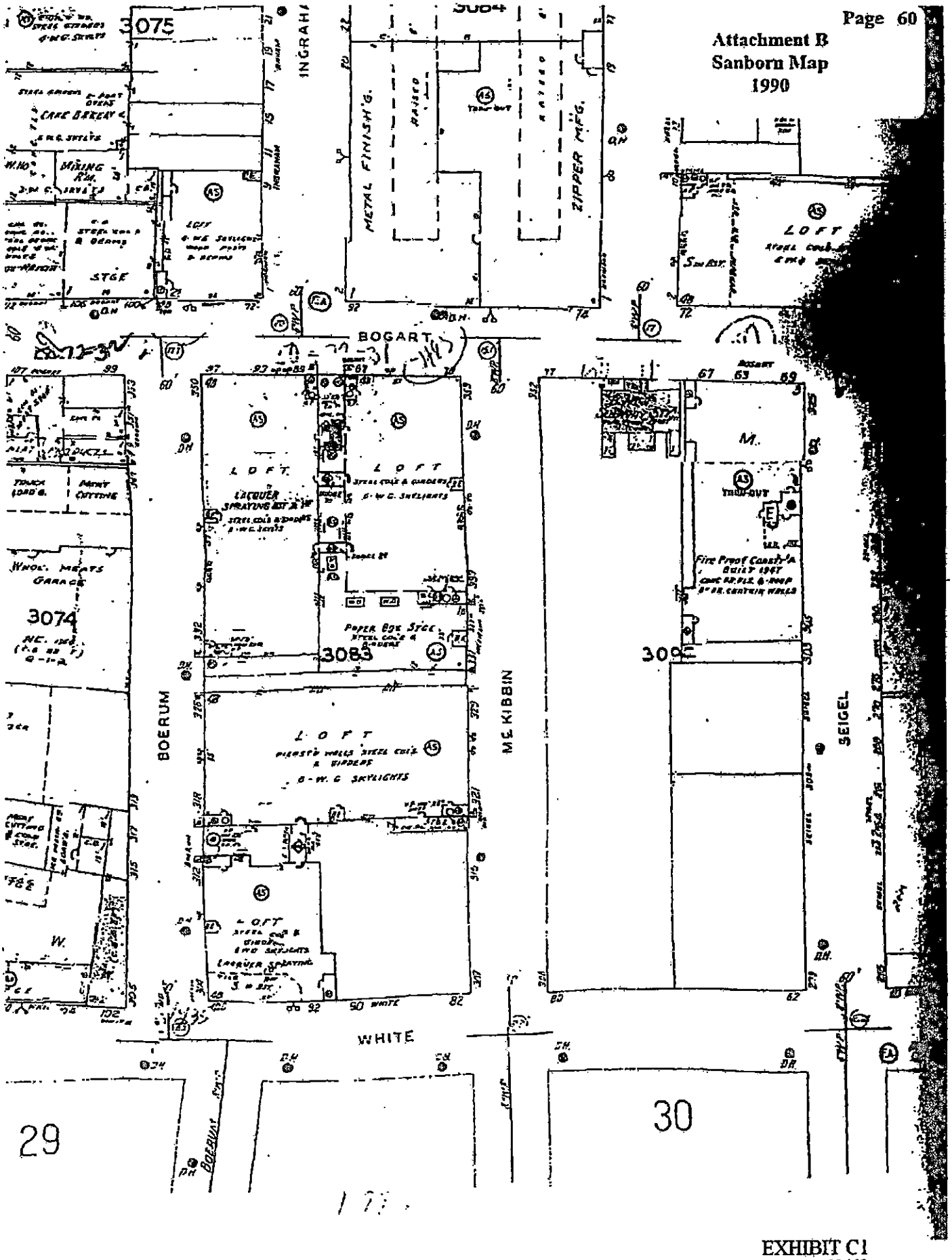


EXHIBIT C1
60/63

Attachment B
Sanborn Map
1995

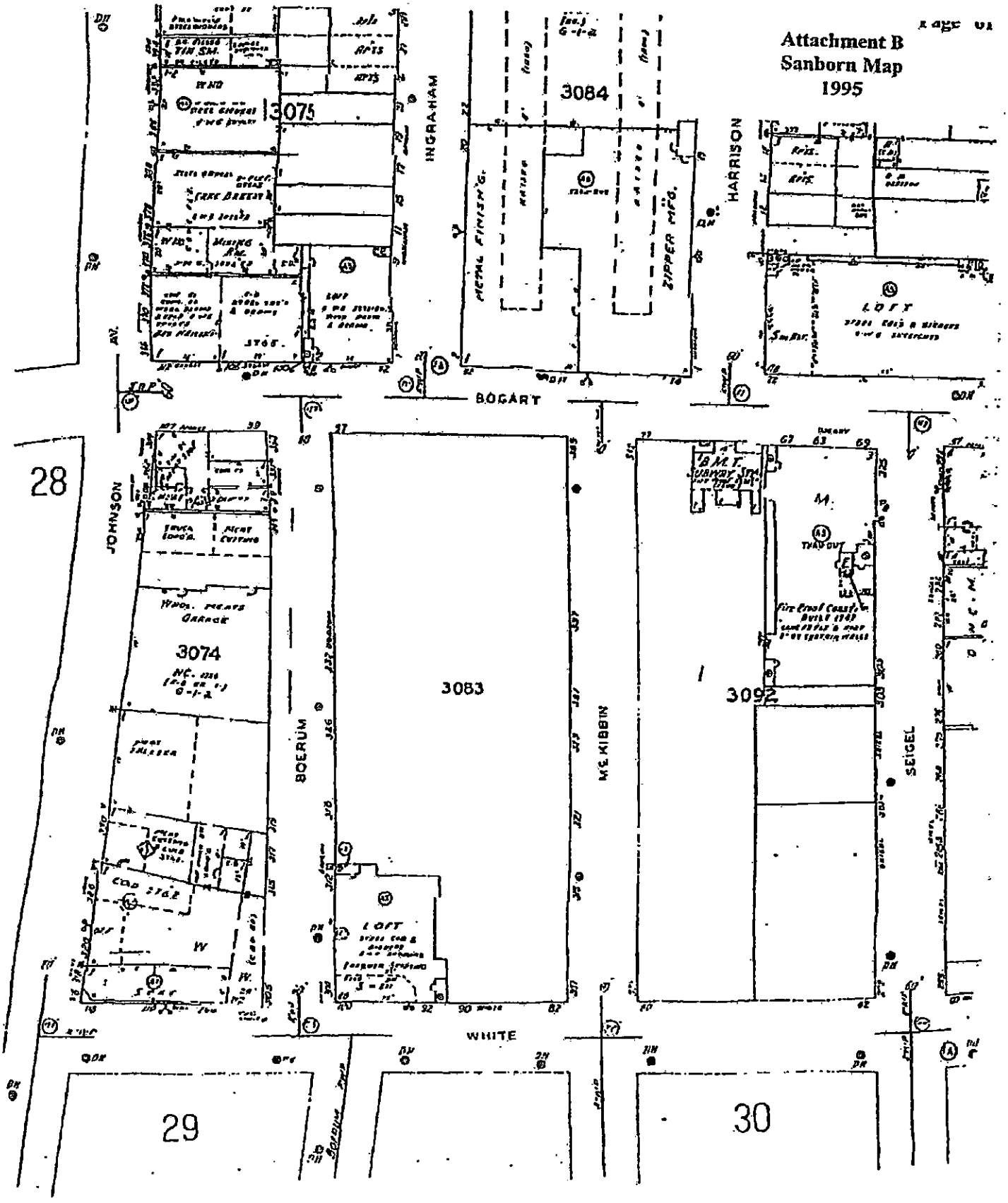


EXHIBIT C1
61/63

APPENDIX D

AIR SPARGING AND SOIL VAPOR EXTRACTION SYSTEM PLANS AND SPECIFICATIONS

AIR SPARGING AND SOIL VAPOR EXTRATION

TECHNICAL SPECIFICATION

1.0 INTRODUCTION

1.1 Summary

This construction specification is a reference for the installation of the air sparging/soil vapor extraction (AS/SVE) remediation system, to be installed at 353 McKibbin Street, Brooklyn, New York. Specific information on the construction parameters for each major aspect of the system is presented. Engineered drawings attached to this specification present the installation details of the remediation system.

1.2 Definitions

The following defines specific terms and entities as presented throughout the construction specification:

Site : Mehadrin Dairy Food Warehouse and Distribution Facility
353 McKibbin Street
Brooklyn, New York

Client: Mehadrin Dairy Corporation, BBM, LLC
and LFW Dairy Corporation, LLC
30 Morgan Avenue
Brooklyn, New York 11237
718-456-9194
Contact: Mr. Larry Farkas

Remediation Engineer: BL Companies, Inc
355 Research Parkway
Meriden, Connecticut
Contact: John Bogdanski, MS, PG
Senior Project Manager

Contractor: To Be Announced

2.0 REMEDIATION WELL INSTALLATION

2.1 Air Sparging Wells

The remediation system relies on a network of forty eight air sparging (AS) wells (24 wells to 20 feet below construction grade, and 24 wells to 40 feet below construction grade) installed into the subsurface to deliver ambient air to ground water. The AS wells will be constructed with 2 feet of 1 inch diameter 10 slot polyvinyl chloride (PVC) screen coupled with flush joint PVC casing. "Construction grade" refers to the ground surface to be established subsequent to soil remediation and construction excavation activities (performed by others) and prior to backfilling (performed by others) the Site to establish the redevelopment grade. Construction grade will be the working grade during installation of the AS/SVE System. "Redevelopment grade" refers to the final grade of the Site to be established after the completion of the soil remediation and backfilling of the AS/SVE System. Well Completion will include the installation of a #2 Morie sand pack, brought to 1 foot above the screen interval, a 2 foot bentonite chip seal above the sand pack, and the installation of a cement/bentonite seal placed from the bentonite seal to approximately 3 feet below grade. The top of each AS well will be completed with a 1-inch diameter slip cap pressed on for future connection to piping laterals. Air sparging couplings and piping laterals will be constructed directly on the surface of the construction grade. A typical AS well is illustrated in the remediation system details included with the plans attached to this specification.

Installation of the AS injection wells will be completed subsequent to soil remediation and construction excavation (performed by others) and prior to backfilling to the redevelopment grade (performed by others). A detail of the final piping connections to the AS wells is provided in the plans attached to this specification.

2.2 Vapor Extraction Wells

The remediation system relies on a network of horizontal 3-inch diameter PVC soil vapor extraction (SVE) wells placed on top of the construction grade. The SVE wells will be constructed with 50 feet of 20-slot PVC screen set on construction grade. The PVC screen will be wrapped with a suitable filter fabric to prevent sand particles from entering the SVE system. The locations of the SVE wells are illustrated in the remediation system construction drawings attached to this specification.

The installation of the SVE wells will be completed by the Contractor subsequent to soil remediation and construction excavation and prior to backfilling to the redevelopment grade. A detail of the final piping connections to the SVE wells is provided in with the construction drawings attached to this specification.

3.0 UNDERGROUND REMEDIATION SYSTEM PIPING

3.1 General

Appropriate equipment and materials necessary to complete the underground remediation system piping will be utilized to complete piping runs as shown in the attached remediation system construction drawings. All pipe, fittings, and appurtenances will be rated to a minimum of 160 pounds per square inch (psi) pressure. No used fittings or equipment will be utilized in this phase of construction. All pipe connections will be made following all Federal, State, and Local codes for high-pressure piping.

The Work will be conducted in coordination with the Site general contractor who is responsible for the remediation and building construction activities. The final Site elevation (i.e., redevelopment grade) will be several feet higher than the construction grade. The AS/SVE piping will be installed after the general contractor has established the construction grade. The layout, manifolding, and connections as specified in the drawings will be maintained. Following the completion of the piping runs, the general contractor will be responsible for the placement of fill material over the piping. The placement of fill material is not part of this RFP.

3.2 Piping Installation

3.2.1 Air Sparge Well Piping

All underground piping will consist of 1-inch and 2-inch diameter 160 psi polyethylene pipe and appropriate steel barbed fittings. Plastic barbed fittings will not be utilized. Double stainless steel hose clamps will be installed on all piping connections.

3.2.2 Vapor Extraction System Piping

All underground piping will consist of 3-inch diameter schedule 40 PVC pipe and fittings. All fittings will be deep socket pressure rated PVC. Drain type pipe or fittings will not be utilized in the construction of the system.

4.0 DRILL CUTTING MANAGEMENT

Drill cutting generated during the installation of the Air Sparging Wells shall be stockpiled on Site. The Remediation Engineer will determine the exact location of the stockpile(s). The Contractor will not be responsible for sampling, transport, or disposal of the drill cuttings.

4.0 REMEDIATION SYSTEM TREATMENT EQUIPMENT

4.1 Air Compressor

An air compressor capable of sustained delivery of 32 cubic feet per minute (CFM) flow rate at 100 psi operating pressure will be utilized. The air compressor should require minimal maintenance and be capable of maintaining design flow within standard operational parameters. The air compressor will be driven by a 5 to 7 horsepower, three phase electric motor. The compressor will be coupled with a minimum 80 gallon receiver tank equipped with pressure gauge and automatic condensate drain valve. Specifications for a Kaeser™ SX7 air compressor are attached for review. Manufacturer's specifications for an alternative air compressor must be provided to the Remediation Engineer for approval prior to installation.

4.2 Vacuum Pumps

Two vacuum pumps with a minimum capacity of 150 CFM at 60 inches of water column vacuum will be utilized. The vacuum pumps should require minimal maintenance and be capable of maintaining design flow within standard operational parameters. The vacuum pumps will be driven by 5 to 7 horsepower, three phase electric motors. Manufacturer's specifications for Gast model R6P350A single stage regenerative vacuum pumps is attached for review. Manufacturer's specifications for an alternative vacuum pump must be provided to the Remediation Engineer for approval prior to installation.

4.3 Vacuum Pump Appurtances

A minimum 10-gallon water knockout tank equipped with a ball float stop, followed by a 30-micron particulate filter will be installed prior to each vacuum pump. A Flotect™ vane operated flow switch will be installed after the filters with an electric interlock to shut down the air compressor when signaled. An air relief valve will be installed after the flow switch to protect the vacuum pumps if physical blockage were to occur at either filter. Manufacturer's specifications for the Dwyer Flotect™ switch is attached for review. Manufacturer's specifications for an alternative interlock system must be provided to the Remediation Engineer for approval prior to installation.

4. 4 Air Discharge

If necessary as determined by the Remedial Engineer, an air treatment system will be installed on the discharge of the vacuum pump in accordance with federal, state and local requirements.

4.5 Equipment Piping

Appropriate equipment and materials will be utilized to install the treatment equipment piping as shown in the attached detail drawings and process flow drawings.

4.5.1 Air Sparging System Header

All piping and gate valves utilized in the construction of the header for the air sparging system will consist of minimum 100 psi pressure rated 1 inch diameter copper pipe and brass fittings. Appropriate copper/brass reducing fittings will be utilized to accommodate flow meters and pressure gauges as needed. Flow meters utilized in the AS System header will be Dwyer Rate Master™ flow meters or an equivalent approved by the Remediation Engineer prior to system construction. Pressure gauges utilized in the interior piping will be Campell™ or equivalent rated from 0 to 60 psi.

4.5.2 Soil Vapor Extraction System Interior Piping

Interior piping will consist of pressure rated schedule 40 PVC pipe and fittings. Drain pipe or fittings will not be utilized in the construction of the system. Vacuum gauges utilized will be rated for 0 to 100 inches water column of vacuum.

4.5.3 Timer and Solenoid Valves

A timer(s) capable of managing 8 channels will be installed to activate and deactivate the AS trunk lines. Solenoid valves will be of metallic construction and pressure rated to 125 psi.

5.0 ELECTRICAL

5.1 Interior Electrical Connections

Appropriate equipment, labor, and materials will be used to install all interior electrical connections to operate the vacuum pumps, air compressor, safety controls, and additional outlets to operate the treatment system. All interior controls will be wired to a central circuit breaker box with a minimum 100 amperes service connection. All electrical work will conform to UL listings and State and Local Codes.

5.2 Main Electrical Connections

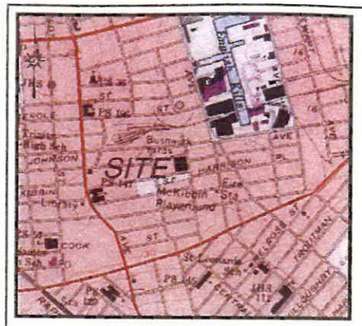
A licensed Electrical Contractor will provide all equipment, labor, and materials to supply 100 amperes, 230/460 volt, 3 phase electricity from the existing power

supply in the building to the breaker box in the treatment area. Electrical connections will be made following all State and Local codes.

6.0 PERMITS

Contractor will procure all necessary permits required for excavation, off-site soil transport and disposal, and installation of piping and electrical connections in accordance with federal, state, and local requirements by the State of New York and the Borough of Brooklyn.

The Remediation Engineer will procure all necessary permits certificates, or other approvals or authorizations required for air discharge from the soil vapor extraction system.



LOCATION MAP

NOT TO SCALE

LEGEND

Property Line
Concrete
Curbing
Existing Monitoring Well
Proposed Air Sparge Well
Proposed Vapor Extraction Lateral
Cross Section

GENERAL NOTES

1. NORTH ARROW AND BEARINGS BASED ON MAGNETIC NORTH 2006.
2. ELEVATIONS AND CONTOURS ARE BASED ON AN ASSUMED DATUM.

Boerum Street

Granite Curb

Steel Cap Conc. Curb

Approximate Boundary Line

Concrete Footing

Conc. Foundation Wall Top El.=101.5'

Concrete Footing El.=90.0'

10'± High Concrete Wall

TREATMENT SHELTER LOCATED IN BUILDING

BANK-1 BANK-2 BANK-3 BANK-4 BANK-5 BANK-6 BANK-7 BANK-8

ASP-01 ASP-02 ASP-03 ASP-04 ASP-05 ASP-06 ASP-07 ASP-08 ASP-09 ASP-10 ASP-11 ASP-12 ASP-13 ASP-14 ASP-15 ASP-16 ASP-17 ASP-18 ASP-19 ASP-20 ASP-21 ASP-22 ASP-23 ASP-24 ASP-25 ASP-26 ASP-27 ASP-28 ASP-29 ASP-30 ASP-31 ASP-32 ASP-33 ASP-34 ASP-35 ASP-36 ASP-37 ASP-38 ASP-39 ASP-40 ASP-41 ASP-42 ASP-43 ASP-44

VE-1 VE-2 VE-3 VE-4 VE-5 VE-6 VE-7 VE-8

MW-1 MW-2 MW-3 MW-4 MW-5 MW-6 MW-7 MW-8 MW-9 MW-10

200'

220'-4"

Conc. Foundation Wall Top El.=101.5' Concrete Footing El.=89.8'

Steel Cap Conc. Curb

Granite Curb

McKibbin Street

Conc. Curb

AIR DISCHARGE PIPING TO ROOF

MAG NORTH 2006

Approximate Boundary Line

Conc. Curb

Granite Curb

Street

ENLARGMENT 1 (SEE SHEET EX-3)

Ingraham Street

Bogart

ENLARGMENT 2 (SEE SHEET EX-3)

GRAPHIC SCALE

15 7.5 0 15

SCALE IN FEET

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BL Companies
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ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
LAND SURVEYING
ENVIRONMENTAL SCIENCES

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Meriden, CT 06450
(203) 630-1406
(203) 630-2618 Fax

REMEDIATION SYSTEM LAYOUT

353 McKIBBIN STREET
CITY OF NEW YORK,
KINGS COUNTY, BROOKLYN, NEW YORK

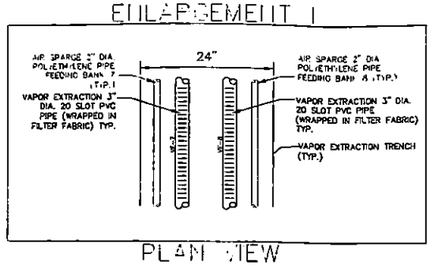
REVISIONS	DATE

Surveyed
Drawn JDF
Issued
Approved
Scale 1" = 10'-0" NOTED
Project No 15.0058
Date 2/1/2008
CAD File: E:\15\0058701-10\F
Field Book

Title
AIR SPARGING AND SOIL VAPOR EXTRACTION SYSTEM

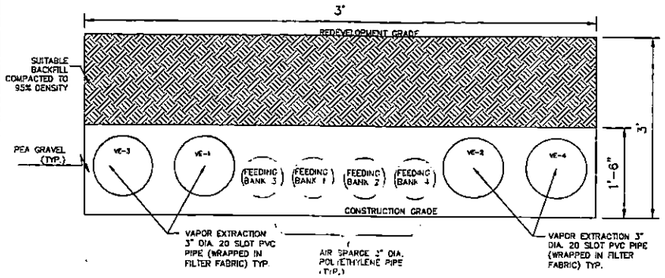
Sheet No
EX-1

SET #: 15\0058701.DWG



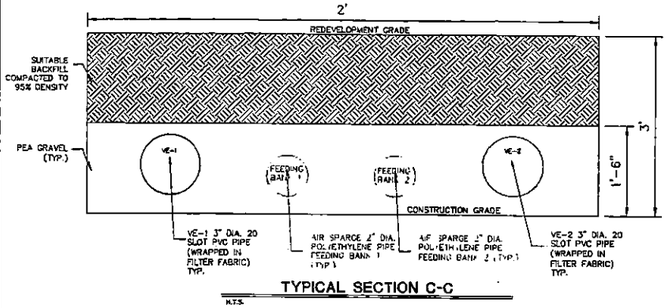
ENLARGMENT 1
PLAN VIEW

N.T.S.



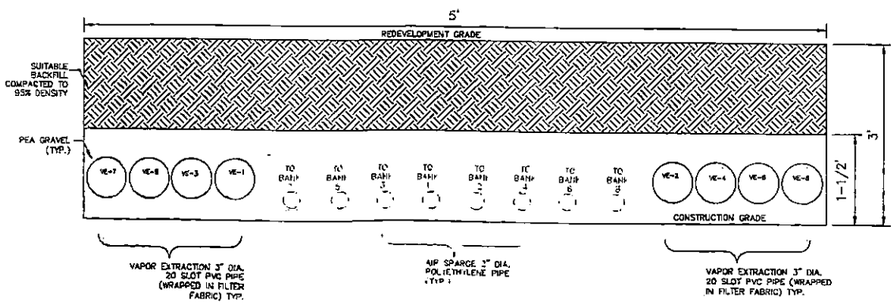
TYPICAL SECTION B-B

N.T.S.



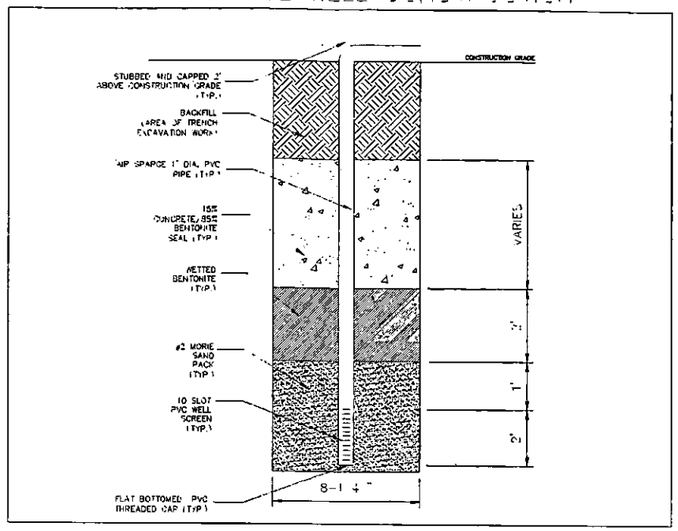
TYPICAL SECTION C-C

N.T.S.



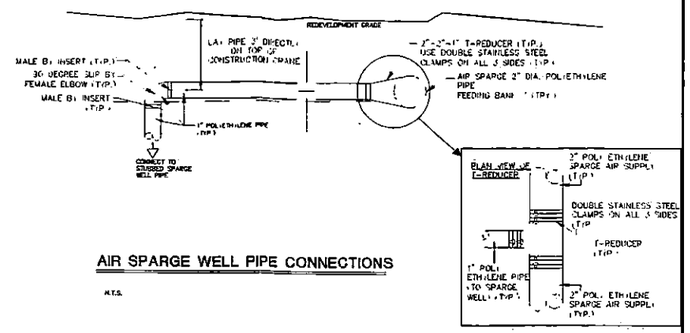
TYPICAL SECTION A-A

N.T.S.



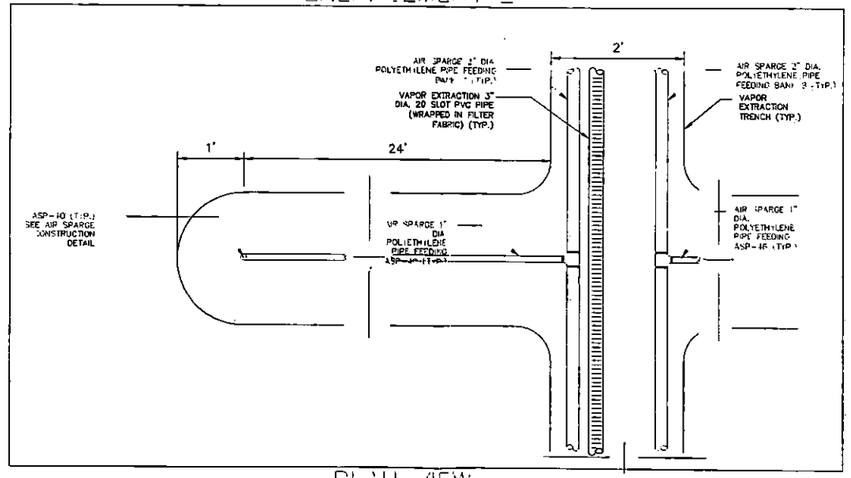
AIR SPARGE WELL CONSTRUCTION

N.T.S.



AIR SPARGE WELL PIPE CONNECTIONS

N.T.S.



ENLARGEMENT 2
PLAN VIEW

N.T.S.

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LAND SURVEYING
ENVIRONMENTAL SCIENCES

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(203) 630-2615 Fax

REMEDIATION SYSTEM LAYOUT
353 McKIBBIN STREET
CITY OF NEW YORK,
KINGS COUNTY, BROOKLYN, NEW YORK

No.	Revisions	Date	Init.

Surveyed
Drawn SDF
Checked
Approved
Scale NOT TO SCALE
Project No 35L056
Date 02 11 08
CAD File E:\35L056\701-*.DF
Field Book

Title
AIR SPARGING AND SOIL VAPOR EXTRACTION SYSTEM DETAILS

Sheet No
EX-2

Xref's: x35L056701.Dwg

APPENDIX E

CITIZEN PARTICIPATION PLAN

CONROY ENVIRONMENTAL CONSULTANTS, INC.

353 McKibbin Property
(formerly identified as 79 Bogart Street and 328 Boerum Street)
Brooklyn, New York

CITIZEN PARTICIPATION PLAN

Prepared for:

Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation

Prepared by:

William J. Conroy, P.G.
Conroy Environmental Consultants, Inc.
66 Murdock Street, Suite 1
Huntington Station, NY 11746

Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation

CONROY ENVIRONMENTAL CONSULTANTS, INC.

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1.0 INTRODUCTION

A Citizen Participation Plan (CPP) is a required element of the remedial program at each project included in New York State's Brownfield Cleanup Program (BCP). The CPP is designed to encourage communication concerning the remedial program among involved regulatory agencies, the Applicant, the local community and other interested/affected parties. Not only will NYSDEC, NYSDOH and the Applicant provide the public with accurate, timely, understandable information, but the process will also establish ways for the public to express their views, comments and concerns. This two-way process will improve the quality of the study and will evolve as the investigation progresses. The subject BCP site is called the 353 McKibbin Property. The Applicants are Mehadrin Dairy Corporation, BBM, LLC and LWF Dairy Corporation (hereinafter collectively called Mehadrin). Conroy Environmental Consultants, Inc., an environmental consulting firm, has been retained by Mahadrin to oversee the implementation of the Remedial Investigation, which will be carried out with oversight by the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH).

This CPP describes the activities to be implemented by Mehadrin during the implementation of the remedial program at the 353 McKibbin Property BCP Site to communicate with the interested or affected members of the public.

2.0 SITE INFORMATION

2.1 Site Description

The site is a vacant one-acre rectangular lot with partial construction excavation and is located in a commercial/ industrial section of Brooklyn. There is a City Park across the street. No Buildings are currently located directly adjacent to the subject property. There is an open lot immediately adjacent to the West occupied by a construction contractor and utilized for heavy equipment and tool storage. A New York City Public Park and School Building are located to South. Commercial industrial buildings are located to the North and East.

The site was previously used as a chemical works and lacquer spraying facility. There was evidence of such illicit waste dumping on-site as household wastes, automotive parts, one-gallon cans, five-gallon pails and 55 gallon drums. Based on our site reconnaissance observations (illicit dumping), interviews, and a review of the past site use, there appear to be significant environmental concerns associated with this property's past use.

2.2 Site History/Previous Investigations

A Phase I investigation on behalf of the property owners was done in February 2003 by Public Service Testing Laboratories, Inc. The Phase I investigation identified several concerns related to: 1) the past use of the site as a chemical works and later as a lacquer spraying; 2) the finding of miscellaneous fill materials and a 55 gallon drum of unknown contents; and, 3) the presence of illicit dumping of household wastes and automotive parts, cans pails and drums. Also, the presence in the past of a hazardous waste generator (the former Jayer Plating) nearby prompted further investigation. Galli Engineering completed a Phase II investigation in October 2003. Thirty one (31) soil samples were taken from eleven (11) locations and some samples were found impacted by Metals (copper, zinc and mercury); VOCs (trichloroethylene, acetone, isopropyl and trimethyl benzene); and, SVOCs (benzo(a)anthacene, benzo(a)pyrene, benzo(a)flouroanthene, chrysene, dibenzo-a,h-anthracene, indeno(1,2,3-cd)pyrene). A groundwater monitoring well is located near the site. The well was sampled by Conroy Environmental in September, 2004 and was found contaminated with 1,1-Dichloroethane and Trichloroethene. However, the construction details of the monitoring well are unknown, and hence the data cannot be relied upon.

2.3 Potential Environmental Concerns Identified at the Site and Vicinity

POTENTIAL ENVIRONMENTAL CONCERNS ON-SITE

Several VOCs, SVOCs, and some metals were found in soil samples exceeding TAGM 4046 RSCOs. TCE was found at 191,750 ppb(vs 700); 1,2,4-Trimethylbenze was found at 20,455 (vs 10,000). Several SVOCs (like Benzo(b and k)flouranthene , Chrysene, Dibenzo-a,h-Anthrecene) were found at several times above their respective RSCOs. Metals (Copper, Mercury and Zinc) were found in soil samples at concentrations of 269, 9.60 and 324 ppm respectively. The Application package includes one round of groundwater sampling results of one offsite monitoring well whose installation details are unknown, and hence the data can not be relied upon. Further, the depth to groundwater and the flow direction is not known at this time. Based upon information from a neighboring site it is reported to be north- northeast and, is likely to be contaminated based upon the fact that the onsite soil samples show contamination.

POTENTIAL ENVIRONMENTAL CONCERNS OFF-SITE

None known at this time, however the presence of volatile organics in onsite soils and groundwater needs to be investigated for potential offsite soil vapor intrusion. However, if groundwater contamination onsite is confirmed, there would be increased threat of exposure to the VOCs and SVOCs from soil gas both on and off-site. The potential for off-site contamination caused by onsite sources, through groundwater flow, must also be addressed.

2.4 Proposed Development

Environmental remediation of the vacant property is needed in order to facilitate subsequent construction of a 50,000 sq. ft. commercial kosher food distribution center/warehouse. The new building will be occupied by Mehadrin Dairy Corporation, and its affiliate, LFW Dairy Corporation. Estimated development costs are $7.5 including an estimated $1 million for environmental remediation.

3.0 CITIZEN PARTICIPATION ACTIVITIES

Citizen participation activities are required to occur at numerous points during the remedial program in the BCP. The Applicant will work with NYSDEC and NYSDOH to accomplish the CP activities described in this CPP and additional CP activities as may be found necessary by NYSDEC during the course of the remedial program.

3.1 Description of Citizen Participation Activities Already Performed

As part of the BCP application process, the BCP application for Mehadrin, the environmental reports and other relevant information were placed in a document repository at the Brooklyn Public Library, Bushwick Branch, 340 Bushwick Avenue, Brooklyn, NY 11206. A notice regarding the application to the BCP was posted in the Environmental Notice Bulletin and in The Brooklyn Papers. The notice was also mailed to the Site Contact List in compliance with the Brownfield Cleanup Program.

3.2 Planned Citizen Participation Activities

The CP activities and the project points at which they will occur are described in the following sections.

3.2.1 Fact Sheets

A fact sheet will be distributed to all on the Site Contact List at the following project points:

- Announcing the availability of Draft Remedial Investigation Work Plan for public comments;
- Prior to NYSDEC approval of the Proposed Remedial Investigation Report;
- Prior to NYSDEC approval of the Remedial Action Work Plan;
- Prior to the start of Remedial Construction;
- Prior to NYSDEC approval of the Remedial Action Report; and
- Within 10 days of issuance of the certificate of completion (if institutional or engineering controls are used).

The fact sheet (current only) will also be posted on the Site permits board, when erected, so that the fact sheet can be viewed by passers-by.

3.2.2 Document Repository

Each of the following documents will be placed in the document repository as soon as it becomes available: Final Remedial Investigation Work Plan; Draft Remedial Action Work Plan; Final Remedial Action Work Plan; Draft Remedial Action Report; Final Remedial Action Report; each NYSDEC comment and/or approval letter for each of these reports; and each project fact sheet which has been distributed. The document repository will be periodically checked to ensure that it contains all the current project documents.

3.2.3 Public Meetings and Formal Comment Periods

The BCP specifically provides the opportunity for the receipt of comments from the public at the following project points:

- 30-day comment period subsequent to complete BCP application (already completed);
- 30-day comment period regarding draft Remedial Investigation Work Plan;
- 45-day comment period regarding draft Remedial Work Plan; and
- public meeting, if determined by NYSDEC to be necessary, during the comment period on the draft Remedial Work Plan.

3.2.4 Site Contact List

The Site Contact List contains the names of certain required contacts, additional contacts as found appropriate by either NYSDEC or the Applicant, and others who have requested to be placed on the list. The Site Contact List will be kept up-to-date by the Applicant. If your name does not appear on the contact list in Section 4.0 and you would like to be included, please contact the following person:

Shaun Bollers., Project Manager
NYSDEC
47-40 21st Street
Long Island City, NY 11101
Tel: (718) 482 - 4909
Email: snboller@gw.dec.state.ny.us

New York City Department of Environmental Protection
Bureau of Legal Affairs
Department of Environmental Protection
59-17 Junction Boulevard, 10th Floor
Flushing, NY 11373

Daniel Walsh
NYSDEC Region 2
Brownfields Coordinator
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101

David Stadtmauer
Richard Bowers
Kathy Mussio
Stadtmauer Bailkin LLP
850 Third Avenue, 19th Floor
New York, NY 10022

Gerald A. Esposito – District Manager
Brooklyn Community Board No. 1
435 Graham Avenue
Brooklyn, NY, 11211(718) 389-0009

Diana Reyna – City Council Member
New York City Council- District 34
444 South 5th St.
Brooklyn, New York, 11211
Phone: (718) 963-3141

Vito J. Lopez – Councilmember
Assembly District 53 434 South 5th Street
Brooklyn, NY 11211
(718) 963-7029

Martin Malave Dilan
NY Senator District 17
786 Knickerbocker Avenue
Brooklyn, NY 11207
(718) 573-1726

Nydia M. Velazquez
NY Congressman
NY Congress District 12
268 Broadway, 2nd Fl.
Brooklyn, NY 11211
(718) 599-3658

Hon. Charles E. Schumer
NY Senator
757 3rd Avenue Suite 17-02
New York NY, 10017

(212) 486-4430
Hon. Hillary Rodham Clinton
NY Senator
780 3rd Avenue Suite 2601
New York NY, 10017
(212) 688-6262

Bob Kulikowski
Director of the Office of Environmental Coordination
New York City Office of Environmental Coordination
100 Gold Street, 2nd floor New York, NY 10038
212-788-2941

P. Dave Smith, P.E.
Director, Remedial Bureau 'B"
Division of Environmental Remediation
NY State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

Geoffrey J. Laccetti
NYS Department of Health
Bureau of Env. Exp. Inv.
Center for Environmental Health
Flanigan Square
547 River Street
Troy, NY 12180
518-402-7880

Rosalie R. Rusinko, Esquire
New York State Department of
Environmental Conservation
200 White Plains Road
Tarrytown, N.Y. 10591

3.3 Unplanned Citizen Participation Activities

As mentioned above, NYSDEC may determine that additional CP activities are necessary. These activities could include, for example, the mailing of additional fact sheets at other points during the remedial program, holding availability sessions or public meetings, or other forms of direct outreach. The Applicant will work with NYSDEC and NYSDOH to accomplish these additional CP activities.

4.0 POTENTIALLY AFFECTED/INTERESTED PUBLIC (CONTACT LIST)

The following individuals and organizations constitute the Site Contact List, and will receive notices in accordance with NY ECL § 27-1417.

4.1 Government Officials

Martin Malave Dilan
NY Senator District 17
786 Knickerbocker Avenue
Brooklyn, NY 11207
(718) 573-1726

Nydia M. Velazquez
NY Congress District 12
NY Congressman
268 Broadway, 2nd Fl.
Brooklyn, NY 11211
(718) 599-3658

Chief Executive Officer
Mayor Michael R. Bloomberg
City Hall
New York, New York 10007

Amanda Burden
Chairperson
Department of City Planning
22 Reade Street
New York, New York 10007

Regina Myer
Brooklyn Borough Office,
Director Brooklyn Planning Office
16 Court Street Brooklyn, New York 11241

Melinda R. Katz
Committee Chairperson
New York City Council Land Use Committee
District Office
104-01 Metropolitan Ave.,
Forest Hills, New York, 11375
(718) 544-8800

Marty Markowitz
Brooklyn Borough President
209 Joralemon Street
Brooklyn, New York 11201

Robert Dobruskin
Director, Department of City Planning
22 Reade Street, 4E
New York, NY 10007-1216

Robert Kulikowski, Ph.D., Director
New York City Office of Environmental Coordination
100 Gold Street, 2nd floor
New York, NY 10038

Gerald A. Esposito – District Manager
Brooklyn Community Board No. 1
435 Graham Avenue
Brooklyn, NY, 11211
(718) 389-0009

Diana Reyna – City Council Member
New York City Council- District 34
444 South 5th St.
Brooklyn, New York, 11211
(718) 963-3141

Vito J. Lopez – Councilmember
Assembly District 53 434 South 5th Street,
Brooklyn, NY 11211
(718) 963-7029

Bob Kulikowski
Director of the Office of Environmental Coordination
New York City Office of Environmental Coordination
100 Gold Street, 2nd floor New York, NY 10038
212-788-2941

New York City
Department of Environmental Protection
Bureau of Legal Affairs
59-17 Junction Boulevard, 10th Floor
Flushing, NY 11373

4.2 Environmental Groups and Other Interested Parties

Historic Neighborhood Trust, Inc.
105 Hudson Street
New York, NY 10013

Clinton Housing Development Company
403 West 40th Street
New York NY 10018

Natural Resources Defense Council
40 West 20th Street
New York, New York, 10011
The Community Development Venture Capital Alliance
330 7th Avenue, 19th Floor
New York, New York, 10001

The Caring Community
20 Washington Square North
New York, New York, 10011

Citizens Union
299 Broadway, Suite 700/702
New York, New York, 10007-1976

CASES
346 Broadway, 3rd fl.
New York, New York, 10013

The People's Platform
215 W. 90th Street, Suite 12C
New York, New York, 10024

Community Environmental Center
43-10 11th Street
Long Island City, New York, 11101

NewYork2050
365 Fifth Avenue, Suite 6403
New York, New York, 10016

Citizens Housing and Planning Council
50 East 42nd Street #407
New York, New York, 10017

Neighborhood Preservation Center
232 East 11th Street
New York, New York, 10003

Vision for New York
349 West 12th Street, 3rd floor
New York, New York, 10014

New York Lawyers for the Public Interest
151 West 30th Street 11th Floor
New York, NY 10001

Center for Children's Health and the Envi.
One Gustave L. Levy Place
Box 1043
New York, NY 10029

Citizens for NYC
305 7thAve, Fl. 15
New York, NY 10001

Earth Day New York
201 E 42nd Street Ste 3200
New York, NY 10017
NYC Environmental Justice Alliance
115 W 30 St #709
New York, NY 10001

Hope Community, Inc.
174 East 104th Street
New York, NY 10029

4.3 Media

The Canarsie Courier
1142 East 92nd Street
Brooklyn, New York 11236

The Brooklyn Papers
55 Washington Street
Suite 624
Brooklyn, NY, 11201

New York Times
229 West 43rd Street
New York, NY 10036

New York Post
1211 Avenue of the Americas
New York, NY 10036-8790

The New York Observer
54 E. 64th Street
New York, NY 10021

New York Sun
105 Chambers Street, 2nd Floor
New York, NY 10007

WABC 7
7 Lincoln Square
New York, NY 10023

WCBS 2
524 West 57 Street
New York, NY 10019

WNBC 4
30 Rockefeller Plaza
New York, NY 10112

WNYE 25
112 Tillary Street
Brooklyn, NY 11201

WNYW 5
205 East 67th Street
New York, NY 10021

WPIX 11
220 East 42nd Street
New York, NY 10017

New York Daily News
450 W. 33 Street
New York, NY 10001

El Diario La Prensa
345 Hudson Street, 13th floor
New York, NY 10014

NY1 News
75 Ninth Avenue
New York, NY, 10011

4.4 Adjacent Property Owners

Property Address: 310 Johnson Ave.
J C World Foods Inc.
310 JOHNSON AVE
BROOKLYN NY 11206

CONROY ENVIRONMENTAL CONSULTANTS, INC.

Property Address: 338 Johnson Ave.
Hua Phong Kinh
338 Johnson Avenue
Brooklyn, NY 11206

Property Address: 360 Johnson Ave.
CHESSE SMOKERS INC
360 JOHNSON AVE
BROOKLYN NY 11206

Property Address: 92 Bogart St.
M Johnathan Realty Co.
P.O.BOX 68
BROOKLYN NY 11206

Property Address: 100 Bogart St.
374-384 JOHNSON AVE CP
374 JOHNSON AVE
BROOKLYN NY 11206

Property Address: 100 White St.
304 Boerum Realty LLC
c/o WHITE BOERUM REALTY CORP
304 BOERUM ST
BROOKLYN NY 11206

Property Address: 318-326 Boerum St.
ADM REALTY
318 BOERUM ST
BROOKLYN NY 11206

Property Address: 328 Boerum St.
B B M LLC
42 THAMES ST
BROOKLYN NY 11237

Property Address: 79 Bogart St.
B B M LLC
42 THAMES ST
BROOKLYN NY 11237

Property Address: 74 Bogart St.
Smith Equities LLC.
c/o Ashpol Realty Corp.
PO Box 204
Brooklyn, NY 11211

Property Address: 62 White St.
DEPT OF GENERAL SERVICES
2 LAFAYETTE ST
NEW YORK NY 10007

4.5 State Officials

Mr. Daniel Walsh
NYSDEC Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, New York 11101

Rosalie R. Rusinko, Esq.
Division of Environmental Enforcement
NYSDEC
200 White Plains Road – 5th Floor
Tarrytown, NY 10591-5805

P. David Smith
Division of Environmental Remediation
NYSDEC Central Office
625 Broadway
Albany, NY 12203-7016

Hari O. Agrawal, P.E.
Division of Environmental Remediation

NYSDEC Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, New York 11101

Geoffrey Laccetti
NYSDOH – BEEI
Flanigan Square
547 River Street
Troy, NY 12180-2216

4.6 Local Schools / Day Care Centers

Schools

P.S. 147- 325 Bushwick Ave.
Margarita Neil, Local Instructional Superintendent
Board of Education
110 Livingston Street.
Brooklyn, NY 11201

P.S. 196 Upper Academy-
Sandy Ferguson, Local Instructional Superintendent,
207 Bushwick Ave.
Brooklyn, NY 11206

P.S. 196 Ten Eyck
Sandy Ferguson, Local Instructional Superintendent,
207 Bushwick Ave.
Brooklyn, NY 11206

Holy Trinity Church-
138 Montrose Ave.
Brooklyn, NY 11206

Fennel Day Care Center-
175 Moore St.
Brooklyn, NY 11206

Graham Child Care Center
222 Graham Ave.
Brooklyn, NY 11206

4.7 Adjacent Residents

Based upon observations of the adjacent buildings apparently, no adjacent residences exist.

5.0 DOCUMENT REPOSITORY

The following location has been established to provide the public with convenient access to documents and other information about the Site:

Brooklyn Public Library
Bushwick Branch
340 Bushwick Avenue
Brooklyn, NY 11206

The following documents have been deposited at the repository for public access and availability for comment:

- Brownfield Cleanup Program Application;
- Phase I Environmental Site Assessment Report; and
- Phase II Site Investigation Report.

New York State Department of Environmental Conservation

Appendix A – Glossary and Acronym List

This glossary defines important terms associated with New York's Brownfield Cleanup Program. Words in **bold** in the definitions are defined elsewhere in the glossary.

Applicant	A person whose request to participate in the Brownfield Cleanup Program has been accepted by NYSDEC.
Availability Session	A scheduled gathering of program staff and members of the public in a casual setting, without a formal presentation or agenda but usually focusing on a specific aspect of a brownfield site's remedial process.
Brownfield; Brownfield Site	Any real property, the redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant or contaminant.
Brownfield Site Cleanup Agreement	An agreement executed by an **Applicant** and NYSDEC for the purpose of completing a **brownfield site remedial program.**
Brownfield Site Contact List	A list of persons, government agencies, groups, or organizations, including, but not limited to the chief executive officer and zoning board of each county, city, town and village in which such site is located, the public water supplier which serves the area in which such site is located, any site residents, any person who has requested to be placed on the site contact list, and the administrator of any school or day care facility located on the site for the purposes of posting and/or dissemination at the facility. The size of a contact list and the categories included beyond those required by law may be influenced by population density, degree of interest in a brownfield site, the stage or complexity of the remedial process and other factors.
Certificate of Completion	A document issued by NYSDEC to an **Applicant** after NYSDEC determines that **remediation** requirements have been met or will be met within a certain time frame for a **brownfield site.** A Certificate of Completion releases an **Applicant** from liability to the State for **contamination** at or coming from the **brownfield site.** The Certificate allows the **Applicant** to redevelop the **brownfield site,** and makes it eligible for tax credits to offset costs of **remedial activities** and for redevelopment.

Citizen Participation	A program of planning and activities to inform and involve individuals, organizations, and government officials regarding the **investigation** and **remediation** of a **brownfield site**.
Citizen Participation (CP) Plan	A document which is developed at a brownfield site's **Remedial Investigation** stage. A CP Plan describes the citizen participation activities that will be conducted during a brownfield site's remedial process. These activities are prescribed by State law and may be supplemented with additional activities based on the nature of the brownfield site, the site's remedial program, and public interest.
Citizen Participation Specialist	A staff member from NYSDEC who has specialized training and experience to assist a **project manager** and other staff to plan, conduct and evaluate a site-specific **citizen participation** program.
Comment Period	A time period for the public to review and comment on a draft document or proposal related to the **investigation** or **remediation** of a **brownfield site**. For example, a 45-day comment period is provided when NYSDEC issues a draft **Remedial Work Plan** (RWP).
Contamination; Contaminated	The presence of a hazardous waste or petroleum in any environmental media, including soil, surface water, groundwater, air, or indoor air.
Division of Environmental Remediation (DER)	A major program unit within the New York State Department of Environmental Conservation which has primary responsibility for managing the Brownfield Cleanup Program. Staff include engineers, geologists, chemists, attorneys, environmental program specialists and support staff.
Document Repository	A repository of **brownfield site remedial program** documents approved by NYSDEC or released for public notice established in a publicly accessible building near the location of such **brownfield site**.
Engineering Control	Any physical barrier or method employed to actively or passively contain, stabilize, or monitor hazardous waste or petroleum, restrict the movement of hazardous waste or petroleum to ensure the long-term effectiveness of a **remedial program**, or eliminate potential exposure pathways to hazardous waste or petroleum. Engineering controls include pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.
Fact Sheet	A written discussion about part or all of a brownfield site's remedial process. A fact sheet may focus on a particular element of the brownfield site's **remedial program**; opportunities for **citizen participation**; availability of a report or other information, or announcement of a **public meeting** or **comment period**. A fact sheet may be mailed to all or part of a **brownfield site contact list**, distributed at a **public meeting**, placed in a **document repository** and/or sent on an "as requested" basis.

Institutional Control	Any non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a **remedial program** or with the effectiveness and/or integrity of **operation, maintenance, and monitoring** activities at or pertaining to a **brownfield site.**
Interim Remedial Measure (IRM)	Activities to address both emergency and non-emergency site conditions, which can be undertaken without extensive **remedial investigation** and evaluation, to prevent, mitigate, or remedy environmental damage or the consequences of environmental damage attributable to a **brownfield site** These activities include: construction of diversion ditches, collection systems, free product recovery systems, or leachate collection systems; construction of fences or other barriers; installation of water filters; provision of alternative water systems; the removal of free product; or plume control.
Investigation	See **Remedial Investigation.**
New York State Department of Health (NYSDOH)	Agency within the executive branch of New York State government which is responsible for determining that work completed under the Brownfield Cleanup Program is protective of public health for the current, intended and reasonably anticipated future use of the **brownfield site.**
Newspaper Notice	The placement of a prominently located, paid newspaper advertisement in the community bulletin section or similar section of a newspaper of general circulation in the vicinity of a **brownfield site** which is the subject of the notice. Such notice shall be in English and in any other language spoken by significant numbers of people within the community.
Operation, Maintenance and Monitoring (OM&M)	A period in which **remedial activities** may be conducted following construction at a **brownfield site** (for example, operation of a "pump and treat" system after it is constructed), or which is performed after a remedial action to assure its continued effectiveness and protection of people's health and the environment. Activities can include site inspections, well monitoring and periodic sampling.
Project Manager	An NYSDEC staff member within the **Division of Environmental Remediation** (usually an engineer, geologist or hydro geologist) who oversees and approves **remedial activities** at a **brownfield site.** The Project Manager works with the **Applicant** and its representatives, legal, health, **citizen participation** and other staff to accomplish brownfield site-related goals and objectives.
Public Meeting	A scheduled gathering of **Division of Environmental Remediation** staff with the affected/interested public to give and receive information, ask questions and discuss concerns about a brownfield site's **remedial program** Staff from other NYSDEC divisions, legal and health staff, and staff from consultants and the applicant may also attend. A public meeting, unlike an **availability session,** generally features a formal presentation and a detailed agenda.

Remedial Action Report (RAR)	A document prepared by an **Applicant** and subject to approval by NYSDEC after the **Applicant** completes **remedial activities** at a **brownfield site** The RAR describes the **remedial activities** completed and certifies that **remediation** requirements have been achieved or will be achieved within a certain time frame.
Remedial Action Work Plan (RAWP)	A document identical to the **Remedial Work Plan** described below, with the addition of site-specific technical plans for the **remedial activities** proposed to address **contamination** related to a **brownfield site.**
Remedial Construction	The physical development, assembly and implementation of the remedial alternative selected to remediate a **brownfield site.** Remedial construction may follow a separate **remedial design** stage.
Remedial Design	At some **brownfield sites,** remedial action selected to address **brownfield site contamination** is sufficiently complex that a separate design phase is required. Remedial design activities result in detailed specifications for **remedial construction.**
Remedial Investigation (RI)	The **remedial activities** performed at a **brownfield site** to: define the nature and extent of **contamination;** identify the source(s) of **contamination;** assess the impact of the **contamination** on public health and/or the environment; and provide information to support development of a **Remedial Action Work Plan** to address the **contamination.**
Remedial Investigation (RI) Report	A document prepared by an **Applicant** and subject to approval by NYSDEC which summarizes the results of a **remedial investigation** and recommends action (or no action) to address **contamination** at a **brownfield site.**
Remedial Investigation (RI) Work Plan	A document prepared by an **Applicant** and subject to approval by NYSDEC which sets forth the **remedial activities** to be conducted during a **remedial investigation.**
Remedial Work Plan (RWP)	A document prepared by an **Applicant** and subject to approval by NYSDEC which describes how the **Applicant** would address **contamination** related to a **brownfield site** The RWP represents the decision document for the remedy selection process for a **brownfield site.** The document identifies cleanup levels to be obtained, explains why the remedial activities recommended would protect public health and the environment, and would provide a detailed description of the proposed remedy.
Remediation; Remedial Activities; Remedial Program	All **remedial activities** or actions undertaken to eliminate, remove, treat, abate, control, manage, or monitor hazardous waste or petroleum at or emanating from a **brownfield site.**
Technical Assistance Grant (TAG)	Funding available to an eligible community group to obtain independent technical assistance in interpreting existing environmental information about an eligible "significant threat" site being addressed in the Brownfield Cleanup Program. A TAG is intended to help the grant recipient understand existing environmental data developed about a **brownfield site,** comment on **brownfield site remedial activities** and proposals, and share this information with the public.

ACRONYMS

AAR	--	Alternatives Analysis Report
BCA	--	Brownfield Cleanup Agreement
BCP	--	Brownfield Cleanup Program
CAMP	--	Community Air Monitoring Plan
CP	--	Citizen Participation
CPP	--	Citizen Participation Plan
DEE	--	Division of Environmental Enforcement (within NYSDEC)
DER	--	Division of Environmental Remediation (within NYSDEC)
DNAPL	--	Dense Non-Aqueous Phase Liquid
DT&F	--	New York State Department of Taxation and Finance
ECL	--	New York State Environmental Conservation Law
ENB	--	Environmental Notice Bulletin (published by NYSDEC)
EPA	--	United States Environmental Protection Agency
IC/EC	--	Institutional Control/Engineering Control
IRM	--	Interim Remedial Measure
mg/kg	--	milligrams per kilogram
NAPL	--	Non-Aqueous Phase Liquid
NYSDEC	--	New York State Department of Environmental Conservation
NYSDOH	--	New York State Department of Health
OM&M	--	Operation, Maintenance and Monitoring
OSHA	--	Occupational Safety and Health Administration
PAH	--	Poly-Aromatic Hydrocarbon
PCB	--	Poly-Chlorinated Biphenyl
PM	--	Project Manager
ppm/ppb/ppt	--	parts per million/parts per billion/parts per trillion
QA/QC	--	Quality Assurance/Quality Control
RA	--	Remedial Action
RAR	--	Remedial Action Report
RAWP	--	Remedial Action Work Plan
RD	--	Remedial Design
RFP	--	Request for Proposals
RI	--	Remedial Investigation
RIR	--	Remedial Investigation Report
SCG	--	Standards, Criteria and Guidance
RWP	--	Remedial Work Plan
SEQRA	--	State Environmental Quality Review Act
TAG	--	Technical Assistance Grant
ug/l	--	micrograms per liter
VOC	--	Volatile Organic Compound

APPENDIX F

HEALTH AND SAFETY PLAN

REMEDIAL ACTION
HEALTH AND SAFETY PLAN

Prepared For

PROPOSED MEHADRIN DAIRY
BROOKLYN, NEW YORK

NYSDEC BCP SITE No. C224102

Prepared by:

BL COMPANIES, INC.
355 RESEARCH PARKWAY
MERIDEN, CONNECTICUT 06450

To the best of my knowledge this Health and Safety Plan (HASP) meets the applicable OSHA standards, project specifications, and industry standards for good health and safety practices. Furthermore, this HASP provides both organizational responsibility and employee procedure to ensure that work can be conducted safely and effectively.

Guy F. LaBella, PhD, PE, LEP

EMERGENCY TELEPHONE NUMBERS

A. Local Emergency Numbers

Police Department	911
Fire Department	911
Ambulance	911

B. Project Emergency Numbers

BL Companies, Inc.	(203) 630-1406
Mehadrin Dairy	(718) 456-9494
General Contractor (Albert Lieberman Construction)	(973) 904-0213

C. Hospital Location and Directions

Nearest Hospital: Woodhull Hospital (718) 388-3627
850 Grand Street
Brooklyn, NY

Leave Site going west on McKibbin Street toward White Street. Go approximately 0.2 mile and take right onto Bushwick Avenue. After approximately 0.4-mile, take right onto Grand Street. Woodhull Hospital is on the right (See Appendix G for map/directions).

D. Additional Phone Numbers

NYSDEC Spill Hotline	(518) 457-7362
NYSDEC, Environmental Conservation Police	(718) 482-4885
U.S. EPA Emergency Response	(800) 424-8802
Poison Control Center	(800) 343-2722
Con Edison Emergency	(800) 752-6633
Keyspan Energy	(718) 643-4050
AT&T Emergency Phone	(800) 222-3000
SNET Repair Service	(800) 922-4646

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I. INTRODUCTION

The following site specific Remedial Action Health & Safety Plan (RAHASP) describes standard operating procedures for worker protection to be followed during remediation activities conducted as part of the construction activities at the properties located at 353 McKibbin Street, Brooklyn, Kings County, New York (the Site). This RAHASP was prepared for Albert Lieberman Construction (ALC) by BL Companies, Inc. (BL Companies), Meriden, Connecticut. The protocols and procedures described below apply directly to the BL Companies' employees, ALC employees, and subcontractors while conducting remediation activities (including excavating, material handling, backfilling, and remedial cover system installations) associated with the remediation of the Site.

Employees of ALC, BL Companies and all subcontractors involved with the remediation will be familiar with the contents of the RAHASP prior to entry into an on-Site Contaminant Reduction Zones or Exclusion Zone (as described in Section XV). A copy of this plan will be posted on-Site at all times during Site remedial action operations.

Subsurface investigations conducted at the Site by BL Companies included the sampling and laboratory analyses of on-Site soil and ground water. The results of the investigations indicate that Site soils and ground water are contaminated with volatile organic compounds (VOCs), semi-volatile organic compounds/polycyclic aromatic hydrocarbons (SVOCs/PAHs), and metals, and remediation of the Site is necessary. The proposed remediation and construction activities will result in disturbing these contaminated soil and groundwater.

The purpose of this RAHASP is to communicate potential and known health and safety hazards that may be encountered during the remediation of the Site, and establish personnel protection standards and mandatory safety practices and procedures. If additional environmental heath and safety concerns are identified during any phase of this project, the RAHASP will be revised to address these concerns. Employees' and subcontractors involved in Site remedial action operations will be apprised of the changes and provided with a copy of the revised RAHASP. Health and safety measures, including engineering controls, personal protective equipment and worker decontamination, decontamination of equipment, and personnel training are outlined in this RAHASP and must be adhered to in order to reduce health and safety risks to personnel working in a remediation work zone. The provisions of the plan are mandatory for all on-Site personnel. Any supplemental plans used by contractors or subcontractors shall conform to this plan as a minimum. All personnel who engage in project remedial action activities must be familiar with this plan, comply with its requirements, and sign the Plan Acceptance Form (Appendix A), prior to working at the Site. The Plan Acceptance Form must be submitted to the BL Companies on-Site Project Engineer. This RAHASP does not describe worker protection for all construction activities. ALC is responsible for developing a HASP for all non-remedial activities not covered by this RAHASP (e.g., footing installation, crane operations).

II. STATEMENT OF SAFETY AND HEALTH POLICY

This RAHASP has been developed to provide guidance for compliance to the standards set forth in the Occupational Safety and Health Administration (OSHA), 29 Code of Federal Regulations (CFR) 1926 (29CFR 1926), *Safety and Health Regulations for Construction*. This RAHASP was also developed in accordance with OSHA 29 CFR 1910.120 *Hazardous Waste Site Operations and Emergency Response*, which has been formerly incorporated into 29 CFR 1926.65. The policies and procedures described within the RAHASP are based upon existing information pertinent to the project and available to BL Companies at the time the RAHASP was prepared, as well as BL Companies' past experience with similar projects.

BL Companies does not guarantee the Health and Safety of any person(s) entering the Site. Due to the potential for the presence of hazards at the Site and the proposed activities scheduled to occur within the boundaries of the Site, it is not possible to discover, evaluate, and provide protection from all potential hazards that may be encountered. Strict adherence to the specific items and procedures outlined in the RAHASP are intended to reduce, but not eliminate, the potential for injury to persons at the Site. Therefore, the guidelines outlined in this RAHASP are intended for this Site and should not be applied to other sites.

III. SITE INFORMATION AND CONTAMINATION CHARACTERIZATION

This project consists of the excavation of material for the installation of a portion of the building foundations, excavation of several contamination areas that extend below the excavation depth required for the construction of the building, and the redevelopment of the Site as a Mehadrin Dairy food warehouse and distributing facility. Contaminated soil and ground water must be handled and managed in accordance with all local, state and federal laws, and the means and methods described in the Remedial Action Work Plan for the Site.

BL Companies collected and analyzed numerous soil and ground water samples from the Site. The analytical results of these samples indicate that VOCs, SVOCs, and metals are present in sub-surface soils at the Site at concentrations that exceed New York State Department of Environmental Conservation (NYSDEC) TAGM #4046 Recommended Soil Cleanup Objectives. Therefore, contaminated material excavated from the Site will require special handling, disposal, and documentation.

IV. SAFETY AND HEALTH RISK ANALYSIS

The overall health and safety risks from remedial action activities for this project are considered low due to the concentration of contaminants detected in the proposed construction and contamination areas. Potential exposure media includes vapors, dust, soil particulates, and groundwater. Potential exposure routes include inhalation, absorption, ingestion and contact.

Note: NIOSH develops and periodically revises Recommended Exposure Limits (REL) for hazardous substances or conditions in the workplace. OSHA promulgates and enforces Permissible

Exposure Limits (PELs) for hazardous substances in the workplace; Threshold Limit Values (TLVs) and Short Term Exposure Limits (STELs) are recommendations of the American Conference of Governmental Industrial Hygienists (ACGIH); PELs and TLVs are normally compared to 8-hour TWA exposures. IDLH - immediately dangerous to life and health. ST = short-term exposure; C15 = ceiling 15-min (e.g.); 5 min (2) = 5 minute max peak in any 2 hours (e.g.); 10 min = 10 minute max peak; A3 = animal carcinogen (ACGIH); Ca = potential occupational carcinogen (NIOSH), A4 = not classifiable as a carcinogen (ACGIH); A1 = confirmed human carcinogen (ACGIH); A2 = suspected human carcinogen.

The following contaminants were detected in the material analyzed during BL Companies remedial investigations completed between August 2005 and January 2006.

1. Semi-Volatile Organic Compounds (SVOCs)/Polynuclear Aromatic Hydrocarbons (PAHs)

The following SVOCs/PAHs were detected in soils at the Site. The concentration range and the sample that exhibited the highest concentration are presented for each detected compound.

- 2-Dimethylphenol, ND – 570 ppb (GP-2, 7-8 ft bgs)
- 2-Methylnaphthalene, ND – 24,000 ppb (GP-16, 18-20 ft bgs)
- 2-Methylphenol, ND – 230 ppb (GP-2, 7-8 ft bgs)
- 4-Methylphenol, ND – 750 ppb (GP-2, 7-8 ft bgs)
- Acenaphthene, ND – 4,800 ppb (GP-10, 6-8 ft bgs)
- Acenaphtylene, ND - 620 ppb (MW-1, 15-22 ft bgs)
- Anthracene, ND – 1,900 ppb (GP-6, 4-6 ft bgs)
- Benzo(a)anthracene, ND – 3,600 ppb (GP-6, 4-6 ft bgs)
- Benzo(a)pyrene, ND – 3,300 ppb (GP-6, 4-6 ft bgs)
- Benzo(b)fluoranthene, ND – 3,800 ppb (GP-6, 4-6 ft bgs)
- Benzo(g,h,i)perylene, ND – 2,500 ppb (GP-6, 4-6 ft bgs)
- Benzo(k)fluoranthene, ND – 1,500 ppb (GP-6, 4-6 ft bgs)
- Bis(2-ethylhexyl)phthalate, ND – 810 ppb (MW-1, 5-7 ft bgs)
- Butyl benzyl phthalate, ND – 170 ppb (GP-6, 4-6 ft bgs)
- Carbazole, ND – 540 ppb (GP-2, 7-8 ft bgs)
- Chrysene, ND – 3,400 ppb (GP-6, 4-6 ft bgs)
- Dibenzofuran, ND – 2,000 ppb (GP-10, 18-20 ft bgs)
- Fluoranthene, ND – 8,000 ppb (GP-6, 4-6 ft bgs)
- Fluorene, ND – 8,200 ppb (GP-10, 6-8 ft bgs)
- Indeno(1,2,3-cd)pyrene, ND – 2,000 ppb (GP-6, 4-6 ft bgs)
- Naphthalene, ND – 2,600 ppb (GP-2, 7-8 ft bgs)
- Phenanthrene, ND – 23,000 ppb (GP-10, 6-8 ft bgs)
- Pyrene, ND – 8,200 ppb (GP-10, 6-8 ft bgs)
- Dibenzo(a,h)anthracene, ND – 580 ppb (GP-6, 4-6 ft bgs)
- Di-n-butyl phthalate, ND – 170 ppb (GP-13, 18-20 ft bgs)

The following are available exposure limits for releases into the air:

TLV as coal tar pitch volatiles: 0.2 mg/m^3 A1
PEL: 0.2 mg/m^3
REL:0. 1 mg/m^3 Ca
IDLH: 80 $mg/m^{3\ Ca}$

2. Volatile Organic Compounds (VOCs)

The following VOCs were detected in soils at the Site. The concentration range and the sample that exhibited the highest concentration are presented for each detected compound.

- 1,1,2-Trichloroethane, ND – 26 ppb (Gp-3, 7-8 ft bgs)
- 1,1,2,2-Tetrachloroethane, ND – 1,100 ppb (GP-10, 18-20 ft bgs)
- 1,1-Dichloroethene, ND – 8.8 ppb (GP-3, 7-8 ft bgs)
- cis-1,2-Dichloroethene, ND – 81,000 ppb (GP-23, 5-10 ft bgs)
- 4-Methyl-2-pentanone, ND – 62 (GP-3, 7-8 ft bgs)
- Acetone, ND – 1,800 ppb (GP-23, 5-10 ft bgs)
- Benzene, ND – 57 ppb (GP-3, 7-8 ft bgs)
- Carbon Disulfide, ND – 110 ppb (GP-3, 7-8 ft bgs)
- Chlorobenzene, ND – 110 ppb (GP-10, 18-20 ft bgs)
- Ethylbenzene, ND – 6,200 ppb (GP-33, 5-10 ft bgs)
- 1,2,4-Trimethylbenzene, ND – 48,000 ppb (GP-33, 5-10 ft bgs)
- 1,3,5-Trimethylbenzene, ND – 6,500 ppb (GP-33, 5-10 ft bgs)
- Methyl ethyl ketone, ND – 750 ppb (GP-3, 7-8 ft bgs)
- Toluene, ND – 850 ppb (GP-3, 7-8 ft bgs)
- Trichloroethene, ND – 250,000 ppb (GP-2, 7-8 ft bgs)
- Tetrachloroethene, ND – 240 ppb (GP-3, 7-8 ft bgs)
- trans-1,2-Dichloroethene, ND – 1,200 ppb (GP-23, 5-10 ft bgs)
- Total xylenes, ND – 2,700 ppb (GP-33, 5-10 ft bgs)

The following are available exposure limits for releases into the air using benzene as the primary compound of concern:

TLV as benzene: 0.2 mg/m^3 A1
PEL: 1 mg/m^3
REL:0. 1 mg/m^3 Ca
IDLH: 500 mg/m^3

3. Inorganic Metals

Various metals were detected at the Site. The concentrations of some of the detected metals exceeded the applicable standards and/or background levels for the Eastern United States and are discussed below.

Aluminum: The highest concentration of aluminum detected in the soil sampled was 13,200 mg/kg. According to the NYSDEC TAGM #4046 criteria, soil is considered contaminated with aluminum at a concentration that exceeds the site background concentration established for the Eastern United States of between 7,000 – 10,000 mg/kg.

The following are exposure limits for aluminum released into the air:
REL: 10 mg/m^3
PEL: 15 mg/m^3
IDLH: Not Determined

Physical Description: Metal: Silvery-white, malleable, ductile, odorless metal.

Antimony: The highest concentration of antimony detected in the soil sampled was 4.4 mg/kg. This concentration is below the NYSDEC TAGM #4046 criteria of 8.8 mg/kg. It should be noted that antimony was also detected in the trip blank.

The following are exposure limits for antimony released into the air:
REL: 0.5 mg/m^3
PEL: 0.5 mg/m^3
IDLH: 50 mg/m^3

Physical Description: Silver-white, hard, lustrous, brittle, solid; scale-like crystals; or a dark gray, lustrous powder.

Arsenic: The highest concentration of arsenic detected in the soil sampled was 8.0 mg/kg. This concentration is within the site background concentrations typically found in the Eastern United States, which range from less than 0.1 mg/kg to 73 mg/kg.

The following are exposure limits for arsenic released into the air:
REL: 0.002 mg/m^3
PEL: 0.01 mg/m^3
IDLH: 5 mg/m^3 (Pb)

Physical Description: Appearance varies depending on the specific cadmium compound, but is typically silver-gray or tin white, brittle, and odorless.

Cadmium: The highest total concentration detected in the soil sampled was 3.1 mg/kg. This concentration is within the site background concentrations typically found in the United States, which range from 0.07 mg/kg to 4.4 mg/kg.

The following are exposure limits for cadmium compounds:
REL: None
PEL: 0.005 mg/m^3
IDLH: 9 mg/m^3 (as Cd) (Ca)
TLV: 0.003 mg/m^3 (A2)

Physical Description: Appearance varies depending on the specific cadmium compound, but is typically silver-white, blue-tinged, lustrous, and odorless. Exposure media includes dust and/or solid particles.

Chromium: The highest concentration of total chromium detected in the soil sampled was 70.9 mg/kg. This concentration falls within the site background concentrations typically found in the Eastern United States, which range from 1 to 1,000 mg/kg.

The following are exposure limits for chromium released into the air:
REL: 0.5 mg/m^3
PEL: 1 mg/m^3
IDLH: 250 mg/m^3

Physical Description: Blue-white to steel-gray, lustrous, brittle, hard, odorless solid.

Cobalt: The highest concentration of cobalt detected in the soil sampled was 8.4 mg/kg. This concentration falls within the site background concentrations typically found in the Eastern United States, which range from less than 3 mg/kg to 70 mg/kg.

The following are exposure limits for cobalt released into the air:
REL: 0.05 mg/m^3
PEL: 0.1 mg/m^3
IDLH: 20 mg/m^3

Physical Description: Odorless, silver-gray to black solid.

Copper: The highest concentration of copper detected in the soil sampled was 298 mg/kg. This concentration falls within the site background concentrations typically found in the Eastern United States, which range from less than 1 mg/kg to 70 mg/kg.

The following are exposure limits for copper released into the air:
REL: 1 mg/m^3
PEL: None
IDLH: 100 mg/m^3

Physical Description: Reddish, lustrous, malleable, odorless solid.

Lead: The highest concentration of lead detected in the soil sampled was 505 mg/kg. According to the Federal EPA, Residential Direct Exposure Criteria, soil is considered contaminated with lead at a total concentration greater than 400 mg/kg. NYSDEC TAGM #4046 limits are based on site background levels.

The following are exposure limits for lead released into the air:
REL: 0.100 mg/m^3
PEL: 0.050 mg/m^3
IDLH: 100 mg/m^3 (Pb)

Physical Description: Metal: A heavy ductile, soft gray solid. Exposure media includes dust, soil particulates, and as dissolved in water.

Manganese: The highest total concentration of manganese detected in the soil samples was 5,510 mg/kg. This falls within the site background concentrations typically found in the Eastern United States, which range from less than 2 mg/kg to 7,000 mg/kg.

The following are exposure limits for manganese released into the air:
REL: 1 mg/m^3
PEL: 5 mg/m^3
IDLH: 500 mg/m^3 (Pb)

Physical Description: Metal: a lustrous, brittle, silvery solid.

Mercury: The highest total concentration detected in the soil sampled was 5.3 mg/kg. According to the NYSDEC TAGM #4046 criteria, soil is considered contaminated with mercury at a total concentration of 0.1 mg/kg.

The following are exposure limits for inorganic mercury released into the air:
REL Ceiling: 0.1 mg/m^3 (skin)
PEL Ceiling: 0.10 mg/m^3
IDLH: 10 mg/m^3 (Hg)

Physical Description: Metal: Appearance and odor vary depending on the specific alkyl mercury compound.

Nickel: The highest total concentration of nickel detected in the soil sampled was 22.4 mg/kg. This concentration falls within the site background concentrations typically found in the Eastern United States, which range from less than 5 mg/kg to 700 mg/kg.

The following are exposure limits for nickel released into the air:
REL: 0.015 mg/m^3
PEL: 1 mg/m^3
IDLH: 10 mg/m^3

Physical Description: Metal: lustrous, silvery, odorless solid.

Silver: Silver was detected in one sample at a concentration of 0.38 mg/kg. This concentration falls within the site background concentrations typically found in the United States, which range from 0.2 mg/kg to 14.8 mg/kg. It should be noted that silver was also detected in the trip blank.

The following are exposure limits for silver released into the air:
REL: 0.01 mg/m^3
PEL: None

IDLH: 10 mg/m^3

Physical Description: Metal: white, lustrous, solid.

Vanadium: The highest concentration of vanadium detected in the soil sampled was 43.6 mg/kg. This concentration falls within the site background concentrations typically found in the Eastern United States, which range from less than 7 mg/kg to 300 mg/kg.

The following are exposure limits for vanadium dust released into the air:
REL: 0.05 mg/m^3
PEL: 0.5 mg/m^3
IDLH: 35 mg/m^3

Physical Description: Yellow-orange powder or dark gray, odorless flakes dispersed in air.

Of the detected on-Site volatile chemicals, benzene has the lowest Permissible Exposure Limit (PEL) as set by OSHA and hence sets the action limit for monitoring with a Photoionization Detector (PID). PAHs and metals could pose significant health threats if ingested or inhaled as a dust. On-site personnel will make efforts to avoid activities that could generate potentially contaminated dust, and work upwind of soils and groundwater during remedial excavation activities

In addition to the compounds detected on Site, some of the solvents used in decontamination of equipment are potentially hazardous to human health if they are not used properly. Material Safety Data Sheets for substances that will be used on Site and a select number of Site contaminants are included in Appendix B.

V. HAZARD ANALYSIS

The hazard analysis for this project is based upon the anticipated risk posed by the proposed remedial activities. The following is a summary of each anticipated activity, associated hazard(s), and methods to minimize and/or prevent these hazards:

Typical hazards associated with movement within the Site include: tripping hazards from uneven surfaces and vegetation; exposure to plants such as poison ivy and pricker bushes (which may cause allergic reactions); wildlife hazards such as ticks (Lyme Disease), mosquitoes, bees, snakes, and rodents; exposure to on-Site chemicals and contaminants; accidents with on Site equipment and/or vehicles; heat stress; and back strain due to improper lifting of heavy loads.

The following techniques will help prevent/minimize these hazards: "be alert while walking across the Site, wear steel toed/shank construction boots, wear long pants and sleeved garments to protect against plants and wildlife; avoid wildlife such as snakes, bees and rodents; inspect driving route before moving equipment and/or vehicles, notify persons working in the area when moving equipment; wear seat belts whenever moving a vehicle; implement a heat stress reduction/monitoring program; and use proper lifting techniques to avoid back strain."

Site specific hazards that may be encountered during monitoring, sampling, excavation and material handling and management activities include: exposure to harmful chemicals, and/or contaminants; electrical hazards from power sources, handling glass containers, exposure to loud noises, and overhead hazards from heavy equipment.

These hazards can be prevented by using trained personnel for air monitoring and sample collection, using ground fault interrupters, using well maintained equipment, not using electrical equipment in wet or flammable areas, being aware of the action levels for the chemical contaminants on Site, wearing personal protective equipment, and reading and understanding the RAHASP.

VI. RESPONSIBILITIES

The following personnel are designated to perform the stated Site activities and provide proper communications in the event of an emergency or need for medical attention.

Project Manager
John Bogdanski, MS, PG, BL Companies, Inc.

Health and Safety Manager
Guy F. LaBella, PhD, PE, CHMM, LEP, BL Companies, Inc.
Qualifications: Completed 40-hour and Annual 8-hour Refresher "HAZWOPER" Training
Completed 8-hour Site Supervisor Training
National Association of Safety and Health Professionals- Certified Hazardous Materials Manager (CHMM)
Professional Engineer, Licensed Environmental Professional
Experience in performing air-monitoring activities on numerous construction sites utilizing PIDs, FIDs, Dust Meters, Personal Sampling Pumps, Oxygen & Combustible Gas Meters, and Portable Gas Chromatograph
Certified First Aid and CPR

Health and Safety Officer/ Site Safety Officers
BL Companies (TBA)
Qualifications: Completed 40-hour and Annual 8-hour Refresher "HAZWOPER" Training
Completed 8-hour Site Supervisor Training

Experience in performing air-monitoring activities on numerous construction sites utilizing PIDs, Dust Meters, Personal Sampling Pumps, Oxygen & Combustible Gas Meters, and Portable Gas Chromatograph

The responsibility of the Health and Safety Manager is to review and approve the RAHASP, and update the RAHASP (as necessary) based on data collected during remedial activities.

Enforcement of this RAHASP will be the responsibility of the Site Safety Officer (SSO) and/or the Health and Safety Officer (HSO) designated for the Site, or in their absence, a designated, qualified replacement. The same person may fill the HSO and the SSO position. Employees of BL Companies, ALC, subcontractors, or their employees may be excluded from the Site at the discretion of the HSO or the SSO, should a violation of the protocols established in this Health and Safety Plan occur.

While working within any active soil or groundwater handling or other non-"clean" area during the remediation of the Site, the HSO/SSO will report to the Project Manager on a daily basis regarding the conformance to the protocols outlined in the RAHASP. The primary responsibilities of the HSO/SSO are:

- Ensure that all BL Companies personnel, ALC personnel, and subcontractors are familiar with the RAHASP.
- Communicate to BL Companies personnel, ALC personnel, and subcontractors the hazards associated with Site activities within a remediation work zone(s).
- Utilize engineering and administrative controls in order to reduce health and safety risks encountered during project remedial activities.
- Provide personal protective equipment upgrades to BL Companies personnel, when engineering and administrative controls are known to be limited in effectiveness.
- Require that personal protective equipment be properly utilized and maintained by all project personnel.
- Oversee the overall performance of project-related personnel and encourage safe work practices.
- Identify and correct deficiencies and unsafe work practices.
- Conduct field screening and monitoring procedures utilizing direct reading instrumentation in order to identify chemical hazards present in a remediation work zone(s).
- Advise the Project Manager regarding the reclassification of hazards, as well as any changes in the level of personal protective equipment to be worn.
- Direct emergency and evacuation procedures for personnel covered under this RAHASP.

- Issue stop-work orders as necessary.

The responsibilities of the Project Manager include, but are not limited to:

- Determine if BL Companies personnel, ALC personnel, and subcontractors who will work in a remediation work zone, have successfully completed the appropriate educational requirements stipulated in 29 CFR 1926.65, are currently monitored under a medical surveillance program (as required) in compliance with those regulations, and are physically fit for work in Level C conditions.

- Determine availability of personal protective equipment for all BL Companies personnel who will be working in a remediation work zone(s).

- Notify Mehadrin Dairy Corporation of any changes in actual Site conditions.

- Notify Mehadrin Dairy Corporation of the reclassifications of hazards within the remedial construction Site, as well as any changes in the levels of personal protective equipment to be worn.

VII. EMPLOYEE TRAINING

Prior to the initiation of remediation operations on the Site, employees and subcontractors will receive a pre-entry briefing based upon the contents of this plan. This briefing will include at a minimum the following items:

- Verbal description of the Site and hazards present.
- A chemical hazard briefing.
- The location of the nearest emergency communications and emergency facilities and emergency telephone numbers.
- Emergency procedures.
- The identification of hazards that are associated with anticipated tasks of the day
- Hazards specific to the Site, their chemical nature, concentrations present or expected, exposure limits, symptoms of overexposure, and emergency first response first aid.
- The inspection and use of personal safety equipment.
- A discussion of the location of safe areas if emergency evacuation is necessary.
- How to detect/eliminate/prevent hazards through the use of monitoring and control measures.

All on-Site personnel who will be actively involved in the remedial activities must have completed hazardous waste operations-related training, as required by OSHA Regulations 29 CFR 1910.120 and/or 29 CFR 1926.65. Personnel who completed this training more than 12 months prior to the start of the project must have completed an 8-hour refresher course within the past 12 months. Documentation of OSHA training for project personnel must be provided to BL Companies prior to

starting work.

The purpose of the training is to ensure that workers are aware of potential hazards they may encounter, provide knowledge and skills in order to complete tasks with minimal risk to health and safety, provide knowledge of the purpose and limitations of personal protective equipment, develop safe work practices, and inform workers of the requirement of a medical surveillance program, including the recognition of symptoms and signs that might indicate exposure to a hazard.

VIII. PERSONAL PROTECTIVE EQUIPMENT

Standard levels of personal protection have been divided into four categories by the Environmental Protection Agency, OSHA, U.S. Coast Guard, and National Institute for Occupational Safety and Health (NIOSH). These categories have been established according to the level of hazard that personnel may be exposed. These four levels include:

Level A - Provides the highest level of respiratory, skin and eye protection.

Level B - Provides the highest respiratory protection, but lower skin protection than in Level A.

Level C - Provides the same skin protection as Level B, but has lower level of respiratory protection.

Level D - Provides no respiratory protection and minimal skin protection.

When working in a Contaminant Reduction Zone or Exclusion Zone (as described in Section XV, Site Control Measures), the level of personal protective equipment (PPE) worn will be in conformance with this RAHASP. The minimal level of PPE will be level D. All BL Companies personnel, ALC personnel, and subcontractors entering a Contaminant Reduction Zone or Exclusion Zone established for this project are required to wear Level D PPE at all times. This level of protection may be upgraded to a Level C in the event that air-monitoring results indicate a potential exposure risk (as described in Section X of this RAHASP).

Level D PPE includes:

- Standard Work Clothes
- Coveralls/Tyvek*
- Work Gloves
- Steel Toe/Shank Work Boots
- Hard Hat (must be worn during all remediation activities)
- Nitrile or Latex Inner Sampling Gloves (must be worn during all activities requiring contact with soils or groundwater)
- Disposable Outer Boots*
- Safety Glasses/Goggles/Face Shield (goggles/face shield must be worn when splash hazard is present)
- Hearing Protection*

- Approved Safety Vests (when working within the highway R-O-W)

*When Hazards Exist/Optional

The criteria for Level D PPE include:

- No contaminants are present above the concentrations as specified in the Safety and Health Risk Analysis - Section IV of this RAHASP.
- Work functions preclude unexpected contact with, or inhalation of any contaminants.
- No contaminants are known or suspected to be present at the Site that may cause immediate adverse effects upon contact or inhalation.

Level C PPE includes:

- Minimum of 2 Workers
- Steel Toe/Shank Boots
- Hard Hat (must be worn during all remediation activities)
- Full Face or Half Face Respirator with Appropriate Filters as approved by the Site Safety Officer (e.g. Organic vapor cartridge and/or high efficiency particulate filter)
- Chemical Specific Protective Clothing
- Nitrile or Latex Inner Sampling Gloves (must be worn during all activities requiring contact with soils or groundwater)
- Chemical Specific Protective Outer Gloves
- Chemical Specific Protective Outer Boots
- Safety Glasses/Goggles/Face Shield (goggles/face shield must be worn when splash hazard is present)
- Hearing Protection*

*When Hazard Exists/Optional

The criteria for Level C include:

- Oxygen concentrations are not less than 19.5% by volume.
- Contact with atmospheric contaminants will not affect exposed areas of the body.
- Measured concentrations in air of identified constituents will be reduced below the threshold limit value (TLV) by the respirator used and the concentrations are within the service limit of the filter canister and the safety factor provided by the type of respirator used.

In the event that airborne concentrations of Site contaminants exceed the established exposure action levels for Level D work set by this RAHASP (see Section X), OSHA-trained personnel must wear respiratory protective equipment in order to protect workers from hazardous conditions. Every effort will be made to use engineering controls to minimize exposure levels prior to the use of PPE.

However, respiratory equipment should be readily available to personnel at all times. Activities associated with this project are not expected to warrant the use of Level B, or Level A type respiratory equipment.

IX. MEDICAL SURVEILLANCE PROGRAM

A medical surveillance program is required for all employees engaged in operations conducted on hazardous waste sites (29 CFR 1926.65/29 CFR 1910.120). Since environmental investigations conducted on the Site to date did not detect the presence of hazardous concentrations of contaminants, this project is not considered a hazardous waste site. Therefore, BL Companies, ALC, and subcontractors are not required to be under a medical surveillance program unless air monitoring or laboratory analyses determine that the concentrations of contaminants in the remediation work zones exceed the Action Levels established for Level D work. In the event that Level C work is required, all personnel working in a Contaminant Reduction Zone or an Exclusion Zone will be required to provide proof of participation in a medical surveillance program.

X. AIR MONITORING PROGRAM

1. Work Zone Monitoring

Personnel entering the project Site must use adequate safety precautions in order to minimize exposure to contaminants. These precautions include exposure monitoring to characterize potential Site health hazards, determine type of personal protective equipment necessary, and establish standard operating procedures. Air monitoring is one method of obtaining important information on Site hazards. Decisions based upon air monitoring data will be used to determine the level of personal protection.

The HSO/SSO, or assigned designee, will be responsible for air monitoring of worker breathing zones during remediation activities. Identification and quantification of airborne contaminants is the overall objective of the worker breathing zone air-monitoring program. Results obtained from the air monitoring activities will be carefully evaluated and used in the selection of the proper level of personal protection. These data will also help delineate areas where and when personal protection equipment is needed, identify areas where reclassification or upgrading of PPE is necessary, assess potential health effects from contaminant exposure and determine the need for specific medical monitoring of project personnel.

The worker breathing zone air-monitoring program will employ two methods of identifying airborne contaminants. The first method will employ the use of direct reading instruments to obtain "real-time" exposure levels. Direct reading instruments are designed to detect and measure specific classes of chemicals or conditions, and provide information at the time of sampling, thereby enabling rapid decision making. Real time air monitoring will be conducted for VOCs in the worker-breathing zones during soil excavation and handling activities. Monitoring for VOCs will be conducted using a photo-ionization detector (PID) equipped with a 10.6 eV lamp calibrated with isobutylene and referenced to benzene in air. Background PID levels will be taken initially upwind

of the planned remediation work zone(s). Concentrations of volatile organic compounds in the air will be available immediately to personnel so that the appropriate corrective action can be taken.

Certain groups of compounds detected at this Site could present a particulate inhalation hazard (dust) if present in elevated concentrations. Real-time particulate air monitoring will be conducted using a Particulate Material Sampler (MiniRAM PM-10™ or equivalent). This instrument is designed to measure the concentration of airborne particulate matter, liquid or solid, and provides a direct and continuous readout.

Monitoring for explosive atmospheres will be conducted using a lower explosive limit (LEL) meter calibrated with pentane as a reference standard and with the alarm set at 10 percent LEL. Monitoring with the LEL meter are required when the potential for explosive atmospheric sources or methane sources are encountered. Air monitoring will also include the use of an oxygen meter to detect oxygen deficient atmosphere prior to entry into an excavation.

Direct reading instruments will be used continuously during excavation and material handling activities conducted in an Exclusion Zone.

The second method of worker breathing zone air monitoring will supplement the direct reading instruments presented above. Because of the low exposure limits of benzene (1 ppm), the PID does not provide a safe screening method for benzene when used alone. Therefore, PID readings may be supplemented with specific colorimetric indicator tubes (Draegar™, Sensidyne™ or equivalent) to detect the presence of benzene. If PID readings for total VOCs are greater than 1 ppm (sustained for 15 minutes in the workers' breathing zone), colorimetric indicator tubes will be used to measure benzene concentrations in the workers' breathing zone.

In order to make a conservative assessment of when different levels of respiratory protection are needed during the remediation work, it will be assumed that the organic vapors detected by the PID air monitoring instruments consist of the most toxic volatile compounds expected to be found on the Site. Preliminary evaluation of the risks expected at the Site indicates that the most toxic volatiles that are probably present are VOCs. Based on data published by the Occupational Safety and Health Administration (OSHA) and the American Conference of Government Industrial Hygienists (ACGIH), and BL Companies experience with petroleum impacted media, the following PPE will be employed when the given concentrations of organic vapor are detected in the breathing zone for a sustained 15 minutes.

Compound of Concern	**Level D**	**Level C**	**Level B**
Benzene	M<1 ppm	1 ppm<M<25 ppm	M>25 ppm
BTEX and other photoionizable Total VOCs	M <25 ppm	M >25 ppm	*
Where: M = concentration of organic vapor measured in the field			
*Decision to employ Level B protection based on measured benzene concentration			

In the absence of benzene (as indicated by colorimetric indicator tubes), Level C personal protection will be used when total VOCs sustained in the breathing zone exceed 25 ppm. If benzene is

presented at concentrations (sustained in the breathing zone) between 1 and 5 ppm, a half-mask or full-face APR will be used; between 5 and 25 ppm, a full-face APR will be used. Level B personal protection will be used when benzene exceeds 25 ppm.

The PPE requirements may be modified based on compound-specific monitoring results information, with the written approval of the SSO/HSO.

Respiratory protection from dusts will be required when inhalable particulate concentrations from potentially contaminated sources exceed 2.5 mg/m^3 for 15-minute average.

Odors or dusts derived from Site contaminants may cause nausea in some Site workers, even though the contaminants are at levels well below the safety limits as defined above.

Whenever practical, work areas should be positioned upwind of organic vapor and dust sources to reduce the potential for worker exposure.

Only personnel trained in the use of air monitoring equipment and knowledgeable in their limitations will operate these instruments. Data interpretation will be based upon actual field conditions when compared to specific background information. At a minimum, monitoring equipment will be calibrated in the field at the start and end of each day, and whenever equipment operation is questionable. The HSO/SSO will keep a log of the time and date of all field calibrations. An equipment calibration log is presented in Appendix D.

Monitoring data will be recorded and maintained by the HSO/SSO. Notification to BL Companies will be made when airborne contaminant concentrations exceed the action levels set forth in this RAHASP. If the Action Levels are exceeded, all personnel will be required to leave the work area. Only OSHA-trained personnel will be allowed to return to the work area after donning the appropriate PPE. The date, time, location, sampling parameters and instrument readings will be recorded and transferred to the Project Manager for placement into the project files.

2. Exposure Action Levels and Restrictions

Conditions for Level D: Level D protection will be worn for initial entry on-Site and initially for all remediation activities.

- PID readings for total VOCs < 25 ppm and absence of benzene (sustained for 15 minutes in breathing zone), and
- Oxygen readings between 19.5% to 23% is normal[1]
- Combustible Gas readings of <10% Lower Explosive Limit (LEL) is normal (>10 % LEL requires immediate Site evacuation)
- Noise <85 decibels (>85 decibels requires hearing protection)

Note 1: Oxygen deficiency is not corrected with Level C air purifying respiratory protection. Only Level B supplied air respiratory protection provides this correction.

Conditions for Level C: The level of personal protection will be upgraded to Level C if the concentration of volatile organic compounds which can be detected with a photoionization detector (PID) and colorimetric tubes in the breathing zone equals or exceeds the specified action limits and the contaminants of concern have characteristic warning properties appropriate for air purifying respirators (e.g. taste, odor).

- PID readings for total VOCs > 25 ppm (sustained for 15 minutes in breathing zone), or benzene >1 ppm and < 25 ppm (sustained for 15 minutes in breathing zone), or
- Any visible fugitive dust emissions from Site activities that disturb contaminated soil.
- Oxygen readings between 19.5% to 23% is normal[1]
- Combustible Gas readings <10% Lower Explosive Limit (LEL) is normal >10 % LEL requires immediate site evacuation)
- Noise <85 decibels (>85 decibels requires hearing protection)

Note 1: Oxygen deficiency is not corrected with Level C air purifying respiratory protection. Only Level B supplied air respiratory protection provides this correction.

Conditions for Level B (or retreat): If the concentration of volatile organics that can be detected with a PID equals or exceeds the specified action levels, all field personnel associated with the project will immediately retreat to a location up-wind of the source of contamination. At this point the Site Safety Officer must consult with the Health and Safety Manager and/or Project Manager to discuss appropriate actions.

- Benzene (sustained for 15 minutes in breathing zone) > 25 ppm

3. Personal Air Monitoring

Whenever direct monitoring indicates that worker exposure to hazardous substances or physical agents (noise) may be at or above an Action Level, personal air-monitoring methods in accordance with NIOSH/OSHA guidelines may be implemented. Initially, personal air monitoring will be conducted on workers who are most likely to have the highest exposure.

Results of sample analysis can determine changes in personal protective equipment requirements. The HSO/SSO will have the option of discontinuing air monitoring when conditions prove to be adequate in protecting worker health and safety. If personal air monitoring results indicate exposure levels at or above the PEL, personal air monitoring will be expanded to cover all employees in the work area. If noise levels become a concern, a calibrated sound level meter will be used to determine employee exposure levels.

XI. OSHA REQUIREMENTS FOR PERSONAL PROTECTIVE EQUIPMENT

All personal protective equipment used during the course of this remediation must meet the following OSHA standards:

Type of Protection	Regulation	Source
Eye and Face	29 CFR 1910.133 29 CFR 1926.102	ANSI Z87.1-1968
Respiratory	29 CFR 1910.134 29 CFR 1926.103	ANSI Z88.1-1980
Head	29 CFR 1910.135 29 CFR 1926.100	ANSI Z89.1-1969
Foot	29 CFR 1910.136 29 CFR 1926.96	ANSI Z41.1-1967

ANSI = American National Standards Institute

Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.1025; 29 CFR 1910.134).

Based on performance criteria of air purifying respirators, they cannot be worn under the following conditions:

- Oxygen deficiency;
- IDLH concentrations;
- High relative humidity; and
- If contaminant levels exceed designated use concentrations.

XII. COMMUNITY AIR MONITORING PLAN

In accordance with the NYSDEC and NYSDOH requirements, a Community Air Monitoring Plan (CAMP) will be implemented at the Site during the remediation of the Site. The objective of the CAMP is to provide a measure of protection for the downwind community (i.e., off-Site receptors, including residences and businesses and on-Site workers not involved with the remediation activities) from potential airborne contaminant releases as a direct result of remedial activities. Two air-monitoring stations will be set up on Site. VOCs and respirable particulates (PM-10) will be monitored at the downwind perimeter of the immediate work area on a continuous basis. Flags attached to the fence that surround the Site will be used to monitoring wind direction. Upwind concentrations will also be measured continuously to establish background conditions. VOC vapors will be monitored using a photoionization detector (PID). Particulate dust will be monitored using a MiniRAM™ PM-10 (or similar) particulate meter. The equipment will be calibrated at least daily. Fifteen minute running average concentrations will be collected from each of the two air monitoring stations during work activities. The VOC Monitoring Responses Levels and Actions are presented

as follows.

CAMP
Air Monitoring Response Levels and Actions

Response Level	Actions
	VOCs
>5 ppm above background for 15-minute average	▪ Temporarily halt work activities ▪ Continue monitoring ▪ If VOC levels decrease (per instantaneous readings) below 5 ppm over background, work activities can resume
Persistent levels >5 ppm over background <25 ppm	▪ Halt work activities ▪ Identify source of vapors ▪ Corrective action to abate emissions ▪ Continue monitoring ▪ Resume work activities if VOC levels 200 feet downwind of the property boundary or half the distance to the nearest potential receptor is <5 ppm for a 15-minute average ▪ If VOC levels are >25 ppm at the perimeter of the work area, activities must be shutdown
	Particulate
>100 mcg/m3 above background for 15-minute average or visual dust observed leaving the site	▪ Apply dust suppression ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving Site
>150 mcg/m3 above background for 15-minute average	▪ Stop work ▪ Re-evaluate activities ▪ Continue monitoring ▪ Continue work if downwind PM-10 particulate levels are <150 mcg/m3 above upwind levels and no visual dust leaving Site

Sources:
New York State Department of Health Community Air Monitoring Plan, June 20, 2000.
New York State Department of Environmental Conservation Division Technical and Administrative Guidance Memorandum - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites, October 27, 1989.

Continuous air monitoring will be conducted for all ground intrusive activities, including soil/waste excavation and handling, construction debris handling, backfilling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be conducted during non-intrusive activities. Non intrusive activities include the placement of building foundation, collection of surface soil samples, the collection of ground water samples from existing monitoring wells, opening a well cap, well bailing/purging, arriving at the Site, and prior to leaving the Site.

All readings will be recorded and be available for State (NYSDEC and New York State Department of Health (NYSDOH)) personnel to review.

1. Vapor Emission Response Plan

If the ambient air concentration of organic vapors exceeds 5 ppm above background at the Site perimeter of the immediate work area, excavation activities will be halted or odor controls will be

employed, and monitoring continued. If the organic vapor level decreases below 5 ppm above background, excavation activities can resume, provided:

- The organic vapor level 200 ft. downwind of the property boundary or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background, and

- More frequent intervals of monitoring, as directed by the HSO/SSO, are conducted.

If the organic vapor level is greater than 5 ppm above background at the perimeter of the immediate work area, work activities must be shut down or odor controls must be employed. When work shut-down occurs, downwind air monitoring as directed by the HSO/SSO will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

2. Major Vapor Emission

If any organic levels greater than 5 ppm over background are identified 200 feet downwind from the work Site, or half the distance to the nearest residential or commercial property, whichever is less, all work activities must be halted or odor controls must be implemented.

If, following the cessation of the work activities, or as the result of an emergency, organic levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the immediate work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structure (20 Foot Zone). If either of the following criteria is exceeded in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be implemented.

- Sustained organic vapor levels approaching 1 ppm above background for a period of more than 30 minutes, or

- Organic vapor levels greater than 5 ppm above background for any time period.

3. Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

- The local police authorities will immediately be contacted by the HSO/SSO and advised of the situation;

- Frequent air monitoring will be conducted at 30-minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the HSO/SSO; and

- All Emergency contacts will go into effect as appropriate.

XII. HEAT STRESS/COLD STRESS MONITORING

1. Heat Stress

Due to the additional physical and psychological stress of working, employees will be monitored for signs of stress when the ambient temperature in the work area is above 70° F. Frequency of monitoring for signs of stress shall increase as the ambient temperature increases. In addition, a schedule for working in PPE has been included in this RAHASP as a guideline for work time duration should work be anticipated above the expected Level D personal protection. There are four levels of heat stress that workers should be aware of. The following summarizes the four levels of heat stress, their symptoms, and treatment.

A. Heat Rash: the inflammation and clogging of the sweat ducts due to overexposure to heat.

   Symptoms: Appearance of small red vesicles on the skin.

   Treatment: Mild drying of the skin.

B. Heat Cramps: a salt/water imbalance in the body resulting from inadequate replacement of salt in the body after over-exposure to heat.

   Symptoms: Uncontrolled spasms and cramps in muscles, especially in the abdomen.

   Treatment: Consume salted fluids.

C. Heat Exhaustion: mild shock caused by insufficient water and/or salt when exposed to heat for an extended period of time.

   Symptoms: Fatigue, dizziness, weakness, nausea, clammy skin, and paleness.

   Treatment: Go to a cool environment, consume salted fluids.

D. Heat Stroke: dangerous rise in body temperature caused by dehydration and/or lack of salt intake.

Symptoms: Nausea, headache, dizziness, delirium, hot and dry skin, and coma

Treatment: Go to a cool environmental, immerse victim in cold/iced water, fan, seek medical attention.

The monitoring of personnel during work activities can greatly reduce the risk of heat stress during hot and humid weather. To prevent workers from being overcome by heat stress, coolers of chilled water and gatorade-type liquids should be made available to the workers throughout the day. Workers should also be advised to utilize sunscreen and be provided with a cool shaded break area. Additional factors that may increase the risk of heat stress include: obesity, old age, and recent illness or alcohol intake.

RECOMMENDED HEAT STRESS WORK SCHEDULE			
AMBIENT TRANSPORTATION	**PROTECTION LEVEL (USEPA)**	**MAXIMUM WORK* PERIOD (hours)**	**REST* PERIOD (hours)**
Above 90°F	A	.25	.50
	B	.50	.50
	C	.75	.25
85-90°F	A	.50	.25
	B	.50	.25
	C	.75	.20
80-85°F	A	1.0	.25
	B	1.5	.25
	C	2.5	.20
70-80°F	A	1.5	.20
	B	3.0	.15
	C	5.0	.15
60-70°F	A	2.0	.15
	B	4.0	.15
	C	6.0	.15
50-60°F	A	3.0	.15
	B	8.0	0
	C	8.0	0
30-50°F	A	5.0	.10
	B	8.0	0
	C	8.0	0
Below 30°F	A	8.0	0
	B	8.0	0
	C	8.0	0

*Wind chill, relative humidity, work load and physical ability should be taken into consideration.

2. Cold Exposure

Cold injury (frostbite and hypothermia) and impaired ability to work are dangers at low temperatures and when the wind-chill factor is low. Persons working outdoors in temperatures at or below freezing may be frostbitten. Extreme cold for a short period of time may cause severe injury to exposed body surfaces, or result in profound generalized cooling, and causing death. Areas of the body that have high surface area-to-volume ratios, such as fingers, toes, and ears, are the most susceptible.

Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

- Frost nip or incipient frostbite: characterized by suddenly blanching or whiting of the skin.
- Superficial frostbite: skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.
- Deep frostbite: tissues are cold, pale, and solid; and extremely serious injury.

Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperature. Its symptoms are usually exhibited in five stages:

- Shivering,
- Apathy, listlessness, and sleepiness, and sometimes rapid cooling of the body to less than 95 degrees,
- Unconsciousness, glassy stare, slow pulse, and slow respiratory rate,
- Freezing of the extremities, and
- Death.

To guard against cold injury, wear, use appropriate clothing including hand, face and foot- wear; have warm shelter readily available; carefully schedule work and rest periods; and, monitor workers' physical conditions. Loosely layered clothing is preferred because of the added insulating properties from entrapped air between the layers. The fingers, toes, nose tips, ears, and cheeks should be periodically exercised to keep them warm and to detect any numb or hard areas indicative of frostbite. However, once frostbite occurs, the preferred method of thawing is gradual rewarming by placing body surfaces against the frostbitten part. Workers should use the "buddy system" to detect signs of frostbite on co-workers.

XIV. STANDARD OPERATING SAFETY PROCEDURES & ENGINEERING CONTROLS

All personnel working in the remediation work zones will adhere to the items outlined in this RAHASP.

A Plan Acceptance Form is included in Appendix A of this RAHASP and will be signed by all personnel indicating they have read and understand the contents. A daily health and safety meeting will be held at the Site to discuss concerns or hazards anticipated during the day's activities. Project personnel will notify the HSO/SSO of any unsafe condition or practices at the Site so that the condition or practice can be remedied.

Engineering controls will be utilized whenever possible in order to reduce the potential for exposure to hazards, and so that changes in upgrades of personnel protective equipment and work zone delineation can be prevented. An example of a typical engineering control consists of wetting down soils with water in order to reduce airborne dust generated during construction activities and thereby reducing or eliminating the need for respiratory protection. In addition, having workers stay upwind of potential airborne contaminants is another engineering control utilized to reduce worker exposure.

XV. SITE CONTROL MEASURES

To reduce the spread of contaminated materials by workers from the contaminated areas to the "clean" areas, remediation work zones will be delineated at the Site. The flow of personnel between the remediation work zones should be controlled. The establishment of the work zones will help to ensure that personnel are properly protected against the hazards present where they are working, work activities and contamination are confined to the appropriate areas, and personnel can be located and evacuated in an emergency. In addition, "zones" will be established to control entry by unauthorized and/or untrained personnel into these areas. The health and safety of project related personnel are the overall objective when establishing protective zones. The SSO/HSO will determine these zones.

1. Support Zone

The Support Zone will be kept free of any contaminated material and is usually used for equipment storage and assembly. Support personnel are staged in this area along with vehicles and equipment not required in the remediation work area that has been designated as contaminated. The location of the support zone will be determined by the HSO/SSO after he/she evaluates the contaminant hazard, exposure potential, wind direction and speed, topography, visibility, or other factors that may impact personnel located in this zone.

2. Contaminant Reduction Zone

The Contaminant Reduction Zone is the area between the Support Zone and the area designated as contaminated (Exclusion Zone). This area is a transition zone and initially is uncontaminated. Decontamination equipment is located in the Contaminant Reduction Zone and decontamination

procedures are executed in this zone for all personnel, equipment and materials passing to the Support Zone. Separate decontamination areas will be provided for personnel and equipment. The Contaminant Reduction Zone will also provide support to non-construction activities such as sample preparation and packaging. The staging of equipment and personnel who will assist workers in the area of contamination also takes place in this zone. No smoking, eating, chewing gum or tobacco, drinking, taking medicine, or application of cosmetics (including chapstick and sunscreen) will be permitted in the Contaminant Reduction Zone. These materials, in addition to lighters or matches will not be allowed in this zone.

3. Exclusion Zone

The contaminated area is known as the Exclusion Zone and is the area in which actual intrusive activities and material handling are performed. All personnel within the Exclusion Zone will be required to user the specified level of protection. In the event of volatile organics are detected in the breathing zone as discussed in Section X, all personnel within the Exclusion Zone must don Level C protection. Exclusion zones will also be established during any activity when Level C protection is established as a result of conditions discussed in Section X. No person will be allowed to enter the Exclusion Zone without authorization from the SSO/HSO. Activities within the Exclusion Zone will be monitored continuously in order to prevent exposure to contaminants. Entrance and exit to the Exclusion Zone will be maintained at a single access point whenever practical. All equipment and personnel will enter and exit the Exclusion Zone through the Contaminant Reduction Zone. In addition, there will be no smoking, eating, chewing gum, chewing tobacco, drinking, taking medicine, or application of cosmetics in the Exclusion Zone. These materials, in addition to lighters and matches will not be allowed in this zone.

XVI. DECONTAMINATION PROCEDURES

To minimize contact with contaminated substances and lessen the potential for contamination, personnel will make every effort not to walk through areas of obvious contamination (i.e. liquids, discolored surfaces, smoke/vapor clouds, etc.). Personnel will make every effort not to kneel or sit on the ground in the Exclusion Zone and/or Contaminant Reduction Zone.

Decontamination will be required when the airborne concentration of contaminants exceeds the action levels outlined in Section X, or in the opinion of the HSO/SSO, significant levels of contamination may be transported off-Site or between locations on the Site by personnel or equipment. If the Site requires the use of disposable protective equipment (Level D or above), a decontamination area will be designated within the Contaminant Reduction Zone prior to commencement of the work.

The decontamination area will be equipped with potable and non-potable water, brushes, soap and solvents for decontamination, first aid kits, including eye wash, extra personal protective equipment, and plastic bags for disposal of contaminated material. A soap (detergent) and water wash/rinse will be used for all protective equipment. A waterless hand cleaner and paper towels may be used for hands, arms, or any skin surface potentially in contact with contaminated

material. Personnel dressed in a level of personal protective equipment sufficient to enter the Exclusion Zone in the case of emergency will man this area.

Equipment decontamination may involve an initial hand wash, using a solution of water and Alconox, followed by a clean water rinse, and/or steam cleaning. All decontamination fluids and disposable personnel protective equipment will be collected in the proper containers (i.e., drums, garbage bags), so that they may be disposed of properly at a later time.

XVII. EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

In the case of an accident, severe injury, or other medical emergency, medical assistance should be contacted immediately. First aid should be administered on-Site only by trained personnel. The HSO/SSO will be certified in first aid and CPR. In addition, the medical facility that will receive the injured person should be notified as to the condition and the type of injury. A non-severe injury may require transportation in a Site vehicle. Directions to the closest hospital and pertinent telephone numbers are listed at the beginning of this RAHASP. A copy of the RAHASP should accompany all personnel transported to the hospital in order to provide information for proper diagnosis and medical treatment. The HSO/SSO and Project Manager should be notified of the injury. In addition, an Accident Report/Incident Report should be completed as soon as possible by the Health and Safety Manager. A copy of an Accident Report/Incident Report is presented in Appendix C.

1. Emergency Medical Equipment

Emergency medical equipment will be kept on-Site and shall include at a minimum:

First aid kit
Emergency eye wash

Should an emergency shower be required, potable or non-potable water available at the decontamination areas can be used.

2. Emergency First Aid

The following generalized emergency first aid is intended for cases where the exact cause of the symptoms is not well known.

Exposure	First Aid
Dizziness, headache, nausea	Remove to fresh air. Perform artificial respiration if necessary. Seek medical attention if persists.
Burning sensation (eyes)	Irrigate immediately for 15 minutes. Seek medical attention if persists.

Burning sensation (skin)	Decontaminate with soap and water. Remove wet or contaminated clothing. Seek medical attention if persists.
Ingestion	Get emergency medical help. Induce vomiting if conscious.

3. Personal Injury Within the Exclusion Zone

Upon notification of an injury in the Exclusion Zone, an emergency signal horn blast will be sounded. All Site personnel will assemble in the decontamination area. The HSO/SSO will evaluate the nature of the injury and if necessary, the affected person will be decontaminated prior to movement. No person will re-enter the Exclusion Zone until after the cause of injury or illness has been determined.

4. Personnel Injury Outside the Exclusion Zone

Upon notification of an injury outside of the Exclusion Zone, the Site Safety Officer will assess the nature of the injury. If the cause of the injury/illness does not affect the performance of Site personnel, activities may continue while the injury is handled. If the injury increases the risk to others, an air horn will be sounded and Site personnel will move to the decontamination area for further instructions. Activities on-Site will stop until the risk has been removed or minimized.

XVIII. EMERGENCY RESPONSE PLAN

In the event of an emergency, Site control, communications and appropriate evacuation routines will be the responsibility of the HSO/SSO. Emergency communication with off-Site emergency response groups will be via telephone. Telephones will be located in the project trailer and in the vehicles of the HSO/SSO. For on-Site emergency communications, the HSO/SSO will signal utilizing an air horn located in the trailer. Immediately after sounding the alarm, (one long blast) the HSO/SSO will telephone all pertinent emergency personnel (ambulance, fire etc.) and notify the Project Manager. All personnel will leave the area via the safest route and meet at a location designated by the HSO/SSO. The HSO/SSO will check to determine that all personnel have been accounted for. If personnel are identified as missing, the HSO/SSO will contact emergency services for assistance.

Environments characterized as immediately dangerous to life and health (IDLH) is not anticipated to occur at the Site and is therefore not covered by this RAHASP. Unexpected occurrences of such conditions will necessitate immediate evacuation of the area. Emergency situations that may occur under such circumstances include uncontrolled releases of contaminants, severe weather, discovery of drums or other unknown material. These situations may require the involvement of trained and equipped emergency response personnel.

1. Emergency Communications

In the event of an emergency, the HSO/SSO will alert the construction site by using an air horn. The following signals will be used:

Three short blasts	Personnel injury - Evacuate to designated area
One long blast	Site emergency - Everyone evacuate to designated off-site area.

When working in the Exclusion Zone, personnel will use the "buddy" system. Hand signals should be pre-arranged should other means of communications breakdown. The following standard hand signals should be utilized:

Thumbs up	Ok, I'm alright, I understand
Thumbs down	No, negative
Hand gripping throat	Out of air, can't breath
Grip partner's waist, wrist	Leave area immediately, no debate
Hands on top of head	Need assistance

2. Fire and Explosion

Upon notification of a fire or explosion on-Site, the emergency signal horn will be sounded and all Site personnel will move to the decontamination area or to an area upwind of the fire or explosion. The fire department will then be alerted.

3. Personal Protective Equipment Failure

If any Site worker experiences a failure or alteration of personal protective equipment that affects the protection factor, that person and his/her buddy (under modified Level D conditions) will immediately leave the Exclusion Zone and go to the decontamination area where the HSO/SSO will assess and remedy the situation.

Under Level C conditions (or higher), failure or alteration of personal protective equipment will immediately cause all personnel present in the work area to withdraw with their assigned buddies from the Exclusion Zone. All personnel will assemble in the decontamination area, where the HSO/SSO will assess the failure. Re-entry to the Exclusion Zone will not be permitted until the cause of the failure has been determined and the equipment has been repaired or replaced.

4. Other Equipment Failure

Should other equipment fail to operate properly, the HSO/SSO and/or the Project Manager will be notified. The effect of equipment failure on continuing operations at the Site will then be evaluated. If the failure affects the safety of personnel or prevents completion of tasks, all personnel will leave the Exclusion Zone until the appropriate remedial actions have been taken.

XIX. SPILL CONTAINMENT PROGRAM

If a spill or release of hazardous materials occurs at the Site, work will cease and access to the Site will be under the guidance of the HSO/SSO. The spill area will be identified and made into an Exclusion Zone. All personnel on-Site will be notified of the event and evacuated to an upwind location. An evaluation of the situation will be made in order to determine the identity of the released material, as well as the hazard to the public and on-Site personnel. Emergency services will be notified immediately. The Project Manager will be notified immediately of the situation. The General Contractor Project Engineer will also be notified immediately of the situation in order to allow implementation of protocols within their HASP. The spill or release may also require the notification of the NYSDEC Spill Hotline. All events will be documented in detail by the HSO/SSO in the project field book.

Once the hazards associated with the release have been recognized, a decision will be made by the Project Manager to determine if sufficient equipment and trained personnel are available on-Site to control the release. If the release cannot be controlled with the personnel and equipment available, no action will be taken until appropriate support is available. Air monitoring will be conducted by the HSO/SSO, upwind of the spill, in order to determine the hazards associated with the release. Personal protective equipment will be determined based on air monitoring results. If the material is unknown, Level B PPE will be the minimum level of protection utilized. If appropriate equipment is available, samples of the material will be collected by OSHA-trained personnel, and submitted to a certified laboratory for analysis. The Project Manager will review the documentation regarding the spill or release in order to determine if a similar release can be avoided in the future.

XX. LOGS, RECORD KEEPING AND INSPECTIONS

The HSO/SSO will keep a field log in a dedicated field book regarding daily field activities. The daily log will also document equipment calibration that has occurred each day. Copies of the field book logs, or the entire field book, will be given to the Project Manager at the completion of the project for insertion into the project file.

The daily log will also document visitors to the Site. All personnel visiting the Site must check in with the HSO/SSO or designee for orientation and briefing of Site hazards.

Accidents and incidents will be recorded on an accident/incident report included in Appendix C. The HSO/SSO is responsible for filling out the Accident/Incident Report.

Prior to entry into the Exclusion Zone, all personnel must sign an Exclusion Zone Sign-In Sheet (Appendix E).

The HSO/SSO may inspect the Site at any time in order to determine if the RAHASP is being implemented correctly and to determine if the Contractor's personnel are utilizing safe work practices. During the inspection, the HSO/SSO will document his/her observations and make notes regarding any potential hazard not addressed in this RAHASP. Documentation generated

during the Site inspection will be given to the Project Manager for incorporation into the project file.

XXI. CONFINED SPACE PROCEDURES

A *confined space* is defined as a space that has all of the following features: it is large enough for an employee to enter and perform work; it has limited or restricted entrances or exits; and, it is not intended for continuous employee occupancy. A *permit-required confined space* is a confined space that poses any one of the following hazards: a potentially hazardous atmosphere; a potential for engulfment of an employee; and, an internal configuration, such as a tapered floor, which could cause an employee to become trapped.

A potentially hazardous atmosphere is one that could cause death, incapacitation, injury, acute illness, and impairment of ability to self-rescue, and includes one or more of the following:

a. Flammable gases, vapors, and/or mists in excess of 10% of Lower Explosive Limits (LELs);

b. Airborne combustible dusts in excess of LELs;

c. Oxygen deficiency (<19.5%) or oxygen enrichment (>23.5%);

d. Acutely toxic contaminants at concentrations greater than the Permissible Exposure Limits (PEL) or equivalent; and

e. Any other condition recognized as Immediately Dangerous to Life and Health (IDLH).

If access to a permit-required confined space is necessary in order to perform this project, the HSO/SSO must be notified in order that he/she may coordinate a proper permit-required confined space entry program under 29 CFR 1910.146.

APPENDIX A

PLAN ACCEPTANCE FORM

I have read and understand this Health and Safety Plan.

NAME	SIGNATURE	DATE

APPENDIX B

Occupational Health Guideline for Coal Tar Pitch Volatiles

INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

SUBSTANCE IDENTIFICATION

Anthracene

- Formula: $C_{14}H_{10}$
- Synonyms: None
- Appearance and odor: Pale green solid with a faint aromatic odor.

Phenanthrene

- Formula: $C_{14}H_{10}$
- Synonyms: None
- Appearance and odor: Colorless solid with a faint aromatic odor.

Pyrene

- Formula: $C_{16}H_{10}$
- Synonyms: None
- Appearance: Bright yellow solid

Carbazole

- Formula: $C_{12}H_9N$
- Synonyms: None
- Appearance and odor: Colorless solid with a faint aromatic odor.

Benzo(a)pyrene

- Formula: $C_{20}H_{12}$
- Synonyms: BaP, 3,4-benzopyrene
- Appearance and odor: Colorless solid with a faint aromatic odor.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for coal tar pitch volatiles is 0.2 milligram of coal tar pitch volatiles per cubic meter of air (mg/m^3) averaged over an eight-hour work shift. NIOSH has recommended that the permissible exposure limit for coal tar products be reduced to 0.1 mg/m^3 (cyclohexane-extractable fraction) averaged over a work shift of up to 10 hours per day, 40 hours per week, and that coal tar products be regulated as occupational carcinogens. The NIOSH Criteria Document for Coal Tar Products and NIOSH Criteria Document for Coke Oven Emissions should be consulted for more detailed information.

HEALTH HAZARD INFORMATION

- **Routes of exposure**

Coal tar pitch volatiles can affect the body if they are inhaled or if they come in contact with the eyes or skin.

- **Effects of overexposure**

Repeated exposure to coal tar pitch volatiles has been associated with an increased risk of developing bronchitis and cancer of the lungs, skin, bladder, and kidneys. Pregnant women may be especially susceptible to exposure effects associated with coal tar pitch volatiles. Repeated exposure to these materials may also cause sunlight to have a more severe effect on a person's skin. In addition, this type of exposure may cause an allergic skin rash.

- **Reporting signs and symptoms**

A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to coal tar pitch volatiles.

- **Recommended medical surveillance**

The following medical procedures should be made available to each employee who is exposed to coal tar pitch volatiles at potentially hazardous levels:

These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service Centers for Disease Control
National Institute for Occupational Safety and Health

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

September 1978

1. Initial Medical Examination:

—A complete history and physical examination: The purpose is to detect pre-existing conditions that might place the exposed employee at increased risk, and to establish a baseline for future health monitoring. Examination of the oral cavity, respiratory tract, bladder, and kidneys should be stressed. The skin should be examined for evidence of chronic disorders, for premalignant and malignant lesions, and evidence of hyperpigmentation or photosensitivity.

—Urinalysis: Coal tar pitch volatiles are associated with an excess of kidney and bladder cancer. A urinalysis should be obtained to include at a minimum specific gravity, albumin, glucose, and a microscopic on centrifuged sediment, as well as a test for red blood cells.

—Urinary cytology: Coal tar pitch volatiles are associated with an excess of kidney and bladder cancer. Employees having 5 or more years of exposure or who are 45 years of age or older should have a urinary cytology examination.

—Sputum cytology: Coal tar pitch volatiles are associated with an excess of lung cancer. Employees having 10 or more years of exposure or who are 45 years of age or older should have a sputum cytology examination.

—14" x 17" chest roentgenogram: Coal tar pitch volatiles are associated with an excess of lung cancer. Surveillance of the lungs is indicated.

—FVC and FEV (1 sec): Coal tar pitch volatiles are reported to cause an excess of bronchitis. Periodic surveillance is indicated.

—A complete blood count: Due to the possibility of benzene exposure associated with coal tar pitch volatiles, a complete blood count is considered necessary to search for leukemia and aplastic anemia.

—Skin disease: Coal tar pitch volatiles are defatting agents and can cause dermatitis on prolonged exposure. Persons with pre-existing skin disorders may be more susceptible to the effects of these agents.

2. Periodic Medical Examination: The aforementioned medical examinations should be repeated on an annual basis, and semi-annually for employees 45 years of age or older or with 10 or more years' exposure to coal tar pitch volatiles.

• Summary of toxicology

Coal tar pitch volatiles (CTPV) are products of the destructive distillation of bituminous coal and contain polynuclear aromatic hydrocarbons (PNA's). These hydrocarbons sublime readily, thereby increasing the amounts of carcinogenic compounds in working areas. Epidemiologic evidence suggests that workers intimately exposed to the products of combustion or distillation of bituminous coal are at increased risk of cancer at many sites. These include cancer of the respiratory tract, kidney, bladder, and skin. In a study of coke oven workers, the level of exposure to CTPV and the length of time exposed were related to the development of cancer. Coke oven workers with the highest risk of cancer were those employed exclusively at topside jobs for 5 or more years, for whom the increased risk of dying from lung cancer was 10-fold; all coke oven workers had a 7-½-fold increase in risk of dying from kidney cancer. Although the causative agent or agents of the cancer in coke oven workers is unidentified, it is suspected that several PNA's in the CTPV generated during the coking process are involved. Certain industrial populations exposed to coal tar products have a demonstrated risk of skin cancer. Substances containing PNA's which may produce skin cancer also produce contact dermatitis; examples are coal tar, pitch, and cutting oils. Although allergic dermatitis is readily induced by PNA's in guinea pigs, it is only rarely reported in humans from occupational contact with PNA's; these have resulted largely from the therapeutic use of coal tar preparations. Components of pitch and coal tar produce cutaneous photosensitization; skin eruptions are usually limited to areas exposed to the sun or ultraviolet light. Most of the phototoxic agents will induce hypermelanosis of the skin; if chronic photodermatitis is severe and prolonged, leukoderma may occur. Some oils containing PNA's have been associated with changes of follicular and sebaceous glands which commonly take the form of acne. There is evidence that exposures to emissions at coke ovens and gas retorts may be associated with an increased occurrence of chronic bronchitis. Coal tar pitch volatiles may be associated with benzene, an agent suspected of causing leukemia and known to cause aplastic anemia.

CHEMICAL AND PHYSICAL PROPERTIES

• Physical data—Anthracene

1. Molecular weight: 178.2
2. Boiling point (760 mm Hg): 340 C (644 F)
3. Specific gravity (water = 1): 1.24
4. Vapor density (air = 1 at boiling point of anthracene): 6.15
5. Melting point: 217 C (423 F)
6. Vapor pressure at 20 C (68 F): Less than 1 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Not applicable

• Physical data—Phenanthrene

1. Molecular weight: 178.2
2. Boiling point (760 mm Hg): 340 C (644 F)
3. Specific gravity (water = 1): 1.18
4. Vapor density (air = 1 at boiling point of phenanthrene): 6.15
5. Melting point: 100.5 C (213 F)
6. Vapor pressure at 20 C (68 F): Less than 1 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Not applicable

• Physical data—Pyrene

1. Molecular weight: 202.3
2. Boiling point (760 mm Hg): Greater than 360 C (greater than 680 F)

3. Specific gravity (water = 1): 1.28
4. Vapor density (air = 1 at boiling point of pyrene): 6.9
5. Melting point: 150.4 C (303 F)
6. Vapor pressure at 20 C (68 F): Less than 1 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Not applicable

• **Physical data—Carbazole**

1. Molecular weight: 167.2
2. Boiling point (760 mm Hg): 355 C (671 F)
3. Specific gravity (water = 1): Greater than 1
4. Vapor density (air = 1 at boiling point of carbazole): 5.8
5. Melting point: 246 C (475 F)
6. Vapor pressure at 20 C (68 F): Less than 1 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Not applicable

• **Physical data—Benzo(a)pyrene**

1. Molecular weight: 252.3
2. Boiling point (760 mm Hg): Greater than 360 C (greater than 680 F)
3. Specific gravity (water = 1): Greater than 1
4. Vapor density (air = 1 at boiling point of benzo(a)pyrene): 8.7
5. Melting point: 179 C (354 F)
6. Vapor pressure at 20 C (68 F): Less than 1 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Not applicable

• **Reactivity**

1. Conditions contributing to instability: None hazardous
2. Incompatibilities: Contact with strong oxidizers may cause fires and explosions.
3. Hazardous decomposition products: None
4. Special precautions: None

• **Flammability**

1. Flash point: Anthracene: 121 C (250 F) (closed cup); Others: Data not available
2. Autoignition temperature: Anthracene: 540 C (1004 F); Others: Data not available
3. Flammable limits in air, % by volume: Anthracene: Lower: 0.6; Others: Data not available
4. Extinguishant: Foam, dry chemical, and carbon dioxide

• **Warning properties**

Grant states that "coal tar and its various crude fractions appear principally to cause reddening and squamous eczema of the lid margins, with only small erosions of the corneal epithelium and superficial changes in the stroma, which disappear in a month following exposure. Chronic exposure of workmen to tar fumes and dust has been reported to cause conjunctivitis and discoloration of the cornea in the palpebral fissure, either near the limbus or, in extreme cases, across the whole cornea. Occasionally, epithelioma of the lid margin has been attributed to contact with coal tar."

MONITORING AND MEASUREMENT PROCEDURES

• **General**

Measurements to determine employee exposure are best taken so that the average eight-hour exposure is based on a single eight-hour sample or on two four-hour samples. Several short-time interval samples (up to 30 minutes) may also be used to determine the average exposure level. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

• **Method**

Coal tar products may be sampled by collection on a glass fiber filter with subsequent ultrasonic extraction and weighing. An analytical method for coal tar pitch volatiles is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol. 1, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00267-3).

RESPIRATORS

• Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.

• In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

PERSONAL PROTECTIVE EQUIPMENT

• Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent skin contact with condensed coal tar pitch volatiles, where skin contact may occur.

• If employees' clothing may have become contaminated with coal tar pitch volatiles, employees should change into uncontaminated clothing before leaving the work premises.

• Clothing contaminated with coal tar pitch volatiles

ld be placed in closed containers for storage until it discarded or until provision is made for the val of coal tar pitch volatiles from the clothing. If clothing is to be laundered or otherwise cleaned to remove the coal tar pitch volatiles, the person performing the operation should be informed of coal tar pitch volatiles's hazardous properties.

• Employees should be provided with and required to use splash-proof safety goggles where condensed coal tar pitch volatiles may contact the eyes.

SANITATION

• Workers subject to skin contact with coal tar pitch volatiles should wash with soap or mild detergent and water any areas of the body which may have contacted coal tar pitch volatiles at the end of each work day.

• Employees who handle coal tar pitch volatiles should wash their hands thoroughly with soap or mild detergent and water before eating, smoking, or using toilet facilities.

• Areas in which exposure to coal tar pitch volatiles may occur should be identified by signs or other appropriate means, and access to these areas should be limited to authorized persons.

COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to coal tar pitch volatiles may occur and control methods which may be effective in each case:

Operation	Controls
Liberation from extraction and packaging from coal tar fraction of coking	Process enclosure; local exhaust ventilation; general dilution ventilation; personal protective equipment
Use as a binding agent in manufacture of coal briquettes used for fuel; use as a dielectric in the manufacture of battery electrodes, electric-arc furnace electrodes, and electrodes for alumina reduction	Process enclosure; local exhaust ventilation; general dilution ventilation; personal protective equipment
Use in manufacture of roofing felts and papers and roofing	Process enclosure; local exhaust ventilation; general dilution ventilation; personal protective equipment
Use for protective coatings for pipes for underground conduits and drainage; use as a coating on concrete as waterproofing and corrosion-resistant material; use in road paving and sealing	Process enclosure; local exhaust ventilation; general dilution ventilation; personal protective equipment
Use in manufacture and repair of refractory brick; use in production of foundry cores; use in manufacture of carbon ceramic items	Process enclosure; local exhaust ventilation; general dilution ventilation; personal protective equipment

EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

• **Eye Exposure**

If condensed coal tar pitch volatiles get into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation is present after washing, get medical attention. Contact lenses should not be worn when working with these chemicals.

• **Skin Exposure**

If condensed coal tar pitch volatiles get on the skin, wash the contaminated skin using soap or mild detergent and water. Be sure to wash the hands before eating or smoking and to wash thoroughly at the close of work.

• **Breathing**

If a person breathes in large amounts of coal tar pitch volatiles, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

• **Rescue**

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

SPILL AND DISPOSAL PROCEDURES

• Persons not wearing protective equipment and clothing should be restricted from areas of releases until cleanup has been completed.

• If coal tar pitch volatiles are released in hazardous concentrations, the following steps should be taken:

1. Ventilate area of spill.

2. Collect released material in the most convenient and safe manner for reclamation or for disposal in sealed containers in a secured sanitary landfill.

• Waste disposal method:

Coal tar pitch volatiles may be disposed of in sealed containers in a secured sanitary landfill.

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RESPIRATORY PROTECTION FOR COAL TAR PITCH VOLATILES

Condition	Minimum Respiratory Protection* Required Above 0.2 mg/m³
Particulate and Vapor Concentration	
2 mg/m³ or less	A chemical cartridge respirator with an organic vapor cartridge(s) and with a fume or high-efficiency filter. Any supplied-air respirator. Any self-contained breathing apparatus.
10 mg/m³ or less	A chemical cartridge respirator with a full facepiece and an organic vapor cartridge(s) and with a fume or high-efficiency filter. A gas mask with a chin-style or a front- or back-mounted organic vapor canister and with a full facepiece and a fume or high-efficiency filter. Any supplied-air respirator with a full facepiece, helmet, or hood. Any self-contained breathing apparatus with a full facepiece.
200 mg/m³ or less	A Type C supplied-air respirator operated in pressure-demand or other positive pressure or continuous-flow mode. A powered air-purifying respirator with an organic vapor cartridge and a high-efficiency particulate filter.
400 mg/m³ or less	A Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode or with a full facepiece, helmet, or hood operated in continuous-flow mode.
Greater than 400 mg/m³ or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
Escape	Any gas mask providing protection against organic vapors and particulates, including pesticide respirators which meet the requirements of this class. Any escape self-contained breathing apparatus.

*Only NIOSH-approved or MSHA-approved equipment should be used.

Occupational Health Guideline for Naphtha (Coal Tar)

INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

SUBSTANCE IDENTIFICATION

- Formula: $C_7H_8 - C_9H_{10}$ (approximately)
- Synonyms: Naphtha, 49 degrees Be-coal tar type; crude solvent coal tar naphtha; high-solvent coal tar naphtha
- Appearance and odor: Reddish-brown, mobile liquid with an aromatic odor.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for coal tar naphtha is 100 parts of coal tar naphtha per million parts of air (ppm) averaged over an eight-hour work shift. This may also be expressed as 400 milligrams of coal tar naphtha per cubic meter of air (mg/m³).

HEALTH HAZARD INFORMATION

- Routes of exposure

Coal tar naphtha can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed.

- Effects of overexposure

1. Short-term Exposure: Overexposure to coal tar naphtha can cause lightheadedness, drowsiness, and unconsciousness. It also may cause mild irritation of the eyes, nose, and skin.

2. Long-term Exposure: Prolonged overexposure to coal tar naphtha may cause irritation of the skin.

3. Reporting Signs and Symptoms: A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to coal tar naphtha.

- Recommended medical surveillance

The following medical procedures should be made available to each employee who is exposed to coal tar naphtha at potentially hazardous levels:

1. Initial Medical Screening: Employees should be screened for history of certain medical conditions (listed below) which might place the employee at increased risk from coal tar naphtha exposure.

—Skin disease: Coal tar naphtha is a defatting agent and can cause dermatitis on prolonged exposure. Persons with pre-existing skin disorders may be more susceptible to the effects of this agent.

—Liver disease: Although coal tar naphtha is not known as a liver toxin in humans, the importance of this organ in the biotransformation and detoxification of foreign substances should be considered before exposing persons with impaired liver function.

—Kidney disease: Although coal tar naphtha is not known as a kidney toxin in humans, the importance of this organ in the elimination of toxic substances justifies special consideration in those with impaired renal function.

—Chronic respiratory disease: In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of coal tar naphtha might cause exacerbation of symptoms due to its irritant properties.

2. Periodic Medical Examination: Any employee developing the above-listed conditions should be referred for further medical examination.

- Summary of toxicology

Coal tar naphtha vapor is narcotic. Rats survived continuous exposure at 3200 ppm for two months at 1800 ppm some animals showed damage to the liver and kidneys; above 1000 ppm there was evidence of narcotic action. Rats exposed at 567 ppm and 312 ppm for 18 to 20 hours a day for 7 days had some reduction in blood leukocytes, possibly the result of the presence of benzene. There are few if any well documented reports of industrial injury resulting from the inhalation of

These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

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naphtha. However, exposure to high concentrations might be expected to cause lightheadedness, drowsiness, and possibly irritation of the eyes, nose, and throat. Repeated or prolonged contact with the liquid may result in drying and cracking skin due to defatting action. Coal tar (naphtha) is a non-uniform mixture of aromatic hydrocarbons and may contain benzene.

CHEMICAL AND PHYSICAL PROPERTIES

- **Physical data**

1. Molecular weight: 110 (approximately)
2. Boiling point (760 mm Hg): 110 to 190 C (230 to 374 F)
3. Specific gravity (water = 1): 0.97
4. Vapor density (air = 1 at boiling point of coal tar naphtha): 3 (approximately)
5. Melting point: Data not available
6. Vapor pressure at 20 C (68 F): Less than 5 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Greater than 1

- **Reactivity**

1. Conditions contributing to instability: Heat
2. Incompatibilities: Contact with strong oxidizing agents may cause fires and explosions.
3. Hazardous decomposition products: Toxic gases and vapors (such as carbon monoxide) may be released in a fire involving coal tar naphtha.
4. Special precautions: Coal tar naphtha will attack some forms of plastics, rubber, and coatings.

- **Flammability**

1. Flash point: 38 to 43 C (100 to 109 F) (closed cup)
2. Autoignition temperature: 482 to 510 C (900 to 950 F)
3. Flammable limits in air, % by volume: Data not available
4. Extinguishant: Dry chemical, foam, carbon dioxide

- **Warning properties**

1. Odor Threshold: Since the odor thresholds of the main constituents of coal tar naphtha are below their permissible exposure limits, the odor threshold of coal tar naphtha is assumed to be below the permissible exposure limit.
2. Eye Irritation Level: According to Grant, Gafafer states that the naphthas cause conjunctival irritation. Two of the main constituents of coal tar naphtha, xylene and toluene, cause noticeable eye irritation at concentrations of 200 and 300 ppm, respectively.
3. Evaluation of Warning Properties: Since the odor threshold of the main constituents of coal tar naphtha are well below their permissible exposure limits, coal tar naphtha is treated as a material with adequate warning properties.

MONITORING AND MEASUREMENT PROCEDURES

- General

Measurements to determine employee exposure are best taken so that the average eight-hour exposure is based on a single eight-hour sample or on two four-hour samples. Several short-time interval samples (up to 30 minutes) may also be used to determine the average exposure level. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

- Method

Sampling and analyses may be performed by collection of coal tar naphtha vapors using an adsorption tube with subsequent desorption with carbon disulfide and gas chromatographic analysis. Also, detector tubes certified by NIOSH under 42 CFR Part 84 or other direct-reading devices calibrated to measure coal tar naphtha may be used. An analytical method for coal tar naphtha is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol. 3, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00261-4).
026).

RESPIRATORS

- Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.
- In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with liquid coal tar naphtha.
- Clothing wet with liquid coal tar naphtha should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of

coal tar naphtha from the clothing. If the clothing is to be laundered or otherwise cleaned to remove the coal tar naphtha, the person performing the operation should be informed of coal tar naphtha's hazardous properties.

- Non-impervious clothing which becomes wet with liquid coal tar naphtha should be removed promptly and not reworn until the coal tar naphtha is removed from the clothing.
- Employees should be provided with and required to use splash-proof safety goggles where liquid coal tar naphtha may contact the eyes.

SANITATION

- Skin that becomes wet with liquid coal tar naphtha should be promptly washed or showered with soap or mild detergent and water to remove any coal tar naphtha.

COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to coal tar naphtha may occur and control methods which may be effective in each case:

Operation	Controls
Use in preparation of coal-tar paints	Process enclosure; general dilution ventilation; personal protective equipment
Use in preparation of coumarone and indene	General dilution ventilation; personal protective equipment
Use as a solvent in rubber industry in manufacture of water-proof cloth, shoe adhesives, and rubber tires	Process enclosure; general dilution ventilation; local exhaust ventilation; personal protective equipment
Use as a solvent, diluent, or thinner in paint, varnish, and lacquer industries	General dilution ventilation; local exhaust ventilation; personal protective equipment
Use in formulations of nitrocellulose and ethylcellulose	General dilution ventilation; local exhaust ventilation; personal protective equipment
Use as a solvent for polymerized styrol, short-oil phenolic varnishes, urea, resins, melamine, and other synthetic resins; use as a solvent for pesticides as DDT and Gammexane	General dilution ventilation; local exhaust ventilation; personal protective equipment

EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

- **Eye Exposure**

If coal tar naphtha gets into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation persists after washing, get medical attention. Contact lenses should not be worn when working with this chemical.

- **Skin Exposure**

If coal tar naphtha gets on the skin, promptly wash the contaminated skin using soap or mild detergent. If coal tar naphtha soaks through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent. If irritation persists after washing, get medical attention.

- **Breathing**

If a person breathes in large amounts of coal tar naphtha, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

- **Swallowing**

If coal tar naphtha has been swallowed, do not induce vomiting. Get medical attention immediately.

- **Rescue**

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

SPILL, LEAK, AND DISPOSAL PROCEDURES

- Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed.
- If coal tar naphtha is spilled or leaked, the following steps should be taken:

1. Remove all ignition sources.
2. Ventilate area of spill or leak.
3. For small quantities, absorb on paper towels. Evaporate in a safe place (such as a fume hood). Allow sufficient time for evaporating vapors to completely

clear the hood ductwork. Burn the paper in a suitable location away from combustible materials. Large quantities can be collected and atomized in a suitable combustion chamber. Coal tar naphtha should not be allowed to enter a confined space, such as a sewer, because of the possibility of an explosion.

• Waste disposal methods:

Coal tar naphtha may be disposed of:

1. By absorbing it in vermiculite, dry sand, earth or a similar material and disposing in a secured sanitary landfill.
2. By atomizing in a suitable combustion chamber.

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RESPIRATORY PROTECTION FOR NAPHTHA (COAL TAR)

Condition	Minimum Respiratory Protection* Required Above 100 ppm
Vapor Concentration	
1000 ppm or less	A chemical cartridge respirator with a full facepiece and an organic vapor cartridge(s).
5000 ppm or less	A gas mask with a chin-style or a front- or back-mounted organic vapor canister. Any supplied-air respirator with a full facepiece, helmet, or hood. Any self-contained breathing apparatus with a full facepiece.
10,000 ppm or less	A Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode or with a full facepiece, helmet, or hood operated in continuous-flow mode.
Greater than 10,000 ppm or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
Escape	Any gas mask providing protection against organic vapors. Any escape self-contained breathing apparatus.

*Only NIOSH-approved or MSHA-approved equipment should be used.

Occupational Health Guideline for Naphthalene

INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

SUBSTANCE IDENTIFICATION

- Formula: $C_{10}H_8$
- Synonyms: White tar; naphthalin
- Appearance and odor: Colorless to brown solid with the odor of mothballs.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for naphthalene is 10 parts of naphthalene per million parts of air (ppm) averaged over an eight-hour work shift. This may also be expressed as 50 milligrams of naphthalene per cubic meter of air (mg/m^3).

HEALTH HAZARD INFORMATION

- Routes of exposure

Naphthalene can affect the body if it is inhaled, if it comes in contact with the eyes or skin, or if it is swallowed. It may enter the body through the skin.

- Effects of overexposure

1. Short-term Exposure: Inhalation or ingestion of naphthalene may cause abdominal cramps, nausea, vomiting, diarrhea, headache, tiredness, confusion, painful urination, and bloody or dark urine. Swallowing large amounts may cause convulsions or coma. Inhalation, ingestion, and possibly skin absorption of naphthalene may cause destruction of red blood cells with anemia, fever, yellow jaundice, bloody urine, kidney and liver damage. Naphthalene, on contact with the eyes, has produced irritation. Naphthalene, on contact with the skin, has produced skin irritation.

2. Long-term Exposure: Repeated skin exposure to naphthalene may cause an allergic rash. Repeated exposure may cause cataracts.

3. Reporting Signs and Symptoms: A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to naphthalene.

- Recommended medical surveillance

The following medical procedures should be made available to each employee who is exposed to naphthalene at potentially hazardous levels:

1. Initial Medical Examination:

—A complete history and physical examination: The purpose is to detect pre-existing conditions that might place the exposed employee at increased risk, and to establish a baseline for future health monitoring. Persons with a deficiency of glucose-6-phosphate dehydrogenase in erythrocytes may be at increased risk from exposure. Examination of the eyes, blood, liver and kidneys should be stressed. The skin should be examined for evidence of chronic disorders.

—A complete blood count: Naphthalene has been shown to cause red blood cell hemolysis. A complete blood count should be performed, including a red cell count, a white cell count, and a differential count of a stained smear, as well as hemoglobin and hematocrit.

—Urinalysis: Since kidney damage may also occur from exposure to naphthalene, a urinalysis should be performed, including at a minimum specific gravity, albumin, glucose, and a microscopic on centrifuged sediment.

2. Periodic Medical Examination: The aforementioned medical examinations should be repeated on an annual basis.

- Summary of toxicology

Naphthalene vapor causes hemolysis and eye irritation; it may cause cataracts. Severe intoxication from ingestion of the solid results in characteristic manifestations of marked intravascular hemolysis and its consequences, including potentially fatal hyperkalemia. Initial symptoms include eye irritation, headache, confu-

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These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

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naphtha. However, exposure to high concentrations might be expected to cause lightheadedness, drowsiness, and possibly irritation of the eye, nose, and throat. Repeated or prolonged contact with the liquid may result in drying and cracking skin due to defatting action. Coal tar (naphtha) is a non-uniform mixture of aromatic hydrocarbons and may contain benzene.

CHEMICAL AND PHYSICAL PROPERTIES

- Physical data

1. Molecular weight: 110 (approximately)
2. Boiling point (760 mm Hg): 110 to 190 C (230 to 374 F)
3. Specific gravity (water = 1): 0.97
4. Vapor density (air = 1 at boiling point of coal tar naphtha): 3 (approximately)
5. Melting point: Data not available
6. Vapor pressure at 20 C (68 F): Less than 5 mm Hg
7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
8. Evaporation rate (butyl acetate = 1): Greater than 1

- Reactivity

1. Conditions contributing to instability: Heat
2. Incompatibilities: Contact with strong oxidizing agents may cause fires and explosions.
3. Hazardous decomposition products: Toxic gases and vapors (such as carbon monoxide) may be released in a fire involving coal tar naphtha.
4. Special precautions: Coal tar naphtha will attack some forms of plastics, rubber, and coatings.

- Flammability

1. Flash point: 38 to 43 C (100 to 109 F) (closed cup)
2. Autoignition temperature: 482 to 510 C (900 to 950 F)
3. Flammable limits in air, % by volume: Data not available
4. Extinguishant: Dry chemical, foam, carbon dioxide

- Warning properties

1. Odor Threshold: Since the odor thresholds of the main constituents of coal tar naphtha are below their permissible exposure limits, the odor threshold of coal tar naphtha is assumed to be below the permissible exposure limit.
2. Eye Irritation Level: According to Grant, Gafafer states that the naphthas cause conjunctival irritation. Two of the main constituents of coal tar naphtha, xylene and toluene, cause noticeable eye irritation at concentrations of 200 and 300 ppm, respectively.
3. Evaluation of Warning Properties: Since the odor threshold of the main constituents of coal tar naphtha are well below their permissible exposure limits, coal tar naphtha is treated as a material with adequate warning properties.

MONITORING AND MEASUREMENT PROCEDURES

- General

Measurements to determine employee exposure are best taken so that the average eight-hour exposure is based on a single eight-hour sample or on two four-hour samples. Several short-time interval samples (up to 30 minutes) may also be used to determine the average exposure level. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

- Method

Sampling and analyses may be performed by collection of coal tar naphtha vapors using an adsorption tube with subsequent desorption with carbon disulfide and gas chromatographic analysis. Also, detector tubes certified by NIOSH under 42 CFR Part 84 or other direct-reading devices calibrated to measure coal tar naphtha may be used. An analytical method for coal tar naphtha is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol. 3, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00261-4).
026).

RESPIRATORS

- Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.
- In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with liquid coal tar naphtha.
- Clothing wet with liquid coal tar naphtha should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of

PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with naphthalene or liquids containing naphthalene.
- If employees' clothing may have become contaminated with solid naphthalene, employees should change into uncontaminated clothing before leaving the work premises.
- Clothing contaminated with naphthalene should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of naphthalene from the clothing. If the clothing is to be laundered or otherwise cleaned to remove the naphthalene, the person performing the operation should be informed of naphthalene's hazardous properties.
- Non-impervious clothing which becomes contaminated with naphthalene should be removed promptly and not reworn until the naphthalene is removed from the clothing.
- Employees should be provided with and required to use dust- and splash-proof safety goggles where solid naphthalene or liquids containing naphthalene may contact the eyes.

SANITATION

- Skin that becomes contaminated with naphthalene should be promptly washed or showered with soap or mild detergent and water to remove any naphthalene.
- Eating and smoking should not be permitted in areas where solid naphthalene is handled, processed, or stored.
- Employees who handle naphthalene or liquids containing naphthalene should wash their hands thoroughly with soap or mild detergent and water before eating, smoking, or using toilet facilities.

COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to naphthalene may occur and control methods which may be effective in each case:

Operation	Controls
Formulation of insecticide and moth repellant as flakes, powder, balls, or cakes	Local exhaust ventilation; general dilution ventilation; personal protective equipment
Use as a fumigant for moth repellant and insecticide	General dilution ventilation; personal protective equipment
Use in manufacture of chemical intermediates for production of pharmaceuticals, resins, dyes, plasticizers, solvents, coatings, insecticides, pigments, rubber chemicals, tanning agents, surfactants, waxes, cable coatings, textile spinning lubricants, rodenticides, and in storage batteries	Local exhaust ventilation; general dilution ventilation; personal protective equipment
Manufacture of naphthalene	Local exhaust ventilation; process enclosure; general dilution ventilation; personal protective equipment

EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

- **Eye Exposure**

If naphthalene or liquids containing naphthalene get into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation is present after washing, get medical attention. Contact lenses should not be worn when working with this chemical.

- **Skin Exposure**

If molten naphthalene gets on the skin, immediately flush the skin with large amounts of water. Get medical attention immediately. If naphthalene or liquids containing naphthalene get on the skin, promptly wash the contaminated skin using soap or mild detergent and water. If naphthalene or liquids containing naphthalene penetrate through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent and water. If irritation persists after washing, get medical attention.

- **Breathing**

If a person breathes in large amounts of naphthalene, move the exposed person to fresh air at once.

- **Swallowing**

When naphthalene has been swallowed and the person is conscious, give the person large quantities of water immediately. After the water has been swallowed, try to get the person to vomit by having him touch the back of his throat with his finger. Do not make an unconscious person vomit. Get medical attention immediately.

- **Rescue**

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify some-

one else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

SPILL AND DISPOSAL PROCEDURES

- Persons not wearing protective equipment and clothing should be restricted from areas of spills until cleanup has been completed.
- If naphthalene is spilled, the following steps should be taken:

1. Ventilate area of spill.
2. For small quantities, sweep onto paper or other suitable material, place in an appropriate container and burn in a safe place (such as a fume hood). Large quantities may be reclaimed; however, if this is not practical, dissolve in a flammable solvent (such as alcohol) and atomize in a suitable combustion chamber.

- Waste disposal methods:

Naphthalene may be disposed of:

1. By making packages of naphthalene in paper or other flammable material and burning in a suitable combustion chamber.
2. By dissolving naphthalene in a flammable solvent (such as alcohol) and atomizing in a suitable combustion chamber.

ADDITIONAL INFORMATION

To find additional information on naphthalene, look up naphthalene in the following documents:

- Medical Surveillance for Chemical Hazards
- Respiratory Protection for Chemical Hazards
- Personal Protection and Sanitation for Chemical Hazards

These documents are available through the NIOSH Division of Technical Services, 4676 Columbia Parkway, Cincinnati, Ohio 45226.

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RESPIRATORY PROTECTION FOR NAPHTHALENE

Condition	Minimum Respiratory Protection* Required Above 10 ppm
Particulate and Vapor Concentration:	
500 ppm or less	A chemical cartridge respirator with a full facepiece, organic vapor cartridge(s), and dust filter. A gas mask with a chin-style or a front- or back-mounted organic vapor canister and dust filter. Any supplied-air respirator with a full facepiece, helmet, or hood. Any self-contained breathing apparatus with a full facepiece.
Greater than 500 ppm or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
Escape	Any gas mask providing protection against organic vapors and particulates. Any escape self-contained breathing apparatus.

*Only NIOSH-approved or MSHA-approved equipment should be used.

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Material Safety Data Sheets Collection:

Sheet No. 316
Benzene

Issued: 11/78 Revision: E, 8/90

Section 1. Material Identification

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Benzene (C_6H_6) **Description:** Derived by fractional distillation of coal tar, hydrodealkylation of toluene or pyrolysis of gasoline, catalytic reforming of petroleum, and transalkylation of toluene by disproportionation reaction. Used as a fuel; a chemical reagent; a solvent for a large number of materials such as paints, plastics, rubber, inks, oils, and fats; in manufacturing phenol, ethylbenzene (for styrene monomer), nitrobenzene (for aniline), dodecylbenzene (for detergents), cyclohexane (for nylon), chlorobenzene, diphenyl, benzene hexachloride, maleic anhydride, benzene-sulfonic acid, artificial leather, linoleum, oil cloth, varnishes, and lacquers; for printing and lithography; in dry cleaning; in adhesives and coatings; for extraction and rectification; as a degreasing agent; in the tire industry; and in shoe factories. Benzene has been banned as an ingredient in products intended for household use and is no longer used in pesticides.

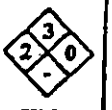
Other Designations: CAS No. 0071-43-2, benzol, carbon oil, coal naphtha, cyclohexatriene, mineral naphtha, nitration benzene, phene, phenyl hydride, pyrobenzol.

Manufacturer: Contact your supplier or distributor. Consult the latest *Chemicalweek Buyers' Guide*™ for a suppliers list.

Cautions: Benzene is a confirmed *human carcinogen* by the IARC. *Chronic low-level exposure may cause cancer (leukemia) and bone marrow damage, with injury to blood-forming tissue.* It is also a dangerous fire hazard when exposed to heat or flame.

NFPA	
R	1
I	4
S	2*
K	4

*Skin absorption



HMIS	
H	3
F	3
R	0
PPG†	

† Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Benzene, ca 100%*

1989 OSHA PELs
(29 CFR 1910.1000, Table Z-1-A)
8-hr TWA: 1 ppm, 3 mg/m³
15-min STEL: 5 ppm, 15 mg/m³

(29 CFR 1910.1000, Table Z-2)
8-hr TWA: 10 ppm
Acceptable Ceiling Concentration: 25 ppm
Acceptable Maximum Peak: 50 ppm (10 min)†

1989-90 ACGIH
TLV-TWA: 10 ppm, 32 mg/m³

1988 NIOSH RELs
TWA: 0.1 ppm, 0.3 mg/m³
Ceiling: 1 ppm, 3 mg/m³

1985-86 Toxicity Data‡
Man, oral, LD_{Lo}: 50 mg/kg; no toxic effect noted
Man, inhalation, TC_{Lo}: 150 ppm inhaled intermittently over 1 yr in a number of discrete, separate doses affects the blood (other changes) and nutritional and gross metabolism (body temperature increase)
Rabbit, eye: 2 mg administered over 24 hr produces severe irritation

* OSHA 29 CFR 1910.1000, Subpart Z, states that the final benzene standard in 29 CFR 1910.1028 applies to all occupational exposures to benzene except in some subsegments of industry where exposures are consistently under the action level (i.e., distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures); for the excepted subsegments, the benzene limits in Table Z-2 apply.

† Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift.

‡ See NIOSH, *RTECS* (CY1400000), for additional irritative, mutative, reproductive, tumorigenic, and toxicity data.

Section 3. Physical Data

Boiling Point: 176 °F (80 °C)
Melting Point: 42 °F (5.5 °C)
Vapor Pressure: 100 mm Hg at 79 °F (26.1 °C)
Vapor Density (Air = 1): 2.7
Evaporation Rate (Ether = 1): 2.8

Molecular Weight: 78.11
Specific Gravity (15 °C/4 °C): 0.8787
Water Solubility: Slightly (0.180 g/100 g of H_2O at 25 °C)
% Volatile by Volume: 100
Viscosity: 0.6468 mPa at 20 °C

Appearance and Odor: A colorless liquid with a characteristic sweet, aromatic odor. The odor recognition threshold (100% of panel) is approximately 5 ppm (unfatigued) in air. Odor *is not* an adequate warning of hazard.

Section 4. Fire and Explosion Data

Flash Point: 12 °F (-11.1 °C), CC	Autoignition Temperature: 928 °F (498 °C)	LEL: 1.3% v/v	UEL: 7.1% v/v

Extinguishing Media: Use dry chemical, foam, or carbon dioxide to extinguish benzene fires. Water may be ineffective as an extinguishing agent since it can scatter and spread the fire. Use water spray to cool fire-exposed containers, flush spills away from exposures, disperse benzene vapor, and protect personnel attempting to stop an unignited benzene leak.

Unusual Fire or Explosion Hazards: Benzene is a Class 1B flammable liquid. A concentration exceeding 3250 ppm is considered a potential fire explosion hazard. Benzene vapor is heavier than air and can collect in low lying areas or travel to an ignition source and flash back. Explosive and flammable benzene vapor-air mixtures can easily form at room temperature. Eliminate all ignition sources where benzene is used, handled, or stored.

Special Fire-fighting Procedures: Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode and full protective equipment. Structural firefighter's protective clothing provides limited protection. Stay out of low areas. Be aware of runoff from fire control methods. Do not release to sewers or waterways. Runoff to sewer can create pollution, fire, and explosion hazard.

Section 5. Reactivity Data

Stability/Polymerization: Benzene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: Benzene explodes on contact with diborane, permanganic acid, bromine pentafluoride, peroxodisulfuric acid, and peroxomonosulfuric acid. It ignites on contact with dioxygen difluoride, dioxygenyl tetrafluoroborate, iodine heptafluoride, and sodium peroxide + water. Benzene forms sensitive, explosive mixture with iodine pentafluoride, ozone, liquid oxygen, silver perchlorate, nitryl perchlorate, nitric acid, and arsenic pentafluoride + potassium methoxide (explodes above 30 °C). A vigorous or incandescent reaction occurs with bromine pentafluoride, uranium hexafluoride, and hydrogen + Raney nickel [above 410 °F (210 °C)]. Benzene is incompatible with oxidizing materials.

Conditions to Avoid: Avoid heat and ignition sources.

Hazardous Products of Decomposition: Thermal oxidative decomposition of benzene can produce toxic gases and vapors such as carbon monoxide.

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Section 6: Health Hazard Data

Carcinogenicity: The ACGIH, OSHA, and IARC list benzene as, respectively, a suspected human carcinogen, a cancer hazard, and, based on sufficient human and animal evidence, a human carcinogen (Group 1).

Summary of Risks: Prolonged skin contact or excessive inhalation of benzene vapor may cause headache, weakness, appetite loss, and fatigue. The most important health hazards are cancer (leukemia) and bone marrow damage with injury to blood-forming tissue from chronic low-level exposure. Higher level exposures may irritate the respiratory tract and cause central nervous system (CNS) depression.

Medical Conditions Aggravated by Long-Term Exposure: Exposure may worsen ailments of the heart, lungs, liver, kidneys, blood, and CNS.

Target Organs: Blood, central nervous system, bone marrow, eyes, upper respiratory tract, and skin.

Primary Entry Routes: Inhalation, skin contact.

Acute Effects: Symptoms of acute overexposure include irritation of the eyes, nose, and respiratory tract, breathlessness, euphoria, nausea, drowsiness, headache, dizziness, and intoxication. Severe exposure may lead to convulsions and unconsciousness. Skin contact may cause a drying rash (dermatitis).

Chronic Effects: Long-term chronic exposure may result in many blood disorders ranging from aplastic anemia (an inability to form blood cells) to leukemia.

FIRST AID

Eyes: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately.

Skin: *Quickly* remove contaminated clothing. Immediately rinse with flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.

Inhalation: Remove exposed person to fresh air. Emergency personnel should protect against inhalation exposure. Provide CPR to support breathing or circulation as necessary. Keep awake and transport to a medical facility.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, *do not induce vomiting* since aspiration may be fatal. Call a physician immediately.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Physician's Note: Evaluate chronic exposure with a CBC, peripheral smear, and reticulocyte count for signs of myelotoxicity. Follow up any early indicators of leukemia with a bone marrow biopsy. Urinary phenol conjugates may be used for biological monitoring of recent exposure. Acute management is primarily supportive for CNS depression.

Section 7: Spill, Leak, and Disposal Procedures

Spill/Leak: *Design and practice a benzene spill control and countermeasure plan (SCCP).* Notify safety personnel, evacuate all unnecessary personnel, eliminate all heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against vapor inhalation, eye contact, and skin absorption. Absorb as much benzene as possible with an inert, noncombustible material. For large spills, dike far ahead of spill and contain liquid. Use nonsparking tools to place waste liquid or absorbent into closable containers for disposal. Keep waste out of confined spaces such as sewers, watersheds, and waterways because of explosion danger. Follow applicable OSHA regulations (29 CFR 1910.120).

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.33), Hazardous Waste No. U019

Listed as a CERCLA Hazardous Substance* (40 CFR 302.4), Reportable Quantity (RQ): 1000 lb (454 kg) [* per Clean Water Act, Sec. 307 (a), 311 (b)(4), 112, and per RCRA, Sec. 3001]

SARA Extremely Hazardous Substance (40 CFR 355): Not listed

Listed as SARA Toxic Chemical (40 CFR 372.65)

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Tables Z-1-A and Z-2)

Section 8: Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133).

Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*

Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent skin contact.

Ventilation: Provide general and local explosion-proof ventilation systems to maintain airborne concentrations at least below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[107]

Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.

Contaminated Equipment: Never wear contact lenses in the work area: soft lenses may absorb, and all lenses concentrate, irritants. Remove this material from your shoes and equipment. Launder contaminated clothing before wearing.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9: Special Precautions and Comments

Storage Requirements: Store in tightly closed containers in a cool, dry, well-ventilated area away from all heat and ignition sources and incompatible materials. *Caution! Benzene vapor may form explosive mixtures in air.* To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations in production and storage areas. When opening or closing benzene containers, use nonsparking tools. Keep fire extinguishers readily available.

Engineering Controls: Because OSHA specifically regulates benzene (29 CFR 1910.1028), educate workers about its potential hazards and dangers. Minimize all possible exposures to carcinogens. If possible, substitute less toxic solvents for benzene; use this material with extreme caution and only if absolutely essential. Avoid vapor inhalation and skin and eye contact. Use only with adequate ventilation and appropriate personal protective gear. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Designate regulated areas of benzene use (see legend in the box below) and label benzene containers with "DANGER, CONTAINS BENZENE, CANCER HAZARD."

Other Precautions: Provide preplacement and periodic medical examinations with emphasis on a history of blood disease or previous exposure.

Transportation Data (49 CFR 172.101, .102)

DOT Shipping Name: Benzene (*benzol*)
DOT Hazard Class: Flammable liquid
ID No.: UN1114
DOT Label: Flammable liquid
DOT Packaging Exceptions: 173.118
DOT Packaging Requirements: 173.119

IMO Shipping Name: Benzene
IMO Hazard Class: 3.2
ID No.: UN1114
IMO Label: Flammable liquid
IMDG Packaging Group: II

DANGER
BENZENE
CANCER HAZARD
FLAMMABLE–NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

MSDS Collection **References:** 1, 2, 12, 26, 73, 84-94, 100, 101, 103, 109, 124, 126, 127, 132, 134, 136, 138, 139, 143

Prepared by: MJ Allison, BS; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** MJ Upfal, MD, MPH; **Edited by:** JR Stuart, MS

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Sheet No. 385
Ethylbenzene

Issued: 8/78 Revision: B, 9/92

Section 1. Material Identification

39

Ethylbenzene ($C_6H_5C_2H_5$) Description: Derived by heating benzene and ethylene in presence of aluminum chloride with subsequent distillation, by fractionation directly from the mixed xylene stream in petroleum refining, or dehydrogenation of naphthenes. Used as a solvent, an antiknock agent in gasoline; and as an intermediate in production of synthetic rubber, styrene, cellulose acetate, diethylbenzene, acetophenone, ethyl anthraquinone, propyl oxide, and α-methylbenzol alcohol.
Other Designations: CAS No. 100-41-4, ethylbenzol, EB, phenylethane, NCI-C56393.
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*[73] for a suppliers list.

R 1
I 3
S 2*
K 4
* Skin absorption

NFPA
3
2 0
-

HMIS
H 2†
F 3
R 0
PPE - Sec. 8
† Chronic effects

Cautions: Ethylbenzene is a skin and mucous membrane irritant considered the most irritating of the benzene series. Inhalation causes acute and chronic central nervous system (CNS) effects. It is highly flammable and forms explosive mixtures with air.

Section 2. Ingredients and Occupational Exposure Limits

Ethylbenzene, ca >99.0%. Impurities include ~0.1% *meta* & *para* xylene, ~0.1% cumene, and ~0.1% toluene.

1991 OSHA PELs
8-hr TWA: 100 ppm (435 mg/m³)
15-min STEL: 125 ppm (545 mg/m³)
Action Level: 50 ppm (217 mg/m³)

1990 IDLH Level
2000 ppm

1990 NIOSH REL
TWA: 100 ppm (435 mg/m³)
STEL: 125 ppm (545 mg/m³)

1992-93 ACGIH TLVs
TWA: 100 ppm (434 mg/m³)
STEL: 125 ppm (545 mg/m³)

1990 DFG (Germany) MAK
TWA: 100 ppm (440 mg/m³)
Category 1: local irritants
Peak Exposure Limit: 200 ppm, 5 min momentary value, max of 8/shift
Danger of cutaneous absorption

1985-86 Toxicity Data*
Human, inhalation, TC_{Lo}: 100 ppm/8 hr caused eye effects, sleep, and respiratory changes.
Human, lymphocyte: 1 mmol/L induced sister chromatid exchange.
Rat, oral, LD_{50}: 3500 mg/kg; toxic effects not yet reviewed
Rat (female), inhalation, TC_{Lo}: 1000 ppm/7 hr/day, 5 days/wk, for 3 wk prior to mating and daily for 19 days of gestation produced pups with high incidence of extra ribs.[179]

* See NIOSH, *RTECS* (DA0700000), for additional irritation, mutation, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 277 °F (136 °C)
Melting Point: -139 °F (-95 °C)
Surface Tension: 31.5 dyne/cm
Ionization Potential: 8.76 eV
Viscosity: 0.64 cP at 77 °F (25 °C)
Refraction Index: 1.4959 at 68 °F (20 °C)
Relative Evaporation Rate (ether = 1): 0.0106
Bulk Density: 7.21 lb/Gal at 77 °F (25 °C)
Critical Temperature: 651 °F (343.9 °C)
Critical Pressure: 35.6 atm

Molecular Weight: 106.16
Density: 0.863 at 77 °F (25 °C)
Water Solubility: Slightly, 14 mg/100 mL at 59 °F (15 °C)
Other Solubilities: Miscible in alcohol, ether; soluble in carbon tetrachloride, benzene, sulfur dioxide, and many organic solvents; insoluble in ammonia
Odor Threshold: 2.3 ppm
Vapor Pressure: 7.1 mm Hg at 68 °F (20 °C); 10 mmHg at 78.62 °F (25.9 °C); 100 mm Hg 165.38 °F (74.1 °C)
Saturated Vapor Density (Air = 0.075 lb/ft³ or 1.2 kg/m³): 0.0768 lb/ft³ or 1.2298 kg/m³

Appearance and Odor: Colorless, flammable liquid with a pungent odor.

Section 4. Fire and Explosion Data

Flash Point: 64 °F (18 °C) CC	Autoignition Temperature: 810 °F (432 °C)	LEL: 1.0% v/v	UEL: 6.7% v/v

Extinguishing Media: Class 1B Flammable liquid. For small fires, use dry chemical, carbon dioxide, or 'alcohol-resistant' foam. For large fires, use fog or 'alcohol-resistant' foam. Use water only if other agents are unavailable; EB floats on water and may travel to an ignition source and spread fire. **Unusual Fire or Explosion Hazards:** Burning rate = 5.8 mm/min. Vapors may travel to an ignition source and flash back. Container may explode in heat of fire. EB poses a vapor explosion hazard indoors, outdoors, and in sewers. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Cool container sides with water until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from area and let fire burn. Withdraw immediately if you hear rising sound from venting safety device or notice any tank discoloration due to fire. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Ethylbenzene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Reacts vigorously with oxidizers.
Conditions to Avoid: Exposure to heat and oxidizers.
Hazardous Products of Decomposition: Thermal oxidative decomposition of EB can produce acrid smoke and irritating fumes.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,[166] NTP,[169] and OSHA[164] do not list EB as a carcinogen. **Summary of Risks:** Occupational exposure to EB alone rare since it is usually present together with other solvents. EB is irritating to the eyes, skin, and respiratory tract. Vapor inhalation produces varying degrees of CNS effects depending on concentration. The liquid is absorbed through the skin but vapors are not. 56 to 64% of inhaled ethylbenzene is retained and metabolized. Urinary metabolites following exposure to 23 to 85 ppm for 8 hr are mandelic acid (64%), phenylglyoxylic acid (25%), and methylphenylcarbinol/1-phenyl ethanol (5%). Concurrent exposure to xylene and ethylbenzene causes slower excretion of EB metabolites. Based on the rat LD_{50}, one manufacturer gives 3 to 4 oz. as the lethal dose for a 100 lb person.

Continue on next page

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Section 6. Health Hazard Data

Medical Conditions Aggravated by Long-Term Exposure: Skin and CNS diseases and impaired pulmonary function (especially obstructive airway disease). **Target Organs:** Eyes, respiratory system, skin, CNS, blood. **Primary Entry Routes:** Inhalation, skin and eye contact. **Acute Effects:** Vapor inhalation of 200 ppm caused transient eye irritation; 1000 ppm caused eye irritation with profuse watering (tolerance developed rapidly); 2000 ppm caused severe and immediate eye irritation and watering, nasal irritation, chest constriction, and vertigo; 5000 ppm was intolerable and caused eye and nose irritation. Inhalation of high concentrations may cause narcosis, cramps, and death due to respiratory paralysis. Skin exposed to pure ethylbenzene for 10 to 15 min absorbed 22 to 33 mg/cm²/hr. Immersion of hand in solutions of 112 & 156 mg/L for 1 hr absorbed 118 & 215.7 µg/cm²/hr, respectively. **Chronic Effects:** Repeated skin contact may cause dryness, scaling, and fissuring. Workers chronically exposed to > 100 ppm complained of fatigue, sleepiness, headache, and mild irritation of the eyes and respiratory tract. Repeated vapor inhalation may result in blood disorders, particularly leukopenia (abnormally low level of white blood cells) and lymphocytosis.

FIRST AID

Eyes: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. Skin: *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center and unless otherwise advised, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute. *Do not* induce vomiting! Aspiration of even a small amount of EB in vomitus can cause severe damage since its low viscosity and surface tension will cause it to spread over a large area of the lung tissue.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: BEI = mandelic acid in urine (1.5 g/g of creatinine), sample at end of shift at workweeks end. Since this test is not specific, test for EB in expired air for confirmation.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel. Isolate and ventilate area, deny entry and stay upwind. Shut off all ignition sources. Cleanup personnel should protect against vapor inhalation and skin/eye contact. Take up small spills with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable container. Dike far ahead of large spill for later reclamation or disposal. Report any release >1000 lb. Follow applicable OSHA regulations (29 CFR 1910.120). **Environmental Transport:** If released to soil, EB partially evaporates into the atmosphere, with a half-life of hrs to wks, and some leaches into groundwater, especially in soil with low organic carbon content. Biodegradation occurs with a half-life of 2 days. Some EB may absorb to sediment or bioconcentrate in fish. Evidence points to slow biodegradation in groundwater. In air, it reacts with photochemically produced hydroxyl radicals with a half-life of hrs to 2 days. Additional amounts may be removed by rain. **Ecotoxicity Values:** Shrimp (*Mysidopsis bahia*), LC_{50} = 87.6 mg/L/96 hr; sheepshead minnow (*Cyprinodon variegatus*) LC_{50} = 275 mg/L/96 hr; fathead minnow (*Pimephales promelas*) LC_{50} = 42.3 mg/L/96 hr in hard water & 48.5 mg/L/96 hr in softwater. **Disposal:** A candidate for rotary kiln incineration at 1508 to 2912°F (820 to 1600°C), liquid injection incineration at 1202 to 2912°F (650 to 1600°C), and fluidized bed incineration at 842 to 1796°F (450 to 980°C). Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.21): No. D001
Listed as a SARA Toxic Chemical (40 CFR 372.65)
SARA Extremely Hazardous Substance (40 CFR 355), TPQ: Not listed
Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg) [* per CWA, Sec. 311 (b)(4) & CWA, Sec. 307 (a)]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For < 1000 ppm, use a powered air-purifying respirator with an appropriate organic vapor cartridge, a supplied-air respirator (SAR), SCBA, or chemical cartridge respirator with appropriate organic vapor cartridge. For < 2000 ppm, use a SAR or SCBA with a full facepiece. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets made of Viton or polyvinylchloride to prevent skin contact. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes and launder before reuse. Remove this material from your shoes and clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Store in a cool, dry, well-ventilated area away from ignition sources and oxidizers. Outside or detached storage is preferred. If inside, store in a standard flammable liquids cabinet. Containers should have flame-arrester or pressure-vacuum venting. To prevent static sparks, electrically ground and bond all equipment used with ethylbenzene. Install Class 1, Group D electrical equipment. **Engineering Controls:** To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain levels as low as possible. Purge and ventilate reaction vessels before workers are allowed to enter for maintenance or cleanup. **Administrative Controls:** Consider preplacement and periodic medical exams of exposed workers that emphasize the CNS, skin, blood, and respiratory system.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Ethylbenzene
DOT Hazard Class: 3
No.: UN1175
DOT Packing Group: II
DOT Label: Flammable liquid
Special Provisions (172.102): T1

Packaging Authorizations
a) **Exceptions:** 173.150
b) **Non-bulk Packaging:** 173.202
c) **Bulk Packaging:** 173.242

Quantity Limitations
a) **Passenger Aircraft or Railcar:** 5L
b) **Cargo Aircraft Only:** 60 L

Vessel Stowage Requirements
a) **Vessel Stowage:** B
b) **Other:** —

MSDS Collection **References:** 26, 73, 100, 101, 103, 124, 126, 127, 132, 133, 136, 139, 140, 148, 153, 159, 162, 163, 164, 167, 168, 171, 176, 179
Prepared by: M Gannon, BA; **Industrial Hygiene Review:** D Wilson, CIH; **Medical Review:** W Silverman, MD

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Material Safety Data Sheets Collection:

Sheet No. 354
Methyl Alcohol

Issued: 11/77 Revision: D, 11/91

ction 1. Material Identification

...ethyl alcohol (CH_3OH) Description: Derived from destructive distillation of wood, oxidation of hydrocarbons, or high-pressure catalytic synthesis from hydrogen and carbon dioxide or carbon monoxide. Used as a solvent in manufacturing industrial chemicals and chemical pharmaceuticals, a raw material for making formaldehyde and methyl esters, a softening agent for pyroxylin plastics, a dehydrator for natural gas, a feedstock for manufacturing synthetic proteins by continuous fermentation, an octane booster in gasoline, an extractant for animal and vegetable oils; in antifreeze for automotive radiators, air brakes, gasoline, and diesel oil; and in denaturing ethanol.

Other Designations: CAS No. 67-56-1, carbinol, Columbian spirits, methanol, methyl hydroxide, methylol, monohydroxymethane, pyroxylic spirit, wood alcohol, wood naphtha, wood spirit.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*™ for a suppliers list.

R 1
I 2
S 1*
K 4
* Skin absorption

NFPA
3
1 0
-

HMIS
H 2
F 3
R 0
PPG†
† Sec. 8

Cautions: Methyl alcohol is moderately toxic by ingestion and mildly toxic by inhalation and skin absorption. It is flammable, volatile, and a dangerous fire hazard.

ection 2. Ingredients and Occupational Exposure Limits

...ethyl alcohol, ca 100%

1990 OSHA PELs (Skin)
...hr TWA: 200 ppm (260 mg/m³)
...5-min STEL: 250 ppm (310 mg/m³)

1990 IDLH Level
25,000 ppm

1991-92 ACGIH TLVs (Skin)
TWA: 200 ppm (262 mg/m³)
STEL: 250 ppm (328 mg/m³)

1990 DFG (Germany) MAK
200 ppm (260 mg/m³)

1990 NIOSH RELs (Skin)
TWA: 200 ppm (260 mg/m³)
Ceiling: 250 ppm (325 mg/m³)

1985-86 Toxicity Data*
Human, inhalation, TC_{Lo}: 300 ppm caused eye (visual field change), CNS (headache), and pulmonary effects
Human, oral, LD_{Lo}: 428 mg/kg causes CNS (headache) and pulmonary (respiratory change) effects
Rat, oral, TD_{Lo}: 7500 mg/kg administered continuously to the female during the 17th to 19th day of gestation produced behavioral effects on newborns
Rat, inhalation, TC_{Lo}: 20,000 ppm/7 hr administered continuously to the female during the 1st to 22nd day of gestation produced specific developmental abnormalities

* See NIOSH, *RTECS* (PC1400000), for additional toxicity data.

Section 3. Physical Data

...g Point: 148 °F (64.5 °C)
...zing Point: -144.04 °F (-97.8 °C)
Vapor Pressure: 29 mm Hg at 68 °F (20 °C)
Vapor Density (air = 1): 1.11
...cosity: 0.00593 P at 68 °F (20 °C)

Molecular Weight: 32.05
Density: 0.7924 at 68 °F (20 °C)
Water Solubility: Soluble
Other Solubilities: Soluble in ethanol, ether, benzene, ketones, and most organic solvents

Appearance and Odor: Clear, colorless, volatile liquid with a slight alcohol odor when pure, a disagreeably pungent odor when crude, and a low 10-ppm odor threshold.

...tion 4. Fire and Explosion Data

Flash Point: 54 °F (12 °C), CC	Autoignition Temperature: 878 °F (470 °C)	LEL: 6% v/v	UEL: 36.5% v/v

...nguishing Media: For small fires, use dry chemical, carbon dioxide (CO_2), water spray, or alcohol-resistant foam. For large fires, use water ...y, fog, or alcohol-resistant foam. Do not scatter material with any more water than needed to extinguish fire.

...sual Fire or Explosion Hazards: Methyl alcohol is a dangerous fire hazard when exposed to heat, flame, or oxidizers. It is explosive in its vapor form when exposed to heat or flame. Vapors may travel to an ignition source and flash back.

...cial Fire-fighting Procedures: Since fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus ...A) with a full facepiece operated in pressure-demand or positive-pressure mode. Also, wear full protective clothing. Structural firefighters' ...ctive clothing is *ineffective* for fires involving methyl alcohol. If possible without risk, remove container from fire area. Apply cooling water ...sides of fire-exposed container until fire is well out. Stay away from ends of tanks. Leave area immediately if you hear a rising sound from ...ting safety device or see any tank discoloration due to fire. Be aware of runoff from fire control methods. Do not release to sewers or water-

ection 5. Reactivity Data

...ility/Polymerization: Methyl alcohol is stable at room temperature in closed containers under normal storage and handling conditions. ...rdous polymerization cannot occur.

...nical Incompatibilities: Methyl alcohol is incompatible with beryllium dihydride, metals (such as potassium or magnesium), oxidants (such ...barium perchlorate, bromine, chlorine, hydrogen peroxide, and sodium hypochlorite), potassium tertbutoxide, carbon tetrachloride + metals; ...cts explosively with chloroform + heat, and diethyl zinc; and reacts violently with alkyl aluminum salts, acetyl bromide, chloroform + sodium ...oxide, cyanuric chloride, and nitric acid.

...tions to Avoid: Avoid vapor inhalation and contact with oxidizers and other incompatibles.

...dous Products of Decomposition: Thermal oxidative decomposition of methyl alcohol can produce carbon oxides (CO and CO_2), possible ...rmaldehyde (HCHO) and acrid smoke, and irritating fumes.

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...ction 6. Health Hazard Data

...cinogenicity: In 1990 reports, the IARC, NTP, and OSHA do not list methyl alcohol as a carcinogen.
...mary of Risks: Methyl alcohol is toxic mainly to the nervous system, particularly optic nerves, where damage can progress to permanent ...oundness. Poisoning may also result in metabolic acidosis. Methyl alcohol oxidizes in the body to form formaldehyde and formic acid. These ...derivatives are believed responsible for many of methyl alcohol's poisonous and toxic effects. Since it is eliminated slowly from the body, methyl ...hol is considered a cumulative poison. The fatal ingestion dose is 100 to 250 ml, although death is reported from less than 33 ml.
...dical Conditions Aggravated by Long-Term Exposure: None reported
...get Organs: Eyes, central nervous system, skin, and digestive tract.
Primary Entry Routes: Inhalation, ingestion, skin absorption.
Acute effects: Inhalation can cause irritation of eyes and nose, headache, fatigue, nausea, visual impairment (optic nerve neuropathy or visual ...d changes) or complete and possibly permanent blindness, acidosis, convulsions, circulatory collapse, respiratory failure, and death. Ingestion ...cause gastrointestinal (GI) irritation followed by the symptoms described for inhalation and possible kidney impairment. Skin contact results ...a feeling of coldness, dryness, and cracking possibly leading to dermatitis. Methyl alcohol can absorb through skin and may cause headache, fatigue, and visual disturbances. Eye contact causes irritation and watering of eyes, inflamed lids, and painful sensitization to light.
Chronic Effects: Chronic inhalation or skin absorption may produce visual impairment or complete blindness.
...RST AID
...es: Gently lift the eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical ...ility. Do not let victim rub or keep eyes tightly shut. Consult a physician immediately.
Skin: *Quickly* remove contaminated clothing. Since methyl alcohol is volatile and flammable, carefully dispose of contaminated clothing. Rinse ...th flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.
...halation: Remove exposed person to fresh air and support breathing as needed.
...gestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, have that *conscious and alert* person drink 1 to 2 ...asses of water, then induce vomiting.
After first aid, get appropriate in-plant, paramedic, or community medical support.
...ote to Physicians: Consider administering 10% ethanol in D5W intravenously to maintain ethyl alcohol blood level at 100 mg/dl. Check formic acid ...urine and measure blood pH and plasma bicarbonate. After ingestion, there is typically an 18- to 48-hr latency period before clinical toxicity

...ection 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, isolate area, deny entry, and stay upwind. Shut off all ignition sources—no flares, smoking, or flames in ...zard area. Cleanup personnel should wear fully encapsulating, vapor-protective clothing for spills or leaks with no fire. Water spray may reduce ...por, but not prevent ignition in closed spaces. For small spills, use nonsparking tools to take up with earth, sand, vermiculite, or other absorbent, ...ncombustible material and place in suitable containers for later disposal. For large spills, dike far ahead of spill and await disposal. Follow ...pplicable OSHA regulations (29 CFR 1910.120).
Environmental Degradation: Aquatic toxicity rating: TLm 96, over 1000 ppm.
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
EPA Designations
...isted as a RCRA Hazardous Waste (40 CFR 261.33): Hazardous
Waste No. U154
...ERCLA Hazardous Substance (40 CFR 302.4): Not listed
...ARA Extremely Hazardous Substance (40 CFR 355): Not listed
...A Toxic Chemical (40 CFR 372.65): Not listed
OSHA Designations
Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

...ection 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Since ...contact lens use in industry is controversial, establish your own policy.
Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if ...necessary, wear a NIOSH-approved respirator. Select the respirator based on its suitability to provide adequate worker protection for the given ...working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, ...reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.*
Other: Wear impervious gloves, boots, aprons, and gauntlets to prevent all skin contact.
Ventilation: Provide general and local explosion-proof exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs ...(Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.[NIOSH]
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing.
Remove this material from your shoes and clean personal protective equipment.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, ...smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Avoid physical damage to containers. Store in cool, dry, well-ventilated flammables storage area, away from strong ...oxidizers and other incompatibles. To prevent static sparks, electrically ground all equipment used in methyl alcohol storage, manufacture, and ...ransportation. Use nonsparking tools.
...ngineering Controls: To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control hazardous airborne ...taminants and to maintain concentrations at the lowest practical level.
...r Precautions: Consider preplacement and periodic medical examinations of exposed workers emphasizing neurological, kidney, liver, and ...function. Practice good personal hygiene and housekeeping procedures. If respirators are used, institute a respiratory protection program ...ludes regular training, maintenance, inspection, and evaluation.

Transportation Data (49 CFR 172.101, .102)

...ing Name: Methyl alcohol
...Class: Flammable liquid
...o.: U... 30
Lab... ...mmable liquid
...Exceptions: 173.118
...quirements: 173.119
IMO Shipping Name: Methanol
IMO Hazard Class: 3.2
ID No.: UN1230
IMO Label: Flammable Liquid, Poison
IMDG Packaging Group: II

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Material Safety Data Sheet

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GENIUM PUBLISHING CORP.

No. 624

NAPHTHALENE

Issued: November 1987

SECTION 1. MATERIAL IDENTIFICATION

24

Material Name: NAPHTHALENE

Description (Origin/Uses): Used as a moth repellant and in many industrial processes.

Other Designations: Naphthalin; Naphthene; Tar Camphor; $C_{10}H_8$; NIOSH *RTECS* No. QJ0525000; CAS No. 0091-20-3

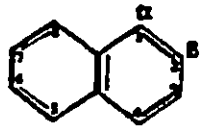
Manufacturer: Contact your supplier or distributor. Consult the latest edition of the *Chemicalweek Buyer's Guide* (Genium ref. 73) for a list of suppliers.



HMIS
H 2
F 2
R 0
PPG*
*See sect. 8

R 1
I 4
S 1
K 2

SECTION 2. INGREDIENTS AND HAZARDS

Naphthalene, CAS No. 0091-20-3	%	EXPOSURE LIMITS
	ca 100	IDLH* Level: 500 ppm **ACGIH TLVs, 1987-88** TLV-TWA: 10 ppm, 50 mg/m³ **OSHA PEL** 8-Hr TWA: 10 ppm, 50 mg/m³ **Toxicity Data**** Child, Oral, LD_{Lo}: 100 mg/kg Man, Unknown, LD_{Lo}: 74 mg/kg Rat, Oral, LD_{50}: 1250 mg/kg

*Immediately dangerous to life and health
**See NIOSH *RTECS* for additional data with references to irritative, mutagenic, reproductive, and tumorigenic effects.

SECTION 3. PHYSICAL DATA

Boiling Point: 424°F (218°C)
Vapor Density (Air = 1): 4.4
Vapor Pressure: 0.087 Torr at 77°F (25°C)
Water Solubility: Insoluble

Specific Gravity (H_2O = 1): 1.162 at 68°F (20°C)
Melting Point: 176°F (80°C)
Molecular Weight: 128 Grams/Mole
% Volatile by Volume: ca 100

Appearance and Odor: White crystalline flakes; strong coal tar odor.

SECTION 4. FIRE AND EXPLOSION DATA

Flash Point and Method	Autoignition Temperature	Flammability Limits in Air	LOWER	UPPER
174°F (79°C) OC; 190°F (88°C) CC	979°F (526°C)	% by Volume	0.9	5.9

Extinguishing Media: Use water spray, dry chemical, or carbon dioxide to fight fires involving naphthalene. Caution: Foam or direct water spray applied to molten naphthalene may cause extensive foaming.

Unusual Fire or Explosion Hazards: Naphthalene is a volatile solid that gives off flammable vapor when heated (as in fire situations). This vapor is much denser than air and will collect in enclosed or low-lying areas like sumps. In these areas an explosive air-vapor mixture may form, and extra caution is required to prevent any ignition sources from starting an explosion or fire.

Special Fire-fighting Procedures: Wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in the pressure-demand or positive-pressure mode.

SECTION 5. REACTIVITY DATA

Naphthalene is stable in closed containers at room temperature under normal storage and handling conditions. It does not undergo hazardous polymerization.

Chemical Incompatibilities: Naphthalene is incompatible with strong oxidizing agents, chromic anhydride, and mixtures of aluminum chloride and benzoyl chloride.

Conditions to Avoid: Ignition sources like open flame, unprotected heaters, excessive heat, lighted tobacco products, and electric sparks must not occur in work areas where naphthalene vapor may become concentrated.

Hazardous Products of Decomposition: Toxic gases like carbon monoxide are produced during fire conditions. Irritating, flammable vapor forms below the melting point because even solid naphthalene has a significant vapor pressure.

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SECTION 6. HEALTH HAZARD INFORMATION

Naphthalene is not listed as a carcinogen by the NTP, IARC, or OSHA.
Summary of Risks: Renal shutdown (kidney failure), hemolytic effects (breakdown of red blood cells), hematuria (blood in the urine), oliguria (low volume of urine), jaundice, eye damage, and depression of the central nervous system (CNS) are the primary health concerns associated with exposure to naphthalene. The ACGIH TLVs in section 2 are set to prevent eye damage. These recommended exposure limits may not be low enough to prevent blood changes in genetically hypersensitive individuals.
Medical Conditions Aggravated by Long-Term Exposure: Diseases of the blood, liver, and kidneys. Administer medical exams emphasizing these organs. **Target Organs:** Eyes, skin, kidneys, liver, blood (red blood cell effects), and CNS.
Primary Entry: Inhalation, skin contact. **Acute Effects:** Inhalation of naphthalene vapor causes excitement, confusion, headache, nausea, and loss of appetite. **Chronic Effects:** Increased incidence of cataracts.
FIRST AID
Eye Contact: Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes to remove particles.
Skin Contact: Immediately wash the affected area with soap and water.
Inhalation: Remove victim to fresh air; restore and/or support his breathing as needed.
Ingestion: Call a poison control center. Never give anything by mouth to someone who is unconscious or convulsing. Administer a gastric lavage followed by saline cathartic. Monitor blood and electrolytic balance. Other sources recommend giving the victim several glasses of water to drink.

GET MEDICAL HELP (IN PLANT, PARAMEDIC, COMMUNITY) FOR ALL EXPOSURES. Seek prompt medical assistance for further treatment, observation, and support after first aid.

SECTION 7. SPILL, LEAK, AND DISPOSAL PROCEDURES

Spill/Leak: Notify safety personnel, provide ventilation, and eliminate all ignition sources immediately. Cleanup personnel need protection against contact and inhalation of vapor (see sect. 8). Contain large spills and collect waste. Use nonsparking tools to place naphthalene into closable containers for disposal. Keep waste out of sewers, watersheds, and waterways.
Waste Disposal: Consider reclamation, recycling, or destruction rather than disposal in a landfill. Contact your supplier or a licensed contractor for detailed recommendations. Follow Federal, state, and local regulations.

OSHA Designations
Air Contaminant (29 CFR 1910.1000, Subpart Z)
EPA Designations (40 CFR 302.4)
RCRA Hazardous Waste, No. U165
CERCLA Hazardous Substance, Reportable Quantity: 100 lbs (45.4 kg)

SECTION 8. SPECIAL PROTECTION INFORMATION

Goggles: Always wear protective eyeglasses or chemical safety goggles. Follow the eye- and face-protection guidelines of 29 CFR 1910.133. **Respirator:** Use a NIOSH-approved respirator per the *NIOSH Pocket Guide to Chemical Hazards* (Genium ref. 88) for the maximum-use concentrations and/or the exposure limits cited in section 2. Respirator usage must be in accordance with the OSHA regulations of 29 CFR 1910.134. IDLH or unknown concentrations require an SCBA with a full facepiece operated in the pressure-demand or positive-pressure mode. **Warning:** Air-purifying respirators will *not* protect workers in oxygen-deficient atmospheres.
Other Equipment: Wear impervious gloves, boots, aprons, gauntlets, etc., as required by the specific work environment to prevent skin contact. **Ventilation:** Install and operate general and local maximum explosion-proof ventilation systems of sufficient power to maintain airborne levels of naphthalene below the OSHA PEL standard cited in section 2. **Safety Stations:** Make eyewash stations, washing facilities, and safety showers available in areas of use and handling. **Contaminated Equipment:** Contact lenses pose a special hazard; soft lenses may absorb irritants, and all lenses concentrate them. Do *not* wear contact lenses in any work area. Remove and launder contaminated clothing before wearing it again; clean this material from shoes and equipment.
Comments: Practice good personal hygiene; always wash thoroughly after using this material. Keep this material off of your clothing and equipment. Avoid transferring this material from hands to mouth while eating, drinking, or smoking. Do *not* smoke, eat, or drink in any immediate work area. Avoid inhalation of vapor!

SECTION 9. SPECIAL PRECAUTIONS AND COMMENTS

Storage Segregation: Store naphthalene in a cool, dry, well-ventilated area away from chemical incompatibles (see sect. 5).
Special Handling/Storage: Protect containers from physical damage. All bulk storage facilities must be built with an explosion-proof design. All containers used in shipping/transferring operations must be electrically grounded to prevent static sparks. Use monitoring equipment to measure the extent of vapor present in any storage facility containing naphthalene because of potential fire and explosion hazards.
Comments: All operations with naphthalene must be done carefully to prevent accidental ignition of its flammable/explosive vapor. If the weather is warm, more naphthalene vapor forms and the potential for explosion increases. Do *not* smoke in any use or storage area!
Transportation Data (49 CFR 172.101-2)
DOT Shipping Name: Naphthalene
DOT Hazard Class: ORM-A
IMO Class: 4.1
DOT ID No. UN1334
IMO Label: Flammable Solid
DOT Label: None

References: 1, 2, 12, 71, 84-94, 101 PII

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Material Safety Data Sheets Collection:

Sheet No. 7
Nitric Acid

Issued: 10/88 Revision: D, 9/92

Section 1. Material Identification

Nitric Acid (HNO_3) Description: A solution of nitrogen dioxide in water commercially available in many concentrations. Derived by oxidation of ammonia by catalytic process (heated platinum catalyst); or by direct synthesis, combining atmospheric nitrogen and oxygen in an electric arc (an expensive process, thus largely abandoned). HNO_3 is usually found in conjunction with nitrogen dioxide, which is considered more hazardous. Used in fertilizer production (ammonium nitrate), in photoengraving, steel etching, explosives (TNT, nitroglycerin, trinitrophenol); manufacture of metallic nitrates, sulfuric acid, aqua regia and oxalic acid, jewelry, various dyes and dyestuffs, pharmaceuticals; as a laboratory reagent, in metallurgy (*mainly* as a pickling agent) and the printing industy.
Other Designations: CAS No. 7697-37-2, aqua fortis, aqua regia, azotic acid, engravers nitrate, hydrogen nitrate, red fuming nitric acid (RFNA), white fuming nitric acid (WFNA).
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*[73] for suppliers list.

Cautions: Nitric acid is a corrosive, strong oxidizer that causes irritation or severe burns to the skin, eyes, and respiratory tract. Exposures to high levels of the concentrated acid can be fatal. Increases the flammability of combustibles. Use extreme caution when handling HNO_3.

R	2	HMIS		NFPA	
I	4	H	3*	*Fuming* nitric acid	0 / 3 1 / ox
S	4	F	0		
K	0	R	1		
		PPE**			
R	2	HMIS			
I	4	H	3*	*> 40%* nitric acid	0 / 3 0 / ox
S	4	F	0		
K	0	R	1		
		PPE**			
R	2	HMIS			
I	3	H	3*	*≤ 40%* nitric acid	0 / 3 0 / –
S	3	F	0		
K	0	R	0		
		PPE**			

* Chronic effects ** See Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Nitric acid, various %. Commercially available in nearly all concentrations; most common are 56 and 68%. RFNA (85%), WFNA (97.5%).

1991 OSHA PELs
8-hr TWA: 2 ppm (5 mg/m³)
15-min STEL: 4 ppm (10 mg/m³)

1990 IDLH Level
100 ppm

1990 NIOSH REL
8-hr TWA: 2 ppm (5 mg/m³)
15-min STEL: 4 ppm (10 mg/m³)

1992-93 ACGIH TLVs
TWA: 2 ppm (5.2 mg/m³)
STEL: 4 ppm (10 mg/m³)

1990 DFG (Germany) MAK
2 ppm (5 mg/m³)
Category I: local irritants
Peak Exposure Limit: 2 ppm
5 min momentary value, 8 per shift

1985-86 Toxicity Data*
Man, unreported route, LD_{Lo}: 110 mg/kg; toxic effects not yet reviewed
Rat, oral, TD_{Lo}: 5275 g/kg administered from 1 to 21 days of pregnancy caused post-implantation mortality and specific developmental abnormalities of the musculoskeletal system.
Rat, inhalation, LC_{50}: 67 ppm (NO_2)/4 hr; toxic effects not yet reviewed

* See NIOSH, *RTECS* [QU5775000 (nitric acid), QU5900000 (RFNA), QU6000000 (WFNA)] , for additional reproductive and toxicity data.

Section 3. Physical Data

Boiling Point: 186.8 °F (86 °C)
Melting Point: -43.6 °F (-42 °C)
Vapor Pressure: 67% HNO_3 = 6.8 mm Hg at 68 °F (20 °C); 95 to 98% = 113 at 100.4 °F (38 °C)
Saturated Vapor Density (Air = 1.2 kg/m³): 1.212 kg/m³ or 0.0757 lb/ft³ (67 % HNO_3)
pH: 1

Molecular Weight: 63.02
Density: 1.50269 at 77/39.2 °F (25/4 °C)
Water Solubility: Soluble (releases heat)
Ionization Potential: 11.95 eV

Appearance and Odor: Transparent, clear to yellow, fuming liquid with an acrid, suffocating odor which darkens to a brownish color on aging and exposure to light. "Fuming" nitric acid is red-brown in color.

Section 4. Fire and Explosion Data

Flash Point: Noncombustible	Autoignition Temperature: Noncombustible	LEL: None reported	UEL: None reported

Extinguishing Media: For small fires (< 40% HNO_3), use dry chemical, carbon dioxide (CO_2), water spray, or regular foam. For large fires, use water spray, fog, or regular foam. For small fires (> 40% HNO_3), use water spray, dry chemical, or soda ash. For large fires, flood area with water (*do not* get inside HNO_3 containers). Apply water from as far a distance as possible.
Unusual Fire or Explosion Hazards: HNO_3 is noncombustible but is an oxidizer which increases fire involving combustibles and can initiate an explosion. It releases flammable hydrogen gas in contact with many metals.
Special Fire-fighting Procedures: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighters' protective clothing is not effective for fires involving nitric acid. Acid-resistant clothing is needed. Apply cooling water to sides of containers until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from area and let fire burn. *Do not* release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Nitric acid decomposes in air and in contact with light and organic matter. Hazardous polymerization cannot occur.
Chemical Incompatibilities: Nitric acid reacts explosively with combustibles, organics or readily oxidizable materials such as wood, turpentine, metal powder and hydrogen sulfide, carbides, cyanides, and alkalies; causes spattering with strong bases; is corrosive to paper, cloth and most metals (except aluminum, gold, platinum, thorium, and tantalum. Will also attack some forms of plastics, rubber, and coatings. There are at least 150 chemicals and chemical combinations which are incompatible with nitric acid. HNO_3 reacts with water to produce heat and toxic corrosive fumes. Refer to *Genium* references 126 and 159 for further detail. **Conditions to Avoid:** Avoid exposure to moisture, heat, and incompatibles.
Hazardous Decomposition Products: Thermal oxidative decomposition of HNO_3 produces nitrogen peroxide and toxic, irritating nitrogen oxides.

Section 6. Health Hazards Data

Carcinogenicity: The IARC,[164] NTP,[165] and OSHA[164] do not list nitric acid as a carcinogen.
Summary of Risks: Nitric acid is very corrosive to the skin, eyes, digestive and respiratory tract or any tissue it comes in contact with. 58 to 68% (nitric acid) vapors are moderately irritating and can't be tolerated at high concentrations. 95% (nitric acid) vapors cause severe irritation at very low levels and the liquid causes 2nd and 3rd degree burns on short contact with skin or eyes. Vapor inhalation may cause pulmonary edema (fluid in lungs) leading to death. HNO_3 vapor or mist can slowly corrode teeth when chronically exposed. **Medical Conditions Aggravated by Long-Term Exposure:** Chronic respiratory diseases. **Target Organs:** Eyes, skin, respiratory tract, teeth.

Continue on next page

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ction 6. Health Hazard Data, continued

Primary Entry Routes: Inhalation, ingestion, skin and eye contact. Acute Effects: Inhalation symptoms may take several hours and include throat i nose irritation, cough, chest pain, difficulty breathing, salivation, giddiness, nausea, muscular weakness, ulceration of nasal mucous membranes, monary edema, and chemical pneumonia. Skin contact is moderately irritating to severely corrosive depending on % of nitric acid. Burns may erate deep, causing ulcers. Skin may be stained yellowish brown. Dilute solutions cause irritation and tend to harden the epithelium (outer skin ithout destroying it. HNO_3 liquid causes yellow discoloration of the eyes and severe burns which may result in permanent damage, i.e., sight estion produces immediate pain and digestive tract burns followed by throat swelling, convulsions, risk of stomach perforation (causing a rigid) and possible coma. Chronic Effects: Repeated inhalation of low concentrations may cause chronic bronchitis, tooth erosion, and/or e loss. Repeated exposure to $NO_{(2)}$ such as produced by thermal decomposition of HNO_3 is implicated in chronic lung diseases.

ST AID

yes: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water ntil transported to an emergency medical facility. Consult a physician immediately. Skin: *Quickly* remove contaminated clothing (*do not force val if stuck to skin*). Rinse with flooding amounts of water for at least 15 min. Apply a 5% triethanolamine solution to affected area. Wash ted area with soap and water. For reddened or blistered skin, consult a physician. Inhalation: Remove exposed person to fresh air and support hing as needed. Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the oison control center advises otherwise, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute followed by lime milk or milk of agnesia. Do not induce vomiting. *Do not* give sodium bicarbonate or attempt to neutralize the acid.

first aid, get appropriate in-plant, paramedic, or community medical support.

lo Physicians: Observe for several hours since symptoms such as pulmonary edema may be delayed.

ction 7. Spill, Leak, and Disposal Procedures

eak: Immediately notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Cleanup personnel should wear fully- ulating vapor-protective clothing. Use water spray to cool and disperse vapor. Keep combustibles away from spilled material. For small spills, with earth, sand, vermiculite, or other absorbent, noncombustible material and place in dry containers for disposal. For large spill, flush with er to containment area and neutralize with agricultural (slaked) lime, sodium bicarbonate, crushed limestone, soda ash, or lime. Report any release xcess of 1000 lb. Control runoff and dike for disposal. Follow applicable OSHA regulations (29 CFR 1910.120).

l: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

esignations

as a SARA Toxic Chemical (40 CFR 372.65)

d as a SARA Extremely Hazardous Substance (40 CFR 355). TPQ: 1000 lb

s a RCRA Hazardous Waste (40 CFR 261.22): No. D001, Characteristic osivity

s a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable antity (RQ), 1000 lb (454 kg) [* per CWA, Sec. 311(b)(4)]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Listed as a Process Safety Hazardous Chemical (29 CFR 1910.119), TQ: 500 lb

n 8. Special Protection Data

Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact se in industry is controversial, establish your own policy. Respirator: Seek professional advice prior to respirator selection and use. Follow r r ator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability quate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For < 50 ppm, plied-air respirator operated in a continuous-flow mode. For < 100 ppm, use any supplied-air respirator or SCBA with a full facepiece. For y or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: rtification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. ar acid-proof gloves, boots, aprons, and gauntlets to prevent skin contact. Ventilation: Provide general and local exhaust ventilation systems airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into rea by controlling it at its source.[103] Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench s, and washing facilities. Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder contaminated work fore wearing. Remove this material from your shoes and clean personal protective equipment. Comments: Never eat, drink, or smoke in Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

9. Special Precautions and Comments

Requirements: Prevent physical damage to containers. Store in aluminum, stainless steel, or glass containers on a cement floor in a cool, dry, ed area away from incompatibles (Sec. 5). Dike around storage tanks with large kirbs or stills to retain the acid in event of leakage. Keep n agents on hand and install a fire hydrant in storage area. (See NFPA Code 43A). Engineering Controls: To reduce potential health sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. trative Controls: Consider preplacement and periodic medical exams of exposed workers that emphasize the eyes, skin, respiratory tract and nary function tests (FEV< FVC) are helpful. Educate workers about the hazardous properties of nitric acid.

Transportation Data (49 CFR 172.101)

ng Name: *, †, ‡, §, ¥, ψ, ϕ

zard Class: 8

826 (*†), UN1796 (‡§), UN2031 (¥ψ), UN2032 (ϕ)

g Group: I (†§¥ϕ), II (*‡ψ)

ging Label: Corrosive (*‡¥ψ), Corrosive, Oxidizer (†§), e, Oxidizer, Poison (ϕ)

sions (172.102): B2, T12, T27 (*); T12, T27 (†); B2,); T12, T27 (§); B12, B53, T9, T27 (¥); B2, B12, B53, 2, B9, B32, B74, T38, T43, T45(ϕ)

Packaging Authorizations

a) Exceptions: None

b) Non-bulk Packaging: 173.158 (*†‡§¥ψ), 173.227 (ϕ)

c) Bulk Packaging: 173.242 (*‡ψ), 173.243 (†§¥), 173.244(ϕ)

Quantity limitations

a) Passenger Aircraft or Railcar: Forbidden

b) Cargo Aircraft Only: 30L (*‡ψ), 2.5L (†§¥), Forbidden (ϕ)

Vessel Stowage Requirements

a) Vessel stowage: D

b) Other: 40(*); 40, 66, 89 (†); 40 (‡); 40, 66, 89 (§); 110, 111 (¥); 110, 111 (ψ); 40, 66, 74, 89, 90, 95 (ϕ)

cid mixtures spent, < 50% HNO_3

tures spent, > 50% HNO_3

tures, < 50% HNO_3

mixtures, > 50% HNO_3

other than red fuming, > 70% HNO_3

ψ Nitric acid other than red fuming, < 70% HNO_3

ϕ Nitric acid, red fuming.

References: 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 136, 139, 140, 148, 149, 153, 159, 162, 163, 164, 167, 168, 171, 174, 175

Gannon, BA; Industrial Hygiene Review: PA Roy, MPH, CIH; Medical Review: W Silverman, MD

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Section 1. Material Identification

Toluene ($C_6H_5CH_3$) Description: Derived from petroleum i.e., dehydrogenation of cycloparaffin fractions followed by the aromatization of saturated aromatic hydrocarbons or by fractional distillation of coal-tar light oil and purified by rectification. Used widely as a solvent (replacing benzene in many cases) for oils, resins, adhesives, natural rubber, coal tar, asphalt, pitch, acetyl celluloses, cellulose paints and varnishes; a diluent for photogravure inks, raw material for organic synthesis (benzoyl & benzilidene chlorides, saccharine, TNT, toluene diisocyanate, and many dyestuffs), in aviation and high octane automobile gasoline, as a nonclinical thermometer liquid and suspension solution for navigational instruments.
Other Designations: CAS No. 108-88-3, Methacide, methylbenzene, methylbenzol, phenylmethane, toluol, Tolu-sol.
Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

NFPA: R 1, I 3, S 2*, K 3, * Skin absorption

HMIS: H 2- Chronic effects, F 3, R 0, PPE-Sec. 8

Cautions: Toluene is an eye, skin, and respiratory tract irritant becoming narcotic at high centrations. Liver and kidney damage has occurred. Pregnant women chronically exposed to toluene have shown teratogenic effects. Toluene is highly flammable.

Section 2. Ingredients and Occupational Exposure Limits

Toluene, < 100%; may contain a small amount of benzene (~ 1%), xylene, and nonaromatic hydrocarbons.

1991 OSHA PELs
8-hr TWA: 100 ppm (375 mg/m³)
15-min STEL: 150 ppm (560 mg/m³)

1990 IDLH Level
2000 ppm

1990 NIOSH RELs
TWA: 100 ppm (375 mg/m³)
STEL: 150 ppm (560 mg/m³)

1992-93 ACGIH TLV (Skin)
TWA: 50 ppm (188 mg/m³)

1990 DFG (Germany) MAK*
TWA: 100 ppm (380 mg/m³)
Half-life: 2 hr to end of shift
Category II: Substances with systemic effects
Peak Exposure Limit: 500 ppm, 30 min average value, 2/shift

1985-86 Toxicity Data†
Man, inhalation, TC_{Lo}: 100 ppm caused hallucinations, and changes in motor activity and changes in psychophysiological tests.
Human, oral, LD_{Lo}: 50 mg/kg; toxic effects not yet reviewed
Human, eye: 300 ppm caused irritation.
Rat, oral, LD_{50}: 5000 mg/kg
Rat, liver: 30 µmol/L caused DNA damage.

* Available information suggests damage to the developing fetus is probable.
†See NIOSH, *RTECS* (XS5250000), for additional irritation, mutation, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 232 °F (110.6 °C)
Melting Point: -139 °F (-95 °C)
Molecular Weight: 92.15
Density: 0.866 at 68 °F (20/4 °C)
Surface Tension: 29 dyne/cm at 68 °F (20 °C)
Viscosity: 0.59 cP at 68 °F (20 °C)
Refraction Index: 1.4967 at 20 °C/D

Water Solubility: Very slightly soluble, 0.6 mg/L at 68 °F (20 °C)
Other Solubilities: Soluble in acetone, alcohol, ether, benzene, chloroform, glacial acetic acid, petroleum ether, and carbon disulfide.
Vapor Pressure: 22 mm Hg at 68 °F (20 °C); 36.7 mm Hg at 86 °F (30 °C)
Saturated Vapor Density (Air = 0.075 lb/ft³ or 1.2 kg/m³): 0.0797 lb/ft³ or 1.2755 kg/m³
Odor Threshold (range of all referenced values): 0.021 to 69 ppm

Appearance and Odor: Colorless liquid with a nickly sweet odor.

Section 4. Fire and Explosion Data

Flash Point: 40 °F (4.4 °C) CC	Autoignition Temperature: 896 °F (480 °C)	LEL: 1.27% v/v	UEL: 7.0% v/v

Extinguishing Media: Toluene is a Class 1B flammable liquid. To fight fire, use dry chemical carbon dioxide, or 'alcohol-resistant' foam. Water spray may be ineffective as toluene floats on water and may actually spread fire. **Unusual Fire or Explosion Hazards:** Concentrated vapors are heavier than air and may travel to an ignition source and flash back. Container may explode in heat of fire. Toluenes' burning rate = 5.7 mm/min and its flame speed = 37 cm/sec. Vapor poses an explosion hazard indoors, outdoors, and in sewers. May accumulate static electricity. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing provides only limited protection. Apply cooling water to sides of tanks until well after fire is out. Stay away from ends of tanks. For massive fire in cargo area, use monitor nozzles or unmanned hose holders; if impossible, withdraw from fire and let burn. Withdraw immediately if you hear a rising sound from venting safety device or notice any tank discoloration due to fire because a BLEVE (boiling liquid expanding vapor explosion) may be imminent. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Toluene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization can't occur. **Chemical Incompatibilities:** Strong oxidizers, concentrated nitric acid, nitric acid + sulfuric acid, dinitrogen tetroxide, silver perchlorate, bromine trifluoride, tetranitromethane, and 1,3-dichloro-5,5-dimethyl-2,4-imidazolidiidione. **Conditions to Avoid:** Contact with heat, ignition sources, or incompatibles. **Hazardous Products of Decomposition:** Thermal oxidative decomposition of toluene can produce carbon dioxide, and acrid, irritating smoke.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,(166) NTP,(169) and OSHA(166) do not list toluene as a carcinogen. **Summary of Risks:** Toluene is irritating to the eyes, nose, and respiratory tract. Inhalation of high concentrations produces a narcotic effect sometimes leading to coma as well as liver and kidney damage. 93% of inhaled toluene is retained in the body of which 80% is metabolized to benzoic acid, then to hippuric acid and excreted in urine. The remainder is metabolized to *o*-cresol and excreted or exhaled unchanged. Toluene metabolism is inhibited by alcohol ingestion and is synergistic with benzene, asphalt fumes, or chlorinated hydrocarbons (i.e. perchloroethylene). Toluene is readily absorbed through the skin at 14 to 23 mg/cm²/hr. Toluene is absorbed quicker during exercise than at rest and appears to be retained longer in obese versus thin victims; presumably due to lipid solubility. There is inconsistent data on toluene's ability to damage bone marrow; chronic poisoning has resulted in anemia and leucopenia with biopsy showing bone marrow hypo-plasia. These reports are few and some authorities argue that the effects may have been due to benzene contaminants. Chronic inhalation during pregnancy has been associated with teratogenic effects on the fetus including microcephaly, CNS dysfunction, attentional deficits, developmental delay + language impairment, growth retardation, and physical defects including a small midface, short palpebral fissures, with deep-set eyes, low-set ears, flat nasal bridge with a small nose, micrognathia, and blunt fingertips. There is some evidence that toluene causes an autoimmune illness in which the body produces antibodies that cause inflammation of its own kidney.

Continue on next page

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ction 6. Health Hazard Data

edical Conditions Aggravated by Long-Term Exposure: Alcoholism and CNS, kidney, skin, or liver disease. Target Organs: CNS, liver, ney, skin. Primary Entry Routes: Inhalation, skin contact/absorption. Acute Effects: Vapor inhalation causes respiratory tract irritation, fatigue, akness, confusion, dizziness, headache, dilated pupils, watering eyes, nervousness, insomnia, parasthesis, and vertigo progressing to narcotic coma. ath may result from cardiac arrest due to ventricular fibrillation with catecholamines loss. Liquid splashed in the eye causes conjunctival irritation, nsient corneal damage and possible burns. Prolonged skin contact leads to drying and fissured dermatitis. Ingestion causes GI tract irritation and oms associated with inhalation. Chronic Effects: Symptoms include mucous membrane irritation, headache, vertigo, nausea, appetite loss and intolerance. Repeated heavy exposure may result in encephalopathies (cerebellar ataxia and cognitive dysfunction), liver enlargement, and y dystrophy (wasting away). Symptoms usually appear at workdays end, worsen at weeks end and decrease or disappear over the weekend. RST AID Eyes: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding mounts of water until transported to an emergency medical facility. Consult an ophthalmologist immediately. Skin: *Quickly* remove contaminated thing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. Inhalation: Remove exposed person to h air and support breathing as needed. Ingestion: Never give anything by mouth to an unconscious or convulsing person. Contact a poison control er and unless otherwise advised, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute. *Do not* induce vomiting because of anger of aspiration into the lungs. Gastric lavage may be indicated if large amounts are swallowed; potential toxicity needs to be weighed against piration risk when deciding for or against gastric lavage. Note to Physicians: Monitor cardiac function. If indicated, use epinephrine and other cholamines carefully, because of the possibility of a lowered myocardial threshold to the arrhythmogenic effects of such substances. Obtain CBC, trolytes, and urinalysis. Monitor arterial blood gases. If toluene has > 0.02% (200 ppm) benzene, evaluate for potential benzene toxicity. BEI: ippuric acid in urine, sample at shift end (2.5 g/g creatinine); Toluene in venous blood, sample at shift end (1.0 mg/L).

ection 7. Spill, Leak, and Disposal Procedures

l/Leak: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Cleanup personnel protect against inhalation and skin/eye act. Use water spray to cool and disperse vapors but it may not prevent ignition in closed spaces. Cellosolve, hycar absorbent materials, and drocarbon water can also be used for vapor suppression/containment. Take up small spill with earth, sand, vermiculite, or other absorbent, ncombustible material. Dike far ahead of large spills for later reclamation or disposal. For water spills, (10 ppm or greater) apply activated carbon at the spilled amount and remove trapped material with suction hoses or use mechanical dredges/lifts to remove immobilized masses of pollutants precipitates. Toluene can undergo fluidized bed incineration at 842 to 1796 °F (450 to 980 °C), rotary kiln incineration at 1508 to 2912 °F (820 to °C), or liquid injection incineration at 1202 to 2912 °F (650 to 1600 °C). Follow applicable OSHA regulations (29 CFR 1910.120). Ecotoxicity alues: Blue gill, LC_{50} = 17 mg/*L*/24 hr; shrimp (*Crangonfracis coron*), LC_{50} = 4.3 ppm/96 hr; fathead minnow (*Pimepholes promelas*), LC_{50} = 36.2 /96 hr. Environmental Degradation: If released to land, toluene evaporates and undergoes microbial degradation. In water, toluene volatilizes biodegrades with a half-life of days to several weeks. In air, toluene degrades by reaction with photochemically produced hydroxyl radicals. osal: Treat contaminated water by gravity separation of solids, followed by skimming of surface. Pass through dual media filtration and carbon sorption units (carbon ratio 1 kg to 10 kg soluble material). Return waste water from backwash to gravity separator. Contact your supplier or a sed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

Designations

d as a RCRA Hazardous Waste (40 CFR 261.33): No. U220
RA Extremely Hazardous Substance (40 CFR 355), TPQ: Not listed
sted as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg)
[CRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307 (a)]
a SARA Toxic Chemical (40 CFR 372.65): Not listed

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

ction 8. Special Protection Data

les: Wear protective eyeglasses with shatter-resistant glass and side-shields or chemical safety goggles, per OSHA eye- and face-protection tions (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. Respirator: Seek professional : prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-proved respirator. For < 1000 ppm, use any chemical cartridge respirator with appropriate organic vapor cartridges, any supplied-air respirator AR), or SCBA. For < 2000 ppm, use any SAR operated in continuous-flow mode, any SAR or SCBA with a full facepiece, or any air-purifying tor with a full facepiece having a chin-style, front or back mounted organic vapor canister. For emergency or nonroutine operations (cleaning reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* espirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, odic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. Other: Wear chemically protective , boots, aprons, and gauntlets to prevent skin contact. Polyvinyl alcohol with a breakthrough time of > 8 hr, Teflon and Viton are recom-d as suitable materials for PPE. Ventilation: Provide general and local exhaust ventilation systems to maintain airborne concentrations below SHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its rce.[103] Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. minated Equipment: Separate contaminated work clothes from street clothes and launder before reuse. Remove toluene from your shoes and PE. Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, g, smoking, using the toilet, or applying cosmetics.

ction 9. Special Precautions and Comments

e Requirements: Prevent physical damage to containers. Store in a cool, dry, well-ventilated area away from ignition sources and incom-s. Outside or detached storage is preferred. If stored inside, use a standard flammable liquids warehouse, room, or cabinet. To prevent static ks, electrically ground and bond all equipment used with toluene. Do not use open lights in toluene areas. Install Class 1, Group D electrical ipment. Check that toluene is free of or contains < 1% benzene before use. Engineering Controls: To reduce potential health hazards, use m dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. Adminis-Controls: Adopt controls for confined spaces (29 CFR 1910.146) if entering areas of unknown toluene levels (holes, wells, storage tanks). isitor preplacement and periodic medical exams of exposed workers that emphasize the CNS, liver, kidney, and skin. Include hemocytometric thrombocyte count in cases where benzene is a contaminant of toluene. Monitor air at regular intervals to ensure effective ventilation.

Transportation Data (49 CFR 172.101)

pping Name: Toluene
Hazard Class: 3
No.: UN1294
Packing Group: II
Label: Flammable Liquid
Provisions (172.102): T1

Packaging Authorizations
a) Exceptions: 150
b) Non-bulk Packaging: 202
c) Bulk Packaging: 242

Quantity Limitations
a) Passenger Aircraft or Railcar: 5L
b) Cargo Aircraft Only: 60L

Vessel Stowage Requirements
Vessel Stowage: B
Other: --

OS *Collection* References: 26, 73, 100, 101, 103, 124, 126, 127, 132, 140, 148, 153, 159, 163, 164, 167, 169, 171, 174, 175, 176, 180.
ed by: M Gannon, BA; Industrial Hygiene Review: PA Roy, CIH, MPH; Medical Review: AC Darlington, MD, MPH

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Material Safety Data Sheets Collection

Sheet No. 318
Xylene *(Mixed Isomers)*

Issued: 11/80 Revision: E, 9/92 Errata: 12/94

Section 1. Material Identification

45

Xylene (Mixed Isomers) (C_8H_{10}) Description: The commercial product is a blend of the three isomers [*ortho*-(*o*-), *meta*-(*m*-), *para*-(*p*-)] with the largest proportion being *m*- xylene. Xylene is obtained from coal tar, toluene by transalkylation, and pseudocumene. Used in the manufacture of dyes, resins, paints, varnishes, and other organics; as a general solvent for adhesives, a cleaning agent in microscope technique; as a solvent for Canada balsam microscopy; as a fuel component in aviation gasoline, protective coatings, sterilizing catgut, hydrogen peroxide, perfumes, insect repellants, pharmaceuticals, and the leather industry; in the production of phthalic anhydride, isophthalic, and terephthalic acids and their dimethyl esters which are used in the manufacture of polyester fibers; and as an indirect food additive as a component of adhesives. Around the home, xylene is found as vehicles in paints, paint removers, degreasing cleaners, lacquers, glues and cements and as solvent/vehicles for pesticides.

Other Designations: CAS No. 1330-20-7 [95-47-6; 108-38-3; 106-42-3 (*o*-, *m*-, *p*-isomers)], dimethylbenzene, methyltoluene, NCI-C55232, Violet 3, xylol.

Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*[73] for a suppliers list.

Cautions: Xylene is an eye, skin, and mucous membrane irritant and may be narcotic in high concentrations. It is a dangerous fire hazard.

R	1	NFPA
I	2	
S	2	
K	3	



HMIS
H 2†
F 3
R 0
PPE ‡
† Chronic Effects
‡ Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Xylene (mixed isomers): the commercial product generally contains ~ 40% *m*-xylene; 20% each of *o*-xylene, *p*-xylene, and ethylbenzene; and small quantities of toluene. Unpurified xylene may contain pseudocumene.

1991 OSHA PELs
8-hr TWA: 100 ppm (435 mg/m³)
15-min STEL: 150 ppm (655 mg/m³)

1990 IDLH Level
1000 ppm

1990 NIOSH RELs
TWA: 100 ppm (435 mg/m³)
STEL: 150 ppm (655 mg/m³)

1992-93 ACGIH TLVs
TWA: 100 ppm (434 mg/m³)
STEL: 150 ppm (651 mg/m³)
BEI (Biological Exposure Index): Methylhippuric acids in urine at end of shift: 1.5 g/g creatinine

1990 DFG (Germany) MAK
TWA: 100 ppm (440 mg/m³)
Category II: Substances with systemic effects
Half-life: < 2 hr
Peak Exposure: 200 ppm, 30 min, average value, 4 peaks per shift

1985-86 Toxicity Data*
Human, inhalation, TC_{Lo}: 200 ppm produced olfaction effects, conjunctiva irritation, and other changes involving the lungs, thorax, or respiration.
Man, inhalation, LC_{Lo}: 10000 ppm/6 hr; toxic effects not yet reviewed.
Human, oral, LD_{Lo}: 50 mg/kg; no toxic effect noted.
Rat, oral, LD_{50}: 4300 mg/kg; toxic effect not yet reviewed.
Rat, inhalation, LC_{50}: 5000 ppm/4 hr; toxic effects not yet reviewed.

* See NIOSH, *RTECS* (XE2100000), for additional toxicity data.

Section 3. Physical Data

Boiling Point Range: 279 to 284 °F (137 to 140 °C)*
Boiling Point: *ortho:* 291 °F (144 °C); *meta:* 281.8 °F (138.8 °C); *para:* 281.3 °F (138.5 °C)
Freezing Point/Melting Point: *ortho:* -13 °F (-25 °C); *meta:* -53.3 °F (- 47.4 °C); *para:* 55 to 57 °F (13 to 14 °C)
Vapor Pressure: 6.72 mm Hg at 70 °F (21 °C)
Saturated Vapor Density (Air = 1.2 kg/m³): 1.23 kg/m³, 0.077 lbs/ft³

Appearance and Odor: Clear, sweet-smelling liquid.

Molecular Weight: 106.16
Specific Gravity: 0.864 at 20 °C/4 °C
Water Solubility: Practically insoluble
Other Solubilities: Miscible with absolute alcohol, ether, and many other organic liquids.
Octanol/Water Partition Coefficient: logKow = 3.12-3.20
Odor Threshold: 1 ppm
Viscosity: <32.6 SUS

* Materials with wider and narrower boiling ranges are commercially available.

Section 4. Fire and Explosion Data

Flash Point: 63 to 77 °F (17 to 25 °C) CC | **Autoignition Temperature:** 982 °F (527 °C) (*m*-) | **LEL:** 1.1 (*m*-, *p*-); 0.9 (*o*-) | **UEL:** 7.0 (*m*-, *p*-); 6.7 (*o*-)

Extinguishing Media: For small fires, use dry chemical, carbon dioxide (CO_2), water spray or regular foam. For large fires, use water spray, fog or regular foam. Water may be ineffective. Use water spray to cool fire-exposed containers. **Unusual Fire or Explosion Hazards:** Xylene vapors or liquid (which floats on water) may travel to an ignition source and flash back. The heat of fire may cause containers to explode and/or produce irritating or poisonous decomposition products. Xylene may present a vapor explosion hazard indoors, outdoors, or in sewers. Accumulated static electricity may occur from vapor or liquid flow sufficient to cause ignition. **Special Fire-fighting Procedures:** Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing will provide limited protection. If feasible and without risk, move containers from fire area. Otherwise, cool fire-exposed containers until well after fire is extinguished. Stay clear of tank ends. Use unmanned hose holder or monitor nozzles for massive cargo fires. If impossible, withdraw from area and let fire burn. Withdraw immediately in case of any tank discoloration or rising sound from venting safety device. Do not release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability/Polymerization: Xylene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur. Xylene is easily chlorinated, sulfonated, or nitrated. **Chemical Incompatibilities:** Incompatibilities include strong acids and oxidizers and 1,3-dichloro-5,5-dimethyl-2,4-imidazolidindione (dichlorohydrantoin). Xylene attacks some forms of plastics, rubber, and coatings. **Conditions to Avoid:** Avoid heat and ignition sources and incompatibles. **Hazardous Products of Decomposition:** Thermal oxidative decomposition of xylene can produce carbon dioxide, carbon monoxide, and various hydrocarbon products.

Section 6. Health Hazard Data

Carcinogenicity: The IARC,[164] NTP,[169] and OSHA[164] do not list xylene as a carcinogen. **Summary of Risks:** Xylene is an eye, mucous membrane, and respiratory tract irritant. Irritation starts at 200 ppm; severe breathing difficulties which may be delayed in onset can occur at high concentrations. It is a central nervous system (CNS) depressant and at high concentrations can cause coma. Kidney and liver damage can occur with xylene exposure. With prolonged or repeated cutaneous exposure, xylene produces a defatting dermatitis. Chronic toxicity is not well defined, but it is less toxic than benzene. Prior to the 1950s, benzene was often found as a contaminant of xylene and the effects attributed to xylene such as blood dyscrasias are questionable. Since the late 1950s, xylenes have been virtually benzene-free and blood dyscrasias have not been associated with xylenes. Chronic exposure to high concentrations of xylene in animal studies have demonstrated mild reversible decrease in red and white cell counts as well as increases in platelet counts.

Continue on next page

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Section 6. Health Hazard Data, *continued*

Menstrual irregularity was reported in association with workplace exposure to xylene perhaps due to effects on liver metabolism. Xylene crosses the human placenta, but does not appear to be teratogenic under conditions tested to date. **Medical Conditions Aggravated by Long-Term Exposure:** CNS, respiratory, eye, skin, gastrointestinal (GI), liver and kidney disorders. **Target Organs:** CNS, eyes, GI tract, liver, kidneys, and skin. **Primary Entry Routes:** Inhalation, skin absorption (slight), eye contact, ingestion. **Acute Effects:** Inhalation of high xylene concentrations may cause dizziness; nausea, vomiting, and abdominal pain; eye, nose, and throat irritation; respiratory tract irritation leading to pulmonary edema (fluid in lung); drowsiness; and unconsciousness. Direct eye contact can result in conjunctivitis and corneal burns. Ingestion may cause a burning sensation in the oropharynx and stomach and transient CNS depression. **Chronic Effects:** Repeated or prolonged skin contact may cause drying and defatting of the skin leading to dermatitis. Repeated eye exposure to high vapor concentrations may cause reversible eye damage, peripheral and central neuropathy, and liver damage. Other symptoms of chronic exposure include headache, fatigue, irritability, chronic bronchitis, and GI disturbances such as nausea, loss of appetite, and gas.

FIRST AID *Emergency personnel should protect against exposure.* **Eyes:** *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Wash exposed area with soap and water. For reddened or blistered skin, consult a physician. Carefully dispose of contaminated clothing as it may pose a fire hazard. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. Monitor exposed person for respiratory distress. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center and unless otherwise advised, *do not induce vomiting!* If spontaneous vomiting should occur, keep exposed person's head below the hips to prevent aspiration (breathing liquid xylene into the lungs). *Aspiration of a few millimeters of xylene can cause chemical pneumonitis, pulmonary edema, and hemorrhage.* **Note to Physicians:** Hippuric acid or the ether glucuronide of *ortho*-toluic acid may be useful in diagnosis of *meta*-, *para*- and *ortho*-xylene exposure, respectively. Consider gastric lavage if a large quantity of xylene was ingested. Proceed gastric lavage with protection of the airway from aspiration; consider endotracheal intubation with inflated cuff.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, evacuate all unnecessary personnel, remove all heat and ignition sources, and ventilate spill area. Cleanup personnel should protect against vapor inhalation and skin or eye contact. If feasible and without undue risk, stop leak. Use appropriate foam to blanket release and suppress vapors. Water spray may reduce vapor, but does not prevent ignition in closed spaces. For small spills, absorb on paper and evaporate in appropriate exhaust hood or absorb with sand or some non-combustible absorbent and place in containers for later disposal. For large spills dike far ahead of liquid to contain. Do not allow xylene to enter a confined space such as sewers or drains. On land, dike to contain or divert to impermeable holding area. Apply water spray to control flammable vapor and remove material with pumps or vacuum equipment. On water, contain material with natural barriers, booms, or weirs; apply universal gelling agent; and use suction hoses to remove spilled material. Report any release in excess of 1000 lb. Follow applicable OSHA regulations (29 CFR 1910.120). **Environmental Transport:** Little bioconcentration is expected. Biological oxygen demand 5 (after 5 days at 20 °C): 0.64 (no stated isomer). **Ecotoxicity values:** LD_{50} Goldfish, 13 mg/L/24 hr, conditions of bioassay not specified, no specific isomer. **Environmental Degradation:** In the atmosphere, xylenes degrade by reacting with photochemically produced hydroxyl radicals with a half-life ranging from 1-1.7 hr. in the summer to 10-18 hr in winter or a typical loss of 67-86% per day. Xylenes are resistant to hydrolysis. **Soil Absorption/Mobility:** Xylenes have low to moderate adsorption to soil and when spilled on land, will volatilize and leach into groundwater. **Disposal:** As a hydrocarbon, xylene is a good candidate for controlled incineration. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

SARA Extremely Hazardous Substance (40 CFR 355): Not listed
[illegible] as a SARA Toxic Chemical (40 CFR 372.65)
[illegible] as a RCRA Hazardous Waste (40 CFR 261.33): No. U239, F003 (spent solvent)
[illegible]ed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 1000 lb (454 kg) [* per Clean Water Act, Sec. 311(b)(4); per RCRA, Sec. 3001]

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because [illegible]contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For concentrations >1000 [illegible]ppm, use any chemical cartridge respirator with organic vapor cartridges; any powered, air-purifying respirator with organic vapor cartridges; any [illegible]supplied-air respirator; or any self-contained breathing apparatus. For emergency or nonroutine operations (cleaning spills, reactor vessels, or [illegible]storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent all skin contact. With breakthrough times > 8 hr, consider polyvinyl alcohol and fluorocarbon rubber (Viton) as materials for PPE. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and [illegible]ashing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean PPE. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

[illegible]ection 9. Special Precautions and Comments

[illegible]orage Requirements: Store in clearly labelled, tightly closed, containers in a cool, well-ventilated place, away from strong oxidizing materials and heat and ignition sources. During transferring operations, electrically ground and bond metal containers. **Engineering Controls:** To reduce [illegible]tential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the [illegible]west practical level. Use hermetically sealed equipment, transfer xylene in enclosed systems, avoid processes associated with open evaporating [illegible]faces, and provide sources of gas release with enclosures and local exhaust ventilation. Use Class I, Group D electrical equipment. **Administrative Controls:** Establish air and biological monitoring programs and evaluate regularly. Consider preplacement and periodic medical examinations including a complete blood count, a routine urinalysis, and liver function tests. Consider hematologic studies if there is any significant contamination [illegible]the solvent with benzene. If feasible, consider the replacement of xylene by less toxic solvents such as petrol (motor fuel) or white spirit. Before [illegible]rying out maintenance and repair work, steam and flush all equipment to remove any xylene residues.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Xylenes
[illegible]07 [illegible]zard Class: 3
[illegible] [illegible]N1307
[illegible]acking Group: II
[illegible]OT Label: Flammable Liquid
[illegible]ecial Provisions (172.102): T1

Packaging Authorizations
a) Exceptions: 173.150
b) Nonbulk Packaging: 173.202
c) Bulk Packaging: 173.242

Quantity Limitations
a) Passenger, Aircraft, or Railcar: 5L
b) Cargo Aircraft Only: 60L

Vessel Stowage Requirements
a) Vessel Stowage: B
b) Other: --

DS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 139, 140, 148, 149, 153, 159, 163, 164, 167, 171, 174, 176, 180.
[illegible]pared by: MJ Wurth, BS; **Industrial Hygiene Review:** PA Roy, MPH, CIH; **Medical Review:** W Silverman, MD

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MATERIAL SAFETY DATA SHEET: SIMPLE GREEN®

I. PRODUCT & COMPANY INFORMATION

PRODUCT NAME: SIMPLE GREEN® CLEANER / DEGREASER / DEODORIZER

COMPANY NAME: SUNSHINE MAKERS, INC.
15922 Pacific Coast Highway
Huntington Harbour, CA 92649 USA
Telephone: 800-228-0709 • 562-795-6000
Fax: 562-592-3034
Website: www.simplegreen.com

Version No. 1007
Issue Date: January, 2002

For 24-hour emergency, call Chem-Tel, Inc.: 800-255-3924

USE OF PRODUCT: An all purpose cleaner and degreaser used undiluted or diluted in water for direct, spray, and dip tank procedures.

II. INGREDIENT INFORMATION

The only ingredient of Simple Green® with established exposure limits is undiluted 2-butoxyethanol (<6%) (Butyl Cellosolve, CAS No. 111-76-2): the OSHA PEL and ACGIH TLV is 25 ppm (skin). Note, however, that Butyl Cellosolve is only one of the raw material ingredients that undergo processing and dilution during the manufacture of Simple Green®. Upon completion of the manufacturing process, Simple Green® does not possess the occupational health risks associated with exposure to undiluted Butyl Cellosolve. Verification of this is contained in the independent test results detailed under "Toxicological Information" on Page 3 of this MSDS.

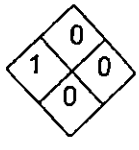
The Butyl Cellosolve in Simple Green® is part of a chemical category (glycol ethers) regulated by the Emergency Planning and Community Right-to-Know Act (SARA, Title III, section 313); therefore, a reporting requirement exists. Based upon chemical analysis, Simple Green® contains no known EPA priority pollutants, heavy metals, or chemicals listed under RCRA, CERCLA, or CWA. Analysis by TCLP (Toxicity Characteristic Leaching Procedure) according to RCRA revealed no toxic organic or inorganic constituents.

All components of Simple Green® are listed on the TSCA Chemical Substance Inventory.

III. HAZARDS IDENTIFICATION

UN Number: Not required
Dangerous Goods Class: Nonhazardous

Hazard Rating (NFPA/HMIS)
Health = 1*
Fire = 0
Reactivity = 0
Special = 0



Rating Scale
0 = minimal
1 = slight
2 = moderate
3 = serious
4 = severe

*Mild eye irritant, non-mutagenic and non-carcinogenic. **None of the ingredients in Simple Green® are regulated or listed as potential cancer agents by Federal OSHA, NTP, or IARC.**

IV. FIRST AID MEASURES

SYMPTOMS OF OVEREXPOSURE AND FIRST AID TREATMENT

Eye contact: Reddening may develop. Immediately rinse the eye with large quantities of cool water, continue 10-15 minutes or until the material has been removed; be sure to remove contact lenses, if present, and to lift upper and lower lids during rinsing. Get medical attention if irritation persists.

Skin contact: Minimal effects, if any; rinse skin with water, rinse shoes and launder clothing before reuse. Reversible reddening may occur in some dermal-sensitive users; thoroughly rinse area and get medical attention if reaction persists.

Swallowing: Essentially non-toxic. Give several glasses of water to dilute; do not induce vomiting. If stomach upset occurs, consult physician.

Inhalation: Non-toxic. Exposures to concentrate-mist may cause mild irritation of nasal passages or throat; remove to fresh air. Get medical attention if irritation persists.

V. FIRE FIGHTING MEASURES

Simple Green® is stable, not flammable, and will not burn.

Flash Point/Auto-Ignition:	Not flammable.
Flammability Limits:	Not flammable.
Extinguishing Media:	Not flammable/nonexplosive. No special procedures required.
Special Fire Fighting Procedures:	None required.

VI. ACCIDENTAL RELEASE MEASURES

Recover usable material by convenient method; residual may be removed by wipe or wet mop. If necessary, unrecoverable material may be washed to drain with large quantities of water.

VII. HANDLING, STORAGE & TRANSPORT INFORMATION

No special precautions are required. **This product is non-hazardous for storage and transport according to the U.S. Department of Transportation Regulations.** Simple Green® requires no special labeling or placarding to meet U.S. Department of Transportation requirements.

UN Number: Not required

Dangerous Goods Class: Non-hazardous

VIII. EXPOSURE CONTROLS

Exposure Limits: The Simple Green® formulation presents no health hazards to the user when used according to label directions for its intended purposes. Mild skin and eye irritation is possible (please see Eye contact and Skin contact in Section IV.).

Ventilation: No special ventilation is required during use.

Human Health Effects or Risks from Exposure: Adverse effects on human health are not expected from Simple Green®, based upon twenty years of use without reported adverse health incidence in diverse population groups, including extensive use by inmates of U.S. Federal prisons in cleaning operations.

Simple Green® is a mild eye irritant; mucous membranes may become irritated by concentrate-mist.

Simple Green® is not likely to irritate the skin in the majority of users. Repeated daily application to the skin without rinsing, or continuous contact of Simple Green® on the skin may lead to temporary, but reversible, irritation.

Medical Conditions Aggravated by Exposure: No aggravation of existing medical conditions is expected; dermal sensitive users may react to dermal contact by Simple Green®.

IX. PERSONAL PROTECTION

Precautionary Measures: No special requirements under normal use conditions.

Eye Protection: **Caution, including reasonable eye protection, should always be used to avoid eye contact where splashing may occur.**

Skin Protection: No special precautions required; rinse completely from skin after contact.

Respiratory Protection: No special precautions required.

Work and Hygienic Practices: No special requirements. Wash or rinse hands before touching eyes or contact lenses.

X. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/odor: Translucent green liquid with characteristic sassafras odor.

Specific Gravity: 1.0257 **Vapor Pressure:** 17 mm Hg @ 20 °C; 22 mm Hg @ 25 °C

pH of concentrate: 9.5 **Vapor Density:** 1.3 (air = 1)

Evaporation: >1 (butyl acetate = 1) **Density:** 8.5 lbs./gallon

Boiling Point: 110 °C (231 °F)

Freezing Point: -9 °C (16 °F) If product freezes, it will reconstitute without loss of efficacy when brought back to room temperature and agitated.

VOC Composite Partial Pressure: 0.006 mm Hg @ 20 °C

Volatile Organic Compounds (VOCs): 7.96 g/L per ASTM Method 3960-90. Per California AQMD's VOC test method, product must be diluted at least 2 parts of water to 1 part Simple Green® in order to meet SCAQMD Rule 1171 & Rule 1122 and BAAQMD Regulation 8-16 VOC requirements for solvent cleaning operations.

Water Solubility: Completely soluble in water. The higher salt concentrations in marine ecosystems will lead to complexes with Simple Green® that may become visible at ratios above one part Simple Green® to 99 parts seawater.

Ash Content: At 600 °F: 1.86% by weight.

Nutrient Content: Nitrogen: <1.0% by weight (fusion and qualitative test for ammonia).
Phosphorus: 0.3% by formula.
Sulfur: 0.6% by weight (barium chloride precipitation method).

Detection: Simple Green® has a characteristic sassafras odor that is not indicative of any hazardous situation.

XI. STABILITY AND REACTIVITY INFORMATION

Nonreactive: Simple Green® is stable, even under fire conditions, and will not react with water or oxidizers. Hazardous polymerization will not occur.

XII. TOXICOLOGICAL INFORMATION

Nonhuman Toxicity

Acute Mortality Studies:

Oral LD_{50} (rat): >5.0 g/kg body weight // Dermal LD_{50} (rabbit): >2.0 g/kg body weight

Dermal Irritation: Only mild, but reversible, irritation was found in a standard 72-hr test on rabbits. A value of 0.2 (non-irritating) was found on a scale of 8.

Eye Irritation: With or without rinsing with water, the irritation scores in rabbits at 24 hours did not exceed 15 (mild irritant) on a scale of 110.

Subchronic dermal effects: No adverse effects, except reversible dermal irritation, were found in rabbits exposed to Simple Green® (up to 2.0 g/kg/day for 13 weeks) applied to the skin of 25 males and 25 females. Only female body weight gain was affected. Detailed microscopic examination of all major tissues showed no adverse changes.

Fertility Assessment by Continuous Breeding: The Simple Green® formulation had no adverse effect on fertility and reproduction in CD-1 mice with continuous administration for 18 weeks, and had no adverse effect on the reproductive performance of their offspring.

XIII. BIODEGRADABILITY AND ENVIRONMENTAL TOXICITY INFORMATION

Biodegradability:

Simple Green® is readily decomposed by naturally occurring microorganisms. The biological oxygen demand (BOD), as a percentage of the chemical oxygen demand (COD), after 4, 7, and 11 days was 56%, 60%, and 70%, respectively. Per OECD Closed Bottle Test, Simple Green® meets OECD and EPA recommendations for ready biodegradability. In a standard biodegradation test with soils from three different countries, Butyl Cellosolve reached 50% degradation in 6 to 23 days, depending upon soil type, and exceeded the rate of degradation for glucose which was used as a control for comparison.

Environmental Toxicity Information:

Simple Green® is considered practically non-toxic per EPA's aquatic toxicity scale. Simple Green® is non-lethal to any of the marine and estuarine test animals listed in the following table at concentrations below 200 mg/L (0.02%). This table shows the Simple Green® concentrations that are likely to be lethal to 50% of the exposed organisms.

	LC_{50} in mg/L (ppm)	
	48-hour	96-hour
Marine Fish:		
Mud minnow *(Fundulus heteroclitus)*	1690	1574
Whitebait *(Galaxias maculatus)*	210	210
Marine/Estuarine Invertebrates:		
Brine Shrimp *(Artemia salina)*	610	399
Grass Shrimp *(Palaemonetes pugio)*	270	220
Green-lipped Mussel *(Perna canaliculus)*	220	220
Mud Snail *(Potamopyrgus estuarinus)*	410	350

XIV. DISPOSAL CONSIDERATIONS

Simple Green® is fully water soluble and biodegradable and will not harm sewage-treatment microorganisms if disposal by sewer or drain is necessary. Dispose of in accordance with all applicable local, state, and federal laws.

XV. OTHER INFORMATION

Containers: Simple Green® residues can be completely removed by rinsing with water; the container may be recycled or applied to other uses.

Electrical Wiring Compatibility: Polyimide insulated wiring is not affected by exposure to Simple Green®. After immersion in Simple Green® for 14 days at 74°F, the 61 cm piece of polyimide insulated wire passed a one minute dielectric proof test at 2500 volts (ASTM D-149).

Contact Point: Sunshine Makers, Inc., Research and Development Division: 562-795-6000.

***** NOTICE *****

All information appearing herein is based upon data obtained by the manufacturer and recognized technical sources. Judgments as to the suitability of information herein for purchaser's purposes are necessarily purchaser's responsibility. Therefore, although reasonable care has been taken in the preparation of this information, Sunshine Makers, Inc. or its distributors extends no warranties, makes no representations and assumes no responsibility as to the suitability of such information for application to purchaser's intended purposes or for consequences of its use.

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Material Safety Data Sheets Collection:

Sheet No. 30A
Hydrochloric Acid
Issued: 10/77 Revision: C, 9/92 Erratum: 5/93

Section 1. Material Identification

Hydrochloric Acid (HCl) Description: An aqueous solution of hydrogen chloride. Derived by dissolving hydrogen chloride gas in water in various concentrations. Hydrochloric acid is also formed as a byproduct from oxychlorination and other chlorination of organic materials. Used in metal pickling and cleaning (boiler and heat exchange chemical removal), ore reduction, processing (corn syrup, hydrolyzing starch), dye and dye intermediate manufacture, electroplating, leather tanning, in fertilizer, artificial silk, and paint pigment production, refining soaps and acetic acid, oil wells, petroleum extraction, toilet bowl cleaners; as an alcohol denaturant, a chemical intermediate and catalyst in organic synthesis, and in the photographic, textile, and rubber industries.

CAS#: Chloric CAS No. 7647-01-0, Caswell No. 486, chlorohydric acid, Muriatic acid, spirits of salt.

Purity: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*(73) for a suppliers list.

Caution: Hydrochloric acid is highly corrosive and causes serious skin and eye burns as well as acute and chronic respira-

R 1
I 4
S 4
K 0

NFPA
0 / 3 / 0 / -

HMIS
H 2*
F 0
R 0
PPE†
* Chronic effects
† Sec. 8

Section 2. Ingredients and Occupational Exposure Limits

Ingredients: 38% (commercial), 20% ("azeotrope"). Trace impurities include ammonia, arsenic, iron, sulfate, free Cl-, and heavy metals.

1992-93 ACGIH TLV
Ceiling: 5 ppm (7.5 mg/m³)

1990 DFG (Germany) MAK
Ceiling: 5 ppm (7 mg/m³)
Category 1: local irritants
Peak Exposure Limit: 10 ppm,
5 min momentary value/8 per shift

1985-86 Toxicity Data*
Human, inhalation, LC_{Lo}: 1300 ppm/30 min; toxic effects not yet reviewed
Rabbit, oral, LD_{50}: 900 mg/kg; toxic effects not yet reviewed
Rat, inhalation, TC_{Lo}: 450 mg/m³/1 hr (1 day prior to pregnancy) produced fetotoxicity (except death) & specific developmental abnormalities (homeostasis).
Rabbit, eye: 100 mg rinse caused mild irritation.

See also: (RTECS® #MW4025000) for additional irritation, reproductive, and toxicity data.

Section 3. Physical Data

Boiling Point: 108.6 °F (84.8 °C)*
Vapor Pressure: 30 mm at 64 °F (17.8 °C)
Vapor Density: 1.257
Molecular Weight: 36.46
Odor Threshold: 0.1 to 5 ppm
Ionization Potential: 12.74 eV

Freezing Point: 1.1 °F (-17.14 °C) for 10.81%, -51.16 °F (-46.2 °C) for 31.24%
Density: 1.194 at -14.8 °F (-26 °C)
Water Solubility: Soluble, 823 g/L at 32 °F (0 °C); 561 g/L at 140 °F (60 °C).
Other Solubilities: Soluble in alcohol, benzene, and ether; insoluble in hydrocarbons.
pH: 1N (0.1), 0.1N (1.1), 0.01N (2.02), 0.001N (3.02), 0.0001N (4.01)
Refraction Index (1N solution): 1.34168 at 64.4 °F (18 °C/D)

Appearance and Odor: Colorless liquid that fumes in air and has a strong pungent odor. Can be slightly yellow from traces of iron, chlorine, or organics. Constant boiling azeotrope at 20 % HCl, 108.58 °C and 760 mm Hg.

Melting Point: -173.6 °F (-114.2 °C)

Section 4. Fire and Explosion Data

Combustible | **Autoignition Temperature:** None reported | **LEL:** None reported* | **UEL:** None reported*

Extinguishing Media: Use extinguishing agents suitable for surrounding fire.

Unusual Fire or Explosion Hazards: *Extreme heat or contact with many metals liberates hydrogen gas which has explosion limits of 4 to 75%.

Special Fire Fighting Procedures: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with full facepiece operated in pressure-demand or positive-pressure mode. Structural firefighter's protective clothing is *ineffective* for protection against hydrochloric acid. Stay away from ends of tanks. Cool tanks with water spray until well after fire is out. *Do not* release runoff from fire control methods to sewers or waterways.

Section 5. Reactivity Data

Stability: Hydrochloric acid has high thermal stability (decomposes at 3239.6 °F/1782 °C). Hazardous polymerization does not occur. Reacts with aldehydes or epoxides.

Chemical Incompatibilities: Polymerizes on contact with aldehydes or epoxides; attacks most metals (except mercury, silver, gold, platinum, tantalum, and some alloys), some plastics, rubber, and coatings; reacts explosively with alcohols + hydrogen cyanide, potassium permanganate, ammonium nitrate, ignites on contact with fluorine, hexalithium disilicide, metal acetylides or carbides (cesium acetylide, rubidium acetylide, ...); incompatible with acetic anhydride, 2-amino ethanol, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, 1,1-dimethyl ethylene diamine, ethylene imine, oleum, perchloric acid, ß-propiolacetone, propylene oxide, sodium hydroxide, silver perchlorate, silicon tetrachloride, sulfuric acid, uranium phosphide, acetate, calcium carbide, magnesium bromide, mercuric sulfate, and vinyl acetate.

Conditions to Avoid: Avoid contact with incompatibles.

Hazardous Products of Decomposition: Thermal oxidative decomposition of HCl produces toxic chloride fumes and explosive hydrogen gas.

Section 6. Health Hazard Data

Carcinogenicity: The IARC(164) NTP,(169) and OSHA(164) do not list HCl as a carcinogen.

Summary of Risks: HCl is a highly corrosive liquid and depending on concentration and duration of exposure, symptoms range from irritation and inflammation to permanent injury. **Target Organs:** Eyes, skin, respiratory tract, and liver (in animals). **Primary Entry Routes:** Inhalation, skin, ingestion. **Medical Conditions Aggravated by Long-Term Exposure:** Respiratory disorders.

Section 6. Health Hazard Data, *continued*

Acute Effects: Inhalation of vapors or mists is corrosive to the respiratory tract and can cause tracheal and bronchial epithelium necrosis (tissue death), cough, choking, ulceration. Liquid aspiration can cause pulmonary edema, lung collapse, emphysema and damage to the pulmonary blood vessels. Skin contact with HCl solutions causes burns and ulcerations. Permanent eye damage may result from splashes. Ingestion is unlikely but if it occurs, symptoms include gray tongue color, corrosion of mucous membranes, esophagus, and stomach, nausea, vomiting, intense thirst, diarrhea, difficulty swallowing, circulatory collapse and possible death. **Chronic Effects:** Repeated or prolonged exposure can cause dermatitis, conjunctivitis, gastritis, photosensitization, tooth erosion, and repeated exposure to mists from heated-metal pickling solutions can cause nose and gum bleeds, ulceration of oral or nasal mucosa, and "renders facial skin so tender that shaving is painful."[133]

FIRST AID

Eyes: *Do not* allow victim to rub or keep eyes tightly shut. Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Consult a physician immediately. **Skin:** *Quickly* remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. Treat skin with a 5% triethanolamine solution. For reddened or blistered skin, consult a physician. **Inhalation:** Remove exposed person to fresh air and support breathing as needed. **Ingestion:** Never give anything by mouth to an unconscious or convulsing person. Contact a poison control center. Unless the poison control center advises otherwise, have that *conscious and alert* person drink 1 to 2 glasses of water to dilute. *Do not* induce vomiting!

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Consider a chest x-ray in acute overexposure.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Neutralize spills with crushed limestone, soda ash, lime, or sodium bicarbonate. After neutralizing, take up small spills with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers for disposal; flush large spills to containment area and reclaim (if possible) or await disposal. Follow applicable OSHA regulations (29 CFR 1910.120). **Environmental Transport:** In soil, HCl will infiltrate moving faster in the presence of moisture. It may dissolve some soil matter, particularly those of a carbonate base will be neutralized to some degree and will be transported to groundwater. **Ecotoxicity Values:** Chronic plant toxicity = 100 ppm; injurious to irrigatable crops at 350 mg/L; trout, LC_{100}, 10 mg/L/24 hr shrimp, LC_{50}, 100 to 330 ppm/starfish, LC_{50}, 100 to 330 mg/L/48 hr; shore crab, LC_{50}, 240 mg/L/48 hr. **Disposal:** Neutralize to between 5.5 & 8.5 before disposal. Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.23, *0.01N solution or higher*): No. D002, Characteristic of corrosivity

Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Final Reportable Quantity (RQ), 5000 lb (2270 kg) [* per CWA, Sec. 311 (b)(4)]

SARA Extremely Hazardous Substance (40 CFR 355), TPQ: Not listed

Listed as a SARA Toxic Chemical (40 CFR 372.65)

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Because contact lens use in industry is controversial, establish your own policy. **Respirator:** Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. For < 50 ppm, use a cartridge respirator with acid gas cartridges, or any supplied-air respirator (SAR) or SCBA. For < 100 ppm, use any chemical cartridge respirator with a full facepiece and cartridge that protects against HCl inhalation, or any SAR or SCBA with a full facepiece. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. **Other:** Wear chemically protective gloves, boots, aprons, and gauntlets to prevent skin contact. Polycarbonate, butyl rubber, polyvinyl chloride, and chlorinated polyethylene are recommended materials for PPE. Polyvinyl alcohol is not recommended. **Ventilation:** Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.[103] **Safety Stations:** Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities. **Contaminated Equipment:** Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean personal protective equipment. **Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Prevent physical damage to containers. Store in a cool, dry, well-ventilated area on a cement floor away from direct sunlight and heat sources. Use decanting pumps or pouring frames to minimize spillage during loading and unloading operations.

Engineering Controls: To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control airborne contaminants and to maintain concentrations at the lowest practical level. HCl should be manufactured in closed systems. Pay close attention to leak detection. Aqueous scrubbers are used to control hydrogen chloride emissions from vent stacks and other sources. Workers shouldn't enter tanks previously containing HCl until they have been cleaned.

Administrative Controls: Consider preplacement and periodic medical exams of exposed workers with emphasis on the eyes, skin, and respiratory tract. Pulmonary function tests (FEV, FVC) are useful in determining lung disorders. Conduct difficult operations in fume hoods.

Transportation Data (49 CFR 172.101)

DOT Shipping Name: Hydrochloric acid, solution
DOT Hazard Class: 8
ID No.: UN1789
DOT Label: Corrosive
DOT Packing Group: II
Special provisions (172.102): A3, A6, B2, B15, N41, T9, T27

Packaging Authorizations
a) **Exceptions:** 173.154
b) **Non-bulk Packaging:** 173.202
c) **Bulk Packaging:** 173.242

Quantity limitations
a) **Passenger, Aircraft, or Railcar:** 1 L
b) **Cargo Aircraft Only:** 30 L

Vessel Stowage Requirements
a) **Vessel Stowage:** C
b) **Other:** 8

MSDS Collection **References:** 26, 73, 89, 100, 101, 103, 124, 126, 127, 132, 133, 136, 139, 148, 149, 153, 159, 163, 164, 167, 168, 171, 174, 180

Prepared by: M Gannon, BA; **Industrial Hygiene Review:** DJ Wilson, CIH; **Medical Review:** AC Darlington, MPH, MD

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APPENDIX C

ACCIDENT/INCIDENT REPORT

NAME: _____ DATE: _____
EMPLOYER: _____ JOB TITLE: _____
EVENT LOCATION & TIME: _____
****
EVENT DESCRIPTION: _____
_____
_____
_____
_____

TYPE: ___Physical ___Chemical ___Biological ___Other
INJURIES: _____
CONTRIBUTING ACTS/CONDITIONS: _____
_____
MEDICAL TREATMENT/LOCATION & TIME: _____
_____
_____
****
PROJECT MANAGEMENT REVIEW
CORRECTIVE ACTS TO BE TAKEN: _____
_____
_____
****
SIGNATURES:

_____	_____	_____
EMPLOYEE	PROJECT MANAGER	HEALTH & SAFETY OFFICER
DATE: _____	_____	_____

APPENDIX D

CALIBRATION LOG SHEET

PROJECT NAME: _____
PROJECT NO.: _____

INSTRUMENT	DATE	COMMENTS

APPENDIX E

EXCLUSION ZONE SIGN-IN SHEET

NAME/COMPANY	SIGNATURE	DATE	TIME IN	TIME OUT

APPENDIX F

LIST OF ACRONYMS

ACGIH - American Conference of Governmental Industrial Hygienists
AOEC - Area of Environmental Concern
AT&T - American Telephone and Telegraph
CFR - Code of Federal Regulations
CHM - Certified Hazards Manager
CIH - Certified Industrial Hygienist
CL&P - Connecticut Light and Power
ConnDOT - Connecticut Department of Transportation
CPR - Cardiopulmonary Resuscitation
CTDEP - Connecticut Department of Environmental Protection
DEC - Direct Exposure Criteria
FID - Flame Ionization Detector
GA/GAA - a groundwater classification code
GA/GAA PMC - GA/GAA Groundwater Pollutant Mobility Criteria
GB - a groundwater classification code, GB is poorer quality than GA/GAA
GB PMC - GB Groundwater Pollutant Mobility Criteria
HASP - Health and Safety Plan
HAZWOPER - Hazardous Waste Site Operations and Emergency Response
HSM - Health and Safety Manager
HSO - Health and Safety Officer
I/C DEC - Industrial/Commercial Direct Exposure Criteria
IDLH - Immediately Dangerous to Life or Health
LEP - Licensed Environmental Professional
NIOSH - National Institute for Occupational Safety and Health
NYSDEC – New York State Department of Environmental Conservation
NYSDOH – New York State Department of Health
OSHA - Occupational Safety and Health Administration
PE - Professional Engineer
PEL - Permissible Exposure Limit
PID - Photoionization Detector
PPE - Personal Protective Equipment
ppm - parts per million
RAHASP – Remedial Action Health and Safety Plan
RCRA - Resource Conservation and Recovery Act
REL - Recommended Exposure Limit
RES DEC - Residential Direct Exposure Criteria
RSRs - Remediation Standard Regulations
SSO – Site Safety Officer

STEL - Short Term Exposure Limit
TBA - To Be Announced
TBD - To Be Determined
TLV - Threshold Limit Value
TPH - Total Petroleum Hydrocarbons
TWA - Time weighted average
U.S. EPA - United States Environmental Protection Agency
VOCs - Volatile Organic Compounds
WPCA - Water Pollution Control Authority

APPENDIX G

MAPQUEST.

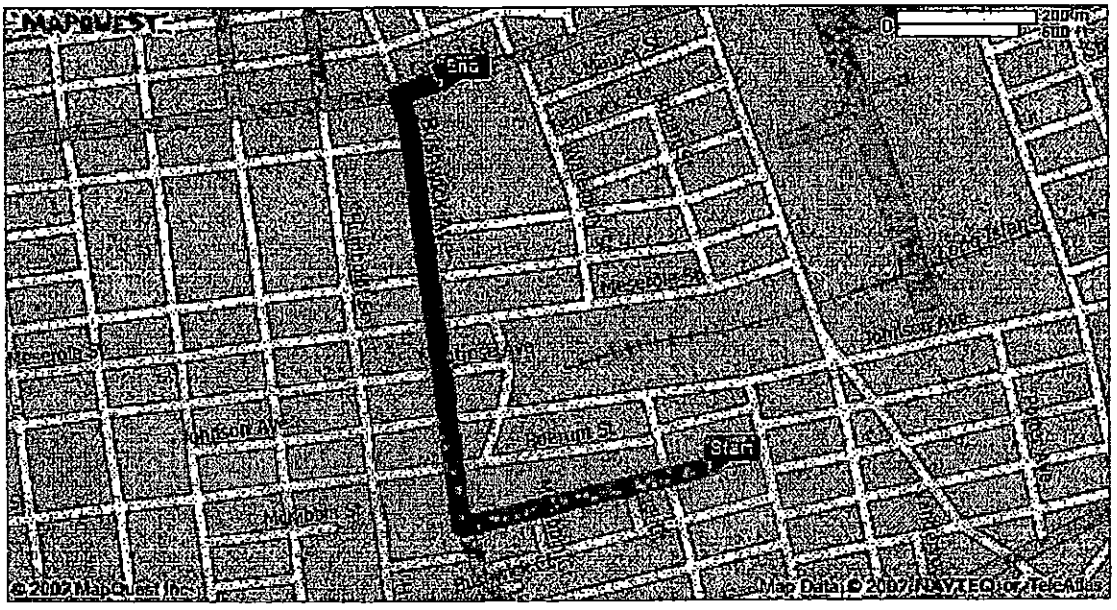
Start: **353 Mckibben St**
Brooklyn, NY 11206, US

End: **Woodhull Hospital:**
718-388-3627
850 Grand St, Brooklyn, NY
11211, US



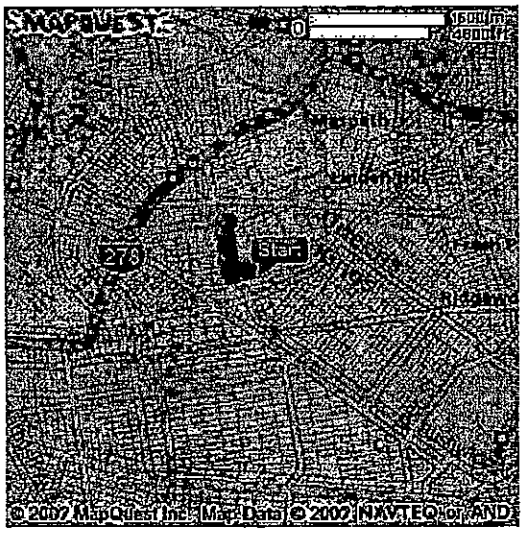
Notes:
Only text visible within note field will print.

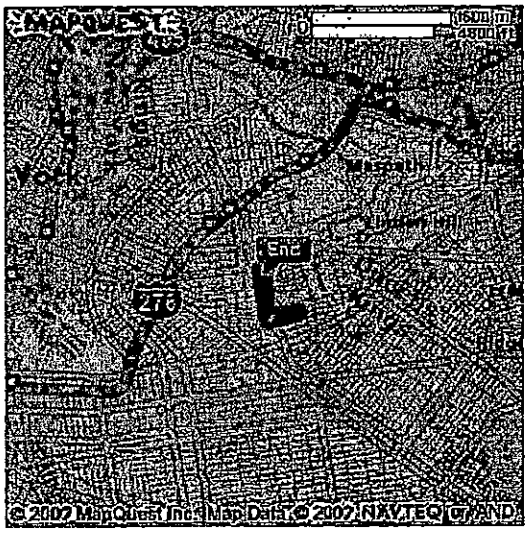
Directions	Distance
Total Est. Time: 3 minutes **Total Est. Distance:** 0.78 miles	
1: Start out going WEST on MCKIBBIN ST toward WHITE ST.	0.2 miles
2: Turn RIGHT onto BUSHWICK AVE.	0.4 miles
3: Turn RIGHT onto GRAND ST.	<0.1 miles
4: End at **Woodhull Hospital:** 850 Grand St, Brooklyn, NY 11211, US	
Total Est. Time: 3 minutes **Total Est. Distance:** 0.78 miles	



Start:
353 Mckibben St
Brooklyn, NY 11206, US

End:
Woodhull Hospital: 718-388-3627
850 Grand St, Brooklyn, NY 11211, US





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APPENDIX G

QUALITY ASSURANCE PROJECT PLAN

353 MCKIBBIN STREET

KINGS COUNTY, NEW YORK
Quality Assurance Project Plan

NYSDEC BCP Number: C224102

Prepared for:

Mehadrin Dairy Corporation

BBM, LLC

LFW Dairy Corporation, LLC

Brooklyn, New York

Prepared by:

BL Companies Architects Engineers Landscape Architects Surveyors PC

355 Research Parkway

Meriden, Connecticut 06450

203 630-1406

JANUARY 2008

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SECTION 1
PROJECT DESCRIPTION

This Quality Assurance Project Plan (QAPP) specifies analytical methods to be used to ensure that data from the proposed Remedial Action Work Plan (RAWP) are precise, accurate, representative, comparable, and complete.

1.1 INTRODUCTION

BL Companies, Inc. (BL Companies) has prepared an RAWP for Mehadrin Dairy Corporation (Mehadrin), which documents remedial activities planned for the proposed Mehadrin Dairy Site located at 353 McKibbIn Street in the Borough of Brooklyn, Kings County, New York (the Site). The Site was formerly developed with structures associated with the operation of a chemical works facility (1907), lacquer spraying processes (circa 1951), and paper box storage (1951-1995). In addition, urban fill material of unknown origin was likely placed on the Site at some time in the past. Currently the Site consists of undeveloped land. Previous investigations have documented the presence of soil impacted with volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), and metals.

1.2 OBJECTIVES

The objective of the proposed work is to remediate the Site in accordance with the Brownfield's Cleanup Program and to ultimately prepare the Site for redevelopment as a Mehadrin Dairy kosher food warehouse and distribution facility. This objective will be accomplished through the excavation of material for the installation of the building foundations, the excavation of several contamination hotspots that extend below the excavation depth required for the construction of the building, and the redevelopment of the Site. Contaminated soil and ground water must be handled and managed in accordance with all local, state and federal laws, and the means and methods described in the RAWP for the Site.

1.3 SCOPE OF WORK

The scope of work at the Site is described in the project RAWP.

SECTION 2
PROJECT ORGANIZATION

The remedial activities will be completed for Mehadrin Dairy by Albert Lieberman Construction, who will arrange for the excavation and disposal of impacted materials, as well as the analytical services required. BL Companies will provide field personnel to oversee the remedial activities and personnel to complete data interpretation and the reporting tasks required.

Key contacts for this project are as follows:

Albert Lieberman Construction Project Manager:	TBD
BL Companies Project Manager:	John Bogdanski Telephone: (203) 630-1406 Fax: (203) 630-2615
Laboratory Representative: (under consideration)	Severn-Trent Laboratories, Inc. Telephone: (203) 929-8140 Fax: (203) 929-8142

SECTION 3
QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) OBJECTIVES FOR MEASUREMENT OF DATA

3.1 INTRODUCTION

The quality assurance and quality control objectives for all measurement data include precision, accuracy, representativeness, completeness, and comparability. These objectives are defined in following subsections. They are formulated to meet the requirements of the USEPA SW-846. The analytical methods and their Contract Required Quantitation Limits (CRQLs) are given in Section 7.

3.2 PRECISION

Precision is an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Specifically, it is a quantitative measurement of the variability of a group of measurements compared to their average value (USEPA, 1987). Precision is usually stated in terms of standard deviation, but other estimates such as the coefficient of variation (relative standard deviation), range (maximum value minus minimum value), relative range, and relative percent difference (RPD) are common.

For this project, field sampling precision will be determined by analyzing coded duplicate samples (labeled so that the laboratory does not recognize them as duplicates) for the same parameters, and then, during data validation (Section 8), calculating the RPD for duplicate sample results.

Analytical precision will be determined by the laboratory by calculating the RPD for the results of the analysis of internal QC duplicates and matrix spike duplicates. The formula for calculating RPD is as follows:

$$RPD = \frac{|V1 - V2|}{(V1 + V2)/2} \times 100$$

where:

RPD	=	Relative Percent Difference.
V1, V2	=	The two values to be compared.
$\|V1 - V2\|$	=	The absolute value of the difference between the two values.
$(V1 + V2)/2$	=	The average of the two values.

The data quality objectives for analytical precision, calculated as the RPD between duplicate analyses, are presented in Tables 3.1 and 3.2.

3.3 ACCURACY

Accuracy is a measure of the degree of agreement of a measured value with the true or expected value of the quantity of concern (Taylor, 1987), or the difference between a measured value and the true or accepted reference value. The accuracy of an analytical procedure is best determined by the analysis of a sample containing a known quantity of material, and is expressed as the percent of the known quantity which is recovered or measured. The recovery of a given analyte is dependent upon the sample matrix, method of analysis, and the specific compound or element being determined. The concentration of the analyte relative to the detection limit of the analytical method is also a major factor in determining the accuracy of the measurement. Concentrations of analytes which are close to the detection limits are less accurate because they are more affected by such factors as instrument "noise". Higher concentrations will not be as affected by instrument noise or other variables and thus will be more accurate.

Sampling accuracy may be determined through the assessment of the analytical results of field blanks and trip blanks for each sample set. Analytical accuracy is typically assessed by examining the percent recoveries of surrogate compounds that are added to each sample (organic analyses only), and the percent recoveries of matrix spike compounds added to selected samples and laboratory blanks. Additionally, initial and continuing calibrations must be performed and accomplished within the established method control limits to define the instrument accuracy before analytical accuracy can be determined for any sample set.

Accuracy is normally measured as the percent recovery (%R) of a known amount of analyte, called a spike, added to a sample (matrix spike) or to a blank (blank spike). The %R is calculated as follows:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where:

%R	=	Percent recovery.
SSR	=	Spike sample result: concentration of analyte obtained by analyzing the sample with the spike added.
SR	=	Sample result: the background value, i.e., the concentration of the analyte obtained by analyzing the sample.
SA	=	Spiked analyte: concentration of the analyte spike added to the sample.

The acceptance limits for accuracy for each parameter are presented in Tables 3.1 and 3.2.

3.4 REPRESENTATIVENESS

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program (USEPA, 1987). Samples must be representative of the environmental media being sampled. Selection of sample locations and sampling procedures will incorporate consideration of obtaining the most representative sample possible.

Field and laboratory procedures will be performed in such a manner as to ensure, to the degree that is technically possible, that the data derived represents the in-place quality of the material sampled. Every effort will be made to ensure chemical compounds will not be introduced into the sample via sample containers, handling, and analysis.

The assessment of representativeness also must consider the degree of heterogeneity in the material from which the samples are collected. Sampling heterogeneity will be evaluated during data validation through the analysis of coded field duplicate samples. The analytical laboratory will also follow acceptable procedures to assure the samples are adequately homogenized prior to taking aliquots for analysis, so the reported results are representative of the sample received.

Chain-of-custody procedures will be followed to document that contamination of samples has not occurred during container preparation, shipment, and sampling. Details of blank, duplicate and Chain-of-custody procedures are presented in Sections 4 and 5.

3.5 COMPLETENESS

Completeness is defined as the percentage of measurements made which are judged to be valid (USEPA, 1987). The QC objective for completeness is generation of valid data for at least 90 percent of the analyses requested. Completeness is defined as follows for all sample measurements:

$$\%C = \frac{V}{T} \times 100$$

where:

%C = Percent completeness.

V = Number of measurements judged valid.

T = Total number of measurements.

3.6 COMPARABILITY

Comparability expresses the degree of confidence with which one data set can be compared to another (USEPA, 1987). The comparability of all data collected for this project will be ensured by:

- Using identified standard methods for both sampling and analysis phases of this project;
- Requiring traceability of all analytical standards and/or source materials to the U.S. Environmental Protection Agency (USEPA) or National Institute of Standards and Technology (NIST);
- Requiring that all calibrations be verified with an independently prepared standard from a source other than that used for calibration (if applicable);
- Using standard reporting units and reporting formats including the reporting of QC data;
- Performing a complete data validation on a representative fraction of the analytical results, including the use of data qualifiers in all cases where appropriate; and
- Requiring that all validation qualifiers be used any time an analytical result is used for any purpose.

These steps will ensure all future users of either the data or the conclusions drawn from them will be able to judge the comparability of these data and conclusions.

SECTION 4 -
SAMPLING PROGRAM

4.1 INTRODUCTION

This section presents sample container preparation procedures, sample preservation procedures, sample holding times, and field QC sample requirements. The sampling procedures are presented in the RAWP.

4.2 SAMPLE CONTAINER PREPARATION AND SAMPLE PRESERVATION

Sample containers will be properly washed and decontaminated prior to their use by either the analytical laboratory or the container vendor to the specifications required by the USEPA. Copies of the sample container QC analyses will be provided by the laboratory for each container lot used to obtain samples. The containers will be tagged, the appropriate preservatives will be added. The types of containers are shown in Tables 4.1 and 4.2.

Samples shall be preserved according to the preservation techniques given in Tables 4.2 and 4.3. Preservatives will be added to the sample bottles by the laboratory prior to their shipment in sufficient quantities to ensure that proper sample pH is met. Following sample collection, the sample bottles should be placed on ice in the shipping cooler, cooled to 4°C with ice or "blue ice", and delivered to the laboratory within 48 hours of collection. Chain-of-custody procedures are described in Section 5.

4.3 SAMPLE HOLDING TIMES

The sample holding times for organic and inorganic parameters are given in Tables 4.1 and 4.2 and must be in accordance with the NYSDEC ASP requirements. Holding times for Toxicity Characteristic Leaching Procedure (TCLP) samples are given in Table 4.3. The NYSDEC ASP holding times must be strictly adhered to by the laboratory. Any holding time exceedances must be reported to BL Companies.

4.4 FIELD QC SAMPLES

To assess field sampling and decontamination performance, two types of "blanks" will be collected and submitted to the laboratory for analyses. In addition, the precision of field sampling procedures will be assessed by collecting coded field duplicates and matrix spike/matrix spike duplicates (MS/MSDs). The blanks will include:

a. Trip Blanks - A Trip Blank will be prepared before the sample containers are sent by the laboratory. The trip blank will consist of a 40-ml VOA vial containing distilled, deionized water, which accompanies the other water sample bottles into the field and

back to the laboratory. A trip blank will be included with each shipment of water samples for target compound list (TCL) volatiles analysis. The Trip Blank will be analyzed for TCL volatile organic compounds to assess any contamination from sampling and transport, and internal laboratory procedures.

b. Field Blanks - Field Blanks will be taken at a minimum frequency of one per 20 field samples per sample matrix. Field blanks are used to determine the effectiveness of the decontamination procedures for sampling equipment. It is a sample of deionized, distilled water provided by the laboratory that has passed through a decontaminated bailer or other sampling apparatus. It is usually collected as a last step in the decontamination procedure, prior to taking an environmental sample. The field blank may be analyzed for all or some of the parameters of interest.

The duplicates will consist of:

a. Coded Field Duplicate - To determine the representativeness of the sampling methods, coded field duplicates will be collected. The samples are termed "coded" because they will be labeled in such a manner that the laboratory will not be able to determine that they are a duplicate sample. This will eliminate any possible bias that could arise.

b. Matrix Spike/Matrix Spike Duplicate (MS/MSD) - MS/MSD samples (MS/MSD for organics; MS and laboratory duplicate for inorganics) will be taken at a frequency of one pair per approximately 20 field samples. These samples are used to assess the effect of the sample matrix on the recovery of target compounds or target analytes. The percent recoveries and RPDs are given in Tables 3.1 and 3.2

An analytical methods/quality assurance summary is presented in Table 4.4.

SECTION 5
SAMPLE TRACKING AND CUSTODY

5.1 INTRODUCTION

This section presents sample custody procedures for both the field and laboratory. Implementation of proper custody procedures for samples generated in the field is the responsibility of field personnel. Both laboratory and field personnel involved in the Chain-of-custody (COC) and transfer of samples will be trained as to the purpose and procedures prior to implementation.

Evidence of sample traceability and integrity is provided by COC procedures. These procedures document the sample traceability from the selection and preparation of the sample containers by the laboratory, to sample collection, to sample shipment, to laboratory receipt and analysis. The sample custody flowchart is shown in Figure 5.1. A sample is considered to be in a person's custody if the sample is:

- In a person's possession;
- Maintained in view after possession is accepted and documented;
- Locked and tagged with Custody Seals so that no one can tamper with it after having been in physical custody; or
- In a secured area which is restricted to authorized personnel.

5.2 FIELD SAMPLE CUSTODY

A COC record (Figure 5.2 or similar) accompanies the sample containers from selection and preparation at the laboratory, during shipment to the field for sample containment and preservation, and during return to the laboratory. Triplicate copies of the COC must be completed for each sample set collected.

The COC lists the field personnel responsible for taking samples, the project name and number, the name of the analytical laboratory to which the samples are sent, and the method of sample shipment. The COC also lists a unique description of every sample bottle in the set. If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample.

The REMARKS space on the COC is used to indicate if the sample is a matrix spike, matrix spike duplicate, or any other sample information for the laboratory. Since they are not specific to any one sample point, trip and field blanks are indicated on separate rows. Once all bottles are properly accounted for on the form, a sampler will write his or her signature and the date and time on the first RELINQUISHED BY space. The sampler will also write the method of

shipment, the shipping cooler identification number, and the shipper airbill number on the top of the COC. Mistakes will be crossed out with a single line in ink and initialed by the author.

One copy of the COC is retained by sampling personnel and the other two copies are put into a sealable plastic bag and taped inside the lid of the shipping cooler. The cooler lid is closed, custody seals provided by the laboratory are affixed to the latch and across the back and front lids of the cooler, and the person relinquishing the samples signs their name across the seal. The seal is taped, and the cooler is wrapped tightly with clear packing tape. It is then relinquished by field personnel to personnel responsible for shipment, typically an overnight carrier. The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the sample will not be analyzed.

5.3 LABORATORY SAMPLE CUSTODY

The Project Manager or Field Team Leader will notify the laboratory of upcoming field sampling activities, and the subsequent shipment of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

The following laboratory sample custody procedures will be used:

- The laboratory will designate a sample custodian who will be responsible for maintaining custody of the samples, and for maintaining all associated records documenting that custody.

- Upon receipt of the samples, the custodian will check cooler temperature, and check the original COC documents and compare them with the labeled contents of each sample container for correctness and traceability. The sample custodian will sign the COC record and record the date and time received.

- Care will be exercised to annotate any labeling or descriptive errors. In the event of discrepant documentation, the laboratory will immediately contact the Project Manager or Field Team Leader as part of the corrective action process. A qualitative assessment of each sample container will be performed to note any anomalies, such as broken or leaking bottles. This assessment will be recorded as part of the incoming chain-of-custody procedure.

- The samples will be stored in a secured area at a temperature of approximately 4 degrees Celsius until analyses commence.

- A laboratory tracking record will accompany the sample or sample fraction through final analysis for control.

- A copy of the tracking record will accompany the laboratory report and will become a permanent part of the project records.

SECTION 6
CALIBRATION PROCEDURES

6.1 FIELD INSTRUMENTS

All field analytical equipment will be calibrated immediately prior to each day's use. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. Records of all instrument calibration will be maintained by the Field Team Leader. Copies of all the instrument manuals will be maintained on-site by the Field Team Leader.

Calibration procedures for instruments used for monitoring health and safety hazards (e.g., photoionization detector) are provided in the Health and Safety Plan.

6.2 LABORATORY INSTRUMENTS

The laboratory will follow all calibration procedures and schedules as specified in the sections of the USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods given in Section 7.

SECTION 7
ANALYTICAL PROCEDURES

7.1 INTRODUCTION

Samples will be analyzed according to the USEPA SW-846 "Test Methods for Evaluating Solid Waste," November 1986, 3rd edition and subsequent updates. The methods to be used for the laboratory analysis of water and soil samples are presented in Tables 7.1 and 7.2. These methods were selected because they attain the quantitation limits which are compiled on Tables 7.1 and 7.2.

SECTION 8
DATA REDUCTION, VALIDATION, AND REPORTING

8.1 INTRODUCTION

Data collected during the field investigation will be reduced and reviewed by the laboratory QA personnel, and a report on the findings will be tabulated in a standard format. The criteria used to identify and quantify the analytes will be those specified for the applicable methods in the USEPA SW-846 and subsequent updates. The data package provided by the laboratory will contain all items specified in the USEPA SW-846 appropriate for the analyses to be performed, and be reported in standard format.

The completed copies of the Chain-of-custody records (both external and internal) accompanying each sample from time of initial bottle preparation to completion of analysis shall be attached to the analytical reports.

8.2 DATA REDUCTION

Two copies of the analytical data packages will be provided by the laboratory. One copy of the package will be sent to Mehadrin Dairy for filing; a second copy will be sent to the BL Companies Project Manager and used to generate summary tables. These tables will form the database for assessment of the Site contamination condition.

8.3 DATA VALIDATION

Data validation will be performed on all of the chemical results for the Site. Data validation will be performed in accordance with the USEPA Contract Laboratory Program for Organic Data Review, EPA 540/R-99/008 (October 1999), and USEPA Contract Laboratory Program for Inorganic Data Review, EPA 540/R-94/013 (February 1994). Data validation for all samples will include a review of holding times, method blanks, surrogates, reporting limits, chain-of-custody records, and QC samples.

8.4 DATA REPORTING

Prior to release by the laboratory, the data must first meet all the specific QA/QC associated with the Standard Operating Procedure (SOP) that was used for the analysis. The laboratory quality assurance officer (LQA) at the laboratory is responsible for the final verification of the data.

The laboratory employs a system of sign-off sheets where each analyst must sign off after their respective part of the analysis is complete and the analysis meets the QA/QC requirements of the specific SOP. Any deviations must be noted and explained in the project narrative, which will be

incorporated into the final report. The LQA has final sign off on the data package and is responsible for ensuring the overall quality of the data.

A Data Usability Summary (as defined in NYSDEC Draft DER-10 Technical Guidance for Site Investigations and Remediation, dated December 2002) will be included in the Final Engineering Report for this project.

8.5 DATA MANAGEMENT

An electronic database of all chemical data will be created and maintained for this project from the electronic data deliverables (EDDs) provided by the laboratory. The following data management procedure will be used for all laboratory analytical data.

- Data package, including data summaries (Form Is) and all laboratory QA/QC and other backup information, is sent to an independent data validator.
- Digital data disks are used to import electronic data into the database.
- When validation is complete, qualifiers are entered into the database.
- Original Form Is with qualifiers are filed in the project files. Copies of the Form Is with qualifiers are organized in three-ring binders in order of sample identification.
- Site data tables are generated from the database.
- Database tables are checked against validated Form Is for accuracy and completeness.
- Data is exported from the database to MS Excel for creation of tables.
- All Excel tables are spot-checked against Form Is after formatting or updating with new sample data.

SECTION 9
INTERNAL QUALITY CONTROL CHECKS AND FREQUENCY

9.1 QUALITY ASSURANCE BATCHING

Each set of samples will be analyzed concurrently with calibration standards, method blanks, matrix spikes (MS), matrix spike duplicates (MSD) or laboratory duplicates, and QC check samples (if required by the protocol). The MS/MSD samples will be designated by the field personnel. If no MS/MSD samples have been designated, the laboratory will contact the BL Companies Project Manager for corrective action.

9.2 CALIBRATION STANDARDS AND SURROGATES

All organic standard and surrogate compounds are checked by the method of mass spectrometry for correct identification and gas chromatography for degree of purity and concentration. All standards are traceable to a source of known quality certified by the USEPA or NIST, or other similar program. When the compounds pass the identity and purity tests, they are certified for use in standard and surrogate solutions. Concentrations of the solutions are checked for accuracy before release for laboratory use. Standard solutions are replaced monthly or more frequently, based upon data indicating deterioration.

9.3 ORGANIC BLANKS AND MATRIX SPIKE

Analysis of blank samples verifies that the analytical method does not introduce contaminants or record "false positives". The blank water can be generated by reverse osmosis and Super-Q filtration systems, or distillation of water containing $KMnO_4$. The matrix spike is generated by addition of surrogate standard to each sample.

9.4 TRIP AND FIELD BLANKS

Trip blanks and field blanks will be utilized in accordance with the specifications in Section 4. These blanks will be analyzed to provide a check on sample bottle preparation and to evaluate the possibility of atmospheric or cross contamination of the samples.

SECTION 10
PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES

10.1 PREVENTIVE MAINTENANCE PROCEDURES

Equipment, instruments, tools, gauges, and other items requiring preventive maintenance will be serviced in accordance with the manufacturer's specified recommendations and written procedure developed by the operators.

A list of critical spare parts will be established by the operator. These spare parts will be available for use in order to reduce the downtime. A service contract for rapid instrument repair or backup instruments may be substituted for the spare part inventory.

10.2 SCHEDULES

Written procedures will establish the schedule for servicing critical items in order to minimize the downtime of the measurement system. The laboratory will adhere to the maintenance schedule, and arrange any necessary and prompt service. Required service will be performed by qualified personnel.

10.3 RECORDS

Logs shall be established to record and control maintenance and service procedures and schedules. All maintenance records will be documented and traceable to the specific equipment, instruments, tools, and gauges. Records produced shall be reviewed, maintained, and filed by the operators at the laboratories.

SECTION 11
CORRECTIVE ACTION

11.1 INTRODUCTION

The following procedures have been established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected.

11.2 PROCEDURE DESCRIPTION

When a significant condition adverse to quality is noted at Site, laboratory, or subcontractor location, the cause of the condition will be determined and corrective action will be taken to preclude repetition. Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the QAO, Project Manager, Field Team Leader and involved contractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action.

All project personnel have the responsibility, as part of the normal work duties, to promptly identify, solicit approved correction, and report conditions adverse to quality. Corrective actions will be initiated as follows:

- When predetermined acceptance standards are not attained;
- When procedure or data compiled are determined to be deficient;
- When equipment or instrumentation is found to be faulty;
- When samples and analytical test results are not clearly traceable;
- When quality assurance requirements have been violated;
- When designated approvals have been circumvented;
- As a result of system and performance audits;
- As a result of a management assessment;
- As a result of laboratory/field comparison studies; and
- As required by USEPA SW-846, and subsequent updates, or by the NYSDEC ASP.

Project management and staff, such as field investigation teams, remedial response planning personnel, and laboratory groups, monitor on-going work performance in the normal course of daily responsibilities. Activities, or documents ascertained to be noncompliant with quality assurance requirements will be documented.

Any project personnel may identify noncompliance issues; however, the designated QA personnel are responsible for documenting, numbering, logging, and verifying the close out action. The Project Manager will be responsible for ensuring that all recommended corrective actions are implemented, documented, and approved.

SECTION 12
REFERENCES

USEPA, 1986: *SW-846 "Test Method for Evaluating Solid Waste,"* dated November 1986. U.S. Environmental Protection Agency, Washington, D.C.

Taylor, J. K., 1987. *Quality Assurance of Chemical Measurements.* Lewis Publishers, Inc., Chelsea, Michigan

USEPA, 1987. *Data Quality Objectives for Remedial Response Actions Activities: Development Process*, EPA/540/G-87/003, OSWER Directive 9355.0-7- U.S. Environmental Protection Agency, Washington, D.C.

USEPA, 1992a. *CLP Organics Data Review and Preliminary Review.* SOP No. HW-6, Revision #8, dated January 1992. USEPA Region II.

USEPA, 1992b. *Evaluation of Metals Data for the Contract Laboratory Program (CLP) based on SOW 3/90.* SOP No. HW-2, Revision XI, dated January 1992. USEPA Region II.

TABLE 3.1
QUALITY CONTROL LIMITS FOR WATER SAMPLES

			Laboratory Accuracy and Precision				
Analytical Parameters	**Analytical Method (a)**	**Matrix Spike (MS) Compounds**	**MS/MSD (b) % Recovery**	**MS/MSD RPD (c)**	**LCS (d) % Recovery**	**Surrogate Compounds**	**Surrogate % Recovery**
VOCs (e)	SW8260B	1,1-Dichloroethane	61-145	14	NA	Toluene-d8	88-110
		Trichloroethene	71-120	14	NA	Bromofluorobenzene	86-115
		Benzene	76-127	11	NA	1,2-Dichloroethane-d4	76-114
		Toluene	76-125	13	NA		
		Chlorobenzene	75-130	13	NA		
SVOCs (f)	SW8270C	Phenol	12-110	42	NA	Nitrobenzene-d5	35-114
		2-Chlorophenol	27-123	40	NA	2-Fluorobiphenyl	43-116
		1,4-Dichlorobenzene	36-97	28	NA	Terphenyl-d14	33-141
		N-Nitroso-di-n-propylamine	41-116	38	NA	Phenol-d5	10-110
		1,2,4-Trichlorobenzene	39-98	28	NA	2-Fluorophenol	21-110
		4-Chloro-3-methylphenol	23-97	42	NA	2,4,6-Tribromophenol	10-123
		Acenaphthene	46-118	31	NA	2-Chlorophenol-d4	33-110 (g)
		4-Nitrophenol	10-80	50	NA	1,2-Dichlorobenzene-d4	16-110 (g)
		2,4-Dinitrotoluene	24-96	38	NA		
		Pentachlorophenol	9-103	50	NA		
		Pyrene	26-127	31	NA		
Pesticides/PCBs (h)	SW8081/SW8082	Gamma-BHC (Lindane)	56-123	15	NA	Tetrachloro-m-xylene	60-150 (g)
		Heptachlor	40-131	20	NA	Decachlorobiphenyl	60-150 (g)
		Aldrin	40-120	20	NA		
		Dieldrin	52-126	18	NA		
		Endrin	56-121	21	NA		
		4,4'-DDT	38-127	27	NA		
Inorganics (i)	SW6010B, SW7470A/ 7471A, SW7841, SW9010A (Cyanide)	Inorganic Analyte	75-125 (j)	20 (k)	80-120	NA	NA

(a) Analytical Methods: USEPA SW-846, 3rd edition, Revision 1, November 1990; any subsequent revisions shall supersede this information
(b) Matrix Spike/Matrix Spike Duplicate
(c) Relative Percent Difference
(d) Laboratory Control Sample
(e) Target Compound List Volatile Organic Compounds
(f) Target Compound List Semivolatile Organic Compounds
(g) Limits are advisory only
(h) Polychlorinated Biphenyls
(i) Target Analyte List Inorganics (metals and cyanide)
(j) Matrix spike only
(k) Laboratory duplicate RPD
NA - Not Applicable

TABLE 3.2

QUALITY CONTROL LIMITS FOR SOIL SAMPLES

			Laboratory Accuracy and Precision				
Analytical Parameter	**Analytical Method (a)**	**Matrix Spike (MS) Compounds**	**MS/MSD (b) % Recovery**	**MS/MSD RPD (c)**	**LCS (d) % Recovery**	**Surrogate Compounds**	**Surrogate % Recovery**
VOCs (e)	SW8260B	1,1-Dichloroethane	59-172	22	NA	Toluene-d8	84-138
		Trichloroethene	62-137	24	NA	Bromofluorobenzene	59-113
		Benzene	66-142	21	NA	1,2-Dichloroethane-d4	70-121
		Toluene	59-139	21	NA		
		Chlorobenzene	60-133	21	NA		
SVOCs (f)	SW8270C	Phenol	26-90	35	NA	Nitrobenzene-d5	23-120
		2-Chlorophenol	25-102	50	NA	2-Fluorobiphenyl	30-115
		1,4-Dichlorobenzene	28-104	27	NA	Terphenyl-d14	18-137
		N-Nitroso-di-n-propylamine	41-126	38	NA	Phenol-d5	24-113
		1,2,4-Trichlorobenzene	38-107	23	NA	2-Fluorophenol	25-121
		4-Chloro-3-methylphenol	26-103	33	NA	2,4,6-Tribromophenol	19-122
		Acenaphthene	31-137	19	NA	2-Chlorophenol-d4	20-130 (g)
		4-Nitrophenol	11-114	50	NA	1,2-Dichlorobenzene-d4	20-130 (g)
		2,4-Dinitrotoluene	28-89	47	NA		
		Pentachlorophenol	17-109	47	NA		
		Pyrene	35-142	36	NA		
Pesticides/PCBs (h)	SW8081/SW8082	Gamma-BHC (Lindane)	46-127	50	NA	Tetrachloro-m-xylene	60-150 (g)
		Heptachlor	35-130	31	NA	Decachlorobiphenyl	60-150 (g)
		Aldrin	34-132	43	NA		
		Dieldrin	31-134	38	NA		
		Endrin	42-139	45	NA		
		4,4'-DDT	23-134	50	NA		
Inorganics (i)	SW6010B, SW7470A/ 7471A, SW7841, SW9010A (Cyanide)	Inorganic Analyte	75-125 (j)	20 (k)	80-120	NA	NA

(a) Analytical Methods: USEPA SW-846, 3rd edition, Revision 1, November 1990, any subsequent revisions shall supersede this information
(b) Matrix Spike/Matrix Spike Duplicate
(c) Relative Percent Difference
(d) Laboratory Control Sample
(e) Target Compound List Volatile Organic Compounds
(f) Target Compound List Semivolatile Organic Compounds
(g) Limits are advisory only
(h) Polychlorinated Biphenyls
(i) Target Analyte List Inorganics (metals and cyanide)
(j) Matrix spike only
(k) Laboratory duplicate RPD
NA - Not Applicable

TABLE 4.1

WATER SAMPLE CONTAINERIZATION, PRESERVATION, AND HOLDING TIMES

Analysis	Bottle Type	Preservation (a)	Holding Time (b)
Volatile Organic Compounds (VOCs)	2-40 mL glass vial w/ Teflon septum	Cool to 4°C	10 days
Semivolatile Organics Compounds (SVOCs)	1000 mL glass w/ Teflon lined cap	Cool to 4°C	5 days*
PCBs	Glass w/teflon cap	Cool to 4°C	5 days*
Metals	1000 mL plastic bottle	Nitric Acid to pH < 2 Cool to 4°C	6 months, except mercury (26 days)
Cyanide	500 mL plastic bottle	NaOH to pH > 12 Cool to 4°C	14 days

(a) All samples to be preserved in ice during collection and transport.

(b) Days from validated time of sample receipt (VTSR).

* Extraction of water samples for PCB analysis by separatory funnel must be completed within 7 days of VTSR. Continuous liquid-liquid extraction is the required extraction for water samples for SVOCs. Continuous liquid-liquid extraction and concentration of water samples for SVOCs analysis completed within 7 days of VTSR. Extracts of water samples must be analyzed within 40 days of extraction.

TABLE 4.2
SOIL AND WASTE SAMPLE CONTAINERIZATION AND HOLDING TIMES

Analysis	Bottle Type	Preservation [a]	Holding Time [b]
Volatile Organic Compounds (VOCs)	Wide-mouth glass w/ teflon lined cap	Cool to 4°C	10 days.
Other Organic Compounds [c]	Wide-mouth glass w/ teflon lined cap	Cool to 4°C	10 days*
Metals	Wide-mouth plastic or glass	Cool to 4°C	6 months, except mercury (26 days)
Cyanide	Wide-mouth plastic	Cool to 4°C	14 days
TCLP Organic Compounds	Wide-mouth glass w/ teflon lined cap	Cool to 4°C	See Table 4.4
TCLP Metals	Wide-mouth plastic or glass	Cool to 4°C	See Table 4.4

(a) All samples to be preserved in ice during collection and transport.

(b) Days from date of sample collection.

(c) Semivolatile organic compounds or PCBs.

* Sohxlet or sonication procedures for extraction and concentration of soil/waste samples for SVOCs must be completed within 10 days of VTSR. Sohxlet or sonication procedures for extraction and concentration of soil/sediment/waste samples for PCBs must be completed within 10 days of VTSR. Extracts of soil samples must be analyzed within 40 days of extraction.

TABLE 4.3

TCLP[a] SAMPLE HOLDING TIMES

Analytical Parameter	From: Sample Collection To: TCLP Extraction	From: TCLP Extraction To: Preparative Extraction	From: Preparative Extraction To: Determinative Analysis
Volatiles	14 days	NA	14 days
Semivolatiles	14 days	7 days	40 days
Mercury	26 days	NA	26 days
Metals (except Mercury)	180 days	NA	180 days

[a] Toxicity Characteristic Leaching Procedure
NA - Not Applicable

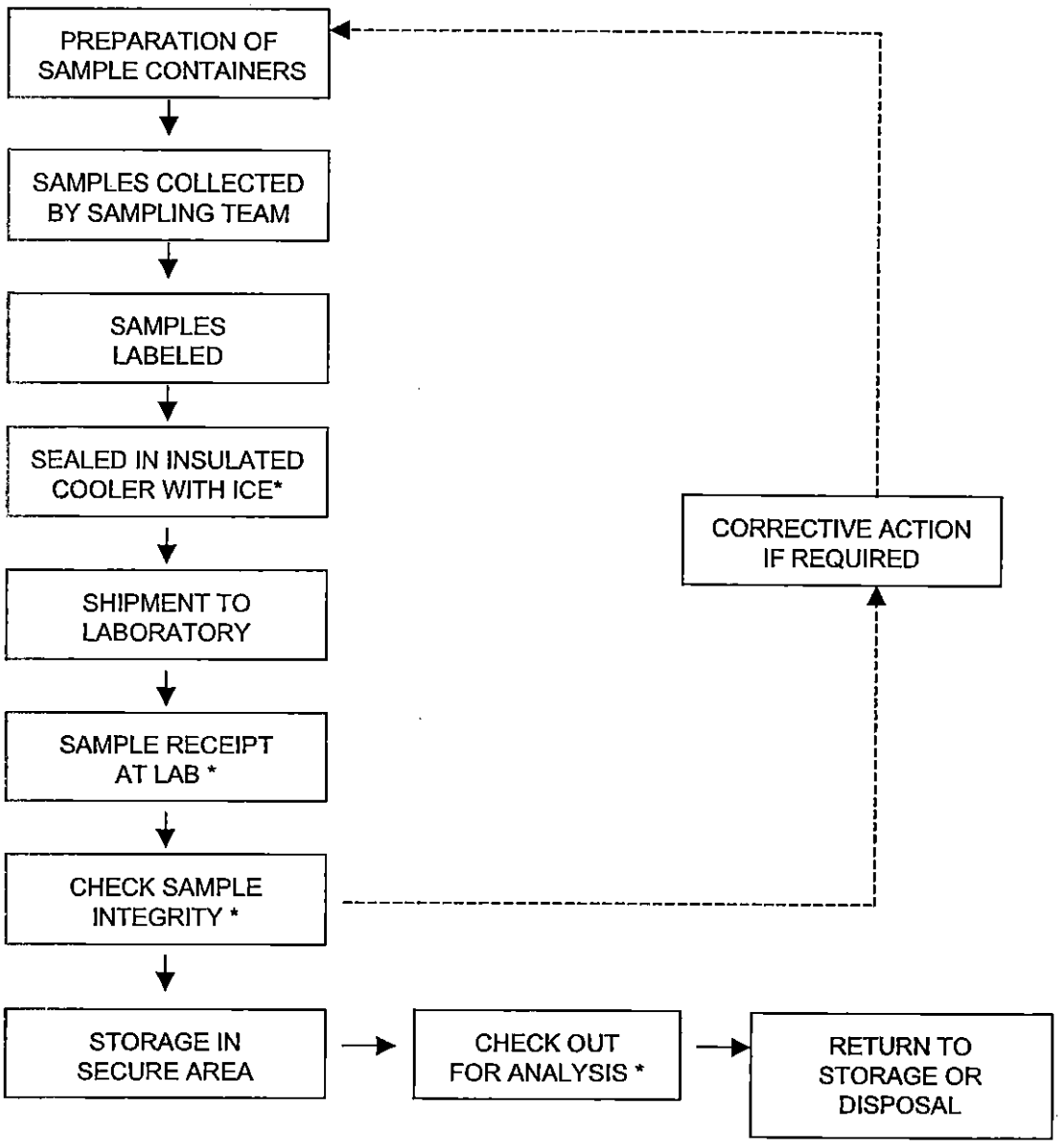
Table 4.4
Sample Collection and Analytical Summary
353 McKibbin Street
Remedial Action Work Plan

Medium	Sampling Method[1]	Analytical Parameters[2]	Number of Samples[3]	Number of Field Blanks[4]	Number of Trip Blanks[5]	Number of Field Duplicates[6]
End-Point Soil	Grab from excavation	VOCs SVOCs TAL metals	TBD	TBD	0	TBD
Wastewater	Grab	TBD[7]	TBD	TBD	TBD	TBD

Methods:
Sample containerization, bottle type, preservation and holding times are shown in Tables 4.1 and 4.2.
Samples analyzed by EPA Method 8260B will be collected and screened in the field in accordance with EPA Method 5035.
Number of subsurface-samples will be based on end-point sampling frequency presented in RAWP.
Field blanks will be collected collected a minimum frequency of one per 20 field samples.
Trip blanks will be included in each shipment of water samples for target compound list (TAL) volatiles analysis.
Field duplicates will be collected to determine representativeness of the sampling methods.
Analytical parameters determined by regulated waste disposal facility
Matrix spike/matrix Spike Duplicate (MS/MSD) samples will be taken at a frequency of one pair per approximately 20 field samples.
TBD - to be determined
VOCs - EPA Method 8260B
SVOCs - EPA Method 8270C
TAL metals - EPA 6010B/7000 Series

FIGURE 5.1

SAMPLE CUSTODY



* REQUIRES SIGN-OFF ON CHAIN-OF-CUSTODY FORM

CHAIN OF CUSTODY RECORD

WORK ORDER NO: _____

DUE DATE _____

COMPANY: _____

PHONE: ( ) _____ FAX #: ( ) _____

P.O. #: _____

CLIENT CONTACT: _____

PROJECT #: _____

SAMPLE TYPE
1. WATER
2. SOIL
3. SLUDGE
4. OIL
5. CHIPS
6. WIPES
7. AIR CASSETTE
8. OTHER

CONTAINER TYPE
P - PLASTIC
G - GLASS
V - VOA

SCILAB SAMPLE #	CLIENT SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER			SAMPLING INFORMATION			PRESERVATIVES										SAMPLE pH at login
			SIZE	TYPE	#	DATE	TIME	TECH											

REPORT PACKAGES
- MWRA ☐
- MA DEP ☐
- RDR ☐
- ASP A ☐
- ASP B ☐
- QC LEVEL 1 ☐
- QC LEVEL 2 ☐

SAMPLED BY	DATE:	RECEIVED BY	DATE:	Temperature upon receipt _____	
	TIME:		TIME:		
RELINQUISHED BY:	DATE:	RECEIVED BY	DATE:	SPECIAL INSTRUCTIONS	
	TIME:		TIME:	☐ 24 HOUR TAT	☐ 5 Day TAT
RELINQUISHED BY:	DATE:	RECEIVED BY	DATE:	☐ 48 HOUR TAT	☐ 7 DAY TAT
	TIME:		TIME:	☐ 72 HOUR TAT	☐ 10 DAY TAT

Shade areas for laboratory use only.
Gold copy - Originator Retains
Pink copy - Shipper Retains

Submit White and Yellow copies to the laboratory.

FIGURE 5.2

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TABLE 7-1

PROJECT QUANTITATION LIMITS

	Analysis/Compound	Method	Quantitation Limits Water (ug/L)	Soil (ug/kg)	State of New York Standards Water (ug/L) [a]	Soil (ug/kg) [b]
	Volatile Organics					
1	1,1,1-Trichloroethane	SW8260B	1	5	5	800
2	1,1,2,2-Tetrachloroethane	SW8260B	1	5	5	600
3	1,1,2-Trichloroethane	SW8260B	1	5	1	
4	1,1-Dichloroethane	SW8260B	1	5	5	200
5	1,1-Dichloroethene	SW8260B	1	5	5	400
6	1,2-Dichloroethane	SW8260B	1	5	0.6	100
7	1,2-Dichloroethene(total)	SW8260B	1	5	5	300
8	1,2-Dichloropropane	SW8260B	1	5	1	
9	2-Butanone (MEK)	SW8260B	10	20		300
10	2-Hexanone	SW8260B	10	20		
11	4-Methyl-2-pentanone(MIBK)	SW8260B	5	20		1000
12	Acetone	SW8260B	10	20		200
13	Benzene	SW8260B	1	5	1	60
14	Bromodichloromethane	SW8260B	1	5		
15	Bromoform	SW8260B	1	5		
16	Bromomethane	SW8260B	2	10	5	
17	Carbon Disulfide	SW8260B	1	5		2700
18	Carbon Tetrachloride	SW8260B	1	5	5	600
19	Chlorobenzene	SW8260B	1	5	5	1700
20	Chloroethane	SW8260B	2	10	5	1900
21	Chloroform	SW8260B	1	5	7	300
22	Chloromethane	SW8260B	2	10	5	
23	cis-1,3-Dichloropropene	SW8260B	1	5	0.4	
24	Dibromochloromethane	SW8260B	1	5	5	
25	Ethyl Benzene	SW8260B	1	5	5	5500
26	Methylene Chloride	SW8260B	1	5	5	100
27	Styrene	SW8260B	1	5	5	
28	Tetrachloroethene	SW8260B	1	5	5	1400
29	Toluene	SW8260B	1	5	5	1500
30	trans-1,3-Dichloropropene	SW8260B	1	5	0.4	
31	Trichloroethene	SW8260B	1	5	5	700
32	Vinyl Chloride	SW8260B	2	10	2	200
33	Xylenes(total)	SW8260B	1	5	5	1200

TABLE 7

PROJECT QUANTITATION LIMITS

	Analysis/Compound	Method	Quantitation Limits Water (ug/L)	Soil (ug/kg)	State of New York Standards Water (ug/L)	Soil (ug/kg)
	Semivolatile Organics					
1	1,2,4-Trichlorobenzene	SW8270C	10	330	5	3400
2	1,2-Dichlorobenzene	SW8270C	10	330	3	7900
3	1,3-Dichlorobenzene	SW8270C	10	330	3	1600
4	1,4-Dichlorobenzene	SW8270C	10	330	3	8500
5	2,2'-oxybis(1-chloropropane)*	SW8270C	10	330	5	
6	2,4,5-Trichlorophenol	SW8270C	25	330	1	100
7	2,4,6-Trichlorophenol	SW8270C	10	330	1	
8	2,4-Dichlorophenol	SW8270C	10	330	1	400
9	2,4-Dimethylphenol	SW8270C	10	330	1	
10	2,4-Dinitrophenol	SW8270C	25	330	1	200
11	2,4-Dinitrotoluene	SW8270C	10	330	5	
12	2,6-Dinitrotoluene	SW8270C	10	330	5	1000
13	2-Chloronaphthalene	SW8270C	10	330		
14	2-Chlorophenol	SW8270C	10	330	1	800
15	2-methyl-4,6-Dinitrophenol	SW8270C	25	330		
16	2-Methylnaphthalene	SW8270C	10	330		36400
17	2-Methylphenol	SW8270C	10	330	1	100
18	2-Nitrolaniline	SW8270C	25	330	5	430
19	2-Nitrophenol	SW8270C	10	330	1	330
20	3,3'-Dichlorobenzidine	SW8270C	10	330	5	
21	3-Nitroaniline	SW8270C	25	330	5	500
22	4-Bromophenyl-phenyl ether	SW8270C	10	330		
23	4-Chloro-3-methylphenol	SW8270C	10	330		240
24	4-Chloroaniline	SW8270C	10	330	5	220
25	4-Chlorophenyl-phenyl ether	SW8270C	10	330		
26	4-Methylphenol	SW8270C	10	330	1	900
27	4-Nitroaniline	SW8270C	25	330	5	
28	4-Nitrophenol	SW8270C	25	330	1	100
29	Acenaphthene	SW8270C	10	330		50000
30	Acenaphthylene	SW8270C	10	330		41000
31	Anthracene	SW8270C	10	330		50000
32	Benzo(a)anthracene	SW8270C	10	330		224
33	Benzo(a)pyrene	SW8270C	10	330		61
34	Benzo(b)fluoranthene	SW8270C	10	330		1100

Table 7-1

PROJECT QUANTITATION LIMITS

	Analysis/Compound	Method	Quantitation Limits Water (ug/L)	Soil (ug/kg)	State of New York Standards Water (ug/L)	Soil (ug/kg)
	Semivolatile Organics, cont.					
35	Benzo(g,h,i)perylene	SW8270C	10	330		50000
36	Benzo(k)fluoranthene	SW8270C	10	330		1100
37	bis(2-Chloroethoxy) methane	SW8270C	10	330	5	
38	bis(2-Chloroethyl) ether	SW8270C	10	330	1	
39	bis(2-ethylhexyl)phthalate	SW8270C	10	330	5	50000
40	Butylbenzylphthalate	SW8270C	10	330		50000
41	Carbazole	SW8270C	10	330		
42	Chrysene	SW8270C	10	330		400
43	Di-n-butylphthalate	SW8270C	10	330	50	8100
44	Di-n-octylphthalate	SW8270C	10	330		50000
45	Dibenz(a,h)anthracene	SW8270C	10	330		14
46	Dibenzofuran	SW8270C	10	330		6200
47	Diethylphthalate	SW8270C	10	330		7100
48	Dimethylphthalate	SW8270C	10	330		2000
49	Fluoranthene	SW8270C	10	330		50000
50	Fluorene	SW8270C	10	330		50000
51	Hexachlorobenzene	SW8270C	NA (8081A)	330		410
52	Hexachlorobutadiene	SW8270C	10	330	0.5	
53	Hexachlorocyclopentadiene	SW8270C	10	330	5	
54	Hexachloroethane	SW8270C	10	330	5	
55	Indeno(1,2,3-cd)pyrene	SW8270C	10	330		3200
56	Isophorone	SW8270C	10	330		4400
57	N-Nitroso-di-n-propylamine	SW8270C	10	330		
58	N-nitrosodiphenylamine	SW8270C	10	330		
59	Naphthalene	SW8270C	10	330		13000
60	Nitrobenzene	SW8270C	10	330	0.4	200
61	Pentachlorophenol	SW8270C	25	330	1	1000
62	Phenanthrene	SW8270C	10	330		50000
63	Phenol	SW8270C	10	330	1	30
64	Pyrene	SW8270C	10	330		50000

TABLE 7.1

PROJECT QUANTITATION LIMITS

	Analysis/Compound	Method	Estimated Quantitation Limits Water (mg/L)	Soil (mg/kg)	State of New York Standards Water (mg/L)	Soil (mg/kg)
	PCBs					
1	Aroclor-1016	SW8082	1.0	33	0.09	1000
2	Aroclor-1221	SW8082	2.0	33	0.09	1000
3	Aroclor-1232	SW8082	1.0	33	0.09	1000
4	Aroclor-1242	SW8082	1.0	33	0.09	1000
5	Aroclor-1248	SW8082	1.0	33	0.09	1000
6	Aroclor-1254	SW8082	1.0	33	0.09	1000
7	Aroclor-1260	SW8082	1.0	33	0.09	1000
	Metals					
1	Antimony	SW6010B	0.006	5.0	0.003	
2	Arsenic	SW6010B	0.01	1	0.025	7.5
3	Barium	SW6010B	0.01	1	1	300
4	Beryllium	SW6010B	0.005	0.5	0.003	0.16
5	Cadmium	SW6010B	0.005	0.5	0.005	1
6	Chromium	SW6010B	0.01	1	0.05	10
7	Copper	SW6010B	0.03	2.5	0.2	25
8	Lead	SW6010B	0.01	0.5	0.025	400[c]
9	Mercury	SW7470A/7471A	0.0002	0.01	0.0007	0.1
10	Nickel	SW6010B	0.04	4	0.1	13
11	Selenium	SW6010B	0.01	1	0.01	2
12	Silver	SW6010B	0.01	1	0.05	
13	Thallium	SW7841	0.002	1	0.0005	
14	Zinc	SW6010B	0.02	2	2	20
*15	Vanadium	SW6010B	0.05	1	0.0005	150
*16	Cobalt	SW6010B	0.05	1		30
*17	Aluminum	SW6010B	0.2	20		
*18	Calcium	SW6010B	5	500		
*19	Iron	SW6010B	0.1	10	0.3	2000

TABLE 7-1

PROJECT QUANTITATION LIMITS

Analysis/Compound	Method	Estimated Quantitation Limits Water (mg/L)	Soil (mg/kg)	State of New York Standards Water (mg/L)	Soil (mg/kg)
Metals, cont.					
*20 Magnesium	SW6010B	5	500	35	
*21 Manganese	SW6010B	0.015	1.5	0.3	
*22 Potassium	SW6010B	5	500		
*23 Sodium	SW6010B	5	500	20	
*24 Cyanide	SW9010A	0.01	0.01	200	

Notes:
N/A - Not Applicable
(a) - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, NYSDEC, October 1993
(b) - Determination of Soil Cleanup Objectives and Cleanup Levels, NYSDEC, January 24, 1994
(c) - EPA Guidance on Residential Lead-Based Paint, Lead Contaminated Dust, and Lead Contaminated Soil, July 14, 1994

TABLE 7.2
TCLP
PRACTICAL QUANTITATION LIMITS (PQLs)

TCLP VOLATILE	SW-846 Analysis	Water (ug/L)
Benzene	8240B	5
Carbon Tetrachloride	8240B	5
Chloroform	8240B	5
1,2-Dichlorethane	8240B	5
1,1-Dichloroethene	8240B	5
2-Butanone	8240B	100
Tetrachloroethene	8240B	5
Trichloroethene	8240B	5
Vinyl Chloride	8240B	100

TCLP SEMIVOLATILE	SW-846 Analysis	Water (ug/L)
2-Methylphenol	3510 / 8270B	10
3 & 4-Methylphenol	3510 / 8270B	10
1,4-Dichlorobenzene	3510 / 8270B	10
2,4-Dinitrotoluene	3510 / 8270B	10
Hexachlorobutadiene	3510 / 8270B	10
Hexachloroethane	3510 / 8270B	10
Hexachlorobenzene	3510 / 8270B	10
Nitrobenzene	3510 / 8270B	10
Pentachlorophenol	3510 / 8270B	50
Pyridine	3510 / 8270B	ND
2,4,5-Trichlorophenol	3510 / 8270B	10
2,4,6-Trichlorophenol	3510 / 8270B	10

TCLP METALS	SW-846 Analysis	Water (mg/L)
Arsenic	3010 / 6010	0.05
Barium	3010 / 6010	0.002
Cadmium	3010 / 6010	0.004
Chromium	3010 / 6010	0.007
Lead	3010 / 6010	0.04
Selenium	3010 / 6010	0.07
Silver	7760 / 6010	0.007
Mercury	7470	0.0002

ND - Not Determined

APPENDIX H

COMMUNITY AIR MONITORING PLAN

Proposed Mehadrin Dairy Facility
353 McKibbin Street
Brooklyn, New York

Community Air Monitoring Plan

Based upon the nature of known or potential contaminants at the Site, real-time air monitoring for volatile organic compounds (VOCs) and particulate levels at the perimeter of the Site will be necessary.

Continuous Monitoring
Continuous monitoring will be conducted for all ground intrusive remedial activities. Ground intrusive activities include remedial excavation, remedial backfilling, impacted soil handling, installation of demarcation barrier, installation of a portion of the clean cover fill in areas of proposed trailer parking lot, loading areas, and the installation of monitoring wells.

Periodic Monitoring
Periodic monitoring for VOCs will be conducted during non-intrusive activities. Non intrusive activities include the collection of sub-surface soil samples, the collection of ground water samples from monitoring wells, opening a well cap, well bailing/purging, arriving at the Site, and prior to leaving the Site.

VOC Monitoring, Response Levels and Actions
VOCs will be monitored at the downwind perimeter of the immediate Site on a continuous basis during ground intrusive activities. Upwind concentrations will be measured at the start of each workday and periodically afterwards to establish background conditions. The monitoring work will be performed using equipment appropriate to measure the types of contamination known or suspected to be present – Photoionization detector (PID). The PID will be calibrated at a minimum daily using an appropriate surrogate. The PID will be capable of calculating 15-minute running average concentrations, which will be compared to the following action levels:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the Site exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the down gradient perimeter of the Site persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of the vapors identified, corrective actions will be taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the

total organic vapor level 200 feet downwind of the Site or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less – but in no case less than 20 feet, is below 5 ppm background for the 15-minute average.

- If the total organic vapor level is above 25 ppm at the perimeter of the Site, activities will be shutdown.

All 15-minute readings will be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind perimeters of the Site at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes or less for comparison to the airborne particulate actions levels. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The following are the action levels for particulates:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the Site.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work will be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentrations to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for State (DEC and DOH) personnel to review.

APPENDIX I

RESUMES OF KEY PERSONNEL

Samuel R. Haydock, MS, LEP

DIRECTOR, NORTHEAST
ENVIRONMENTAL OPERATIONS

EDUCATION

Bachelor of Arts in Geology
University of Pennsylvania, 1984

Masters of Science in Geology
University of Vermont, 1988

REGISTRATION

Licensed Environmental Professional: Connecticut – No. 150

PROFESSIONAL ORGANIZATIONS

National Association of Safety and Health Professionals (NASHP)

RELEVANT PROJECT EXPERIENCE

NEPA/CEPA Compliance

Supervised and managed the completion of several Environmental Impact Evaluations required under the National Environmental Policy Act (NEPA) and state equivalents (Connecticut Environmental Policy Act, State Environmental Quality Review Act of New York, etc.) to evaluate potential impacts from public- and private-funded urban redevelopment projects, HUD-sponsored Urban Blight Initiatives, highway and transportation improvement projects, and telecommunications tower facilities. Urban redevelopment impact studies have addressed such issues as exposure to pollutants, noise and air quality, impacts to sensitive resources, environmental justice, and socio-economic impacts. Tower siting studies have focused on Section 106 of the National Historic Preservation Act, impacts to parklands, archeological resources, and wetlands and habitat.

Brownfields Assessments / Redevelopment

Brownfields site assessments and redevelopment projects have been recently completed for the Cities of Ansonia, Bridgeport, Derby, Waterbury, and Torrington, and the Valley Regional Planning Agency. The Derby and Torrington projects have involved environmental analysis of large urban tracks with multiple owners and uses. Included was evaluating Connecticut Transfer Act and CTDEP RSR applicability and compliance at individual lots within the study area. Both projects involved establishing baseline conditions, risk analysis, public participation and relations, regulatory (CTA/CTDEP RSR) status, and options for remediation with associated costs.

BL Companies

Samuel R. Haydock, MS, LEP

CONTINUED

Downtown Derby Redevelopment, Derby, CT

Supervised and managed an extensive Environmental Site Assessment (ESA) and Site Characterization study for the 22-acre Downtown Revitalization Zone (DRZ) in Derby Connecticut. This area of Derby Connecticut, south of Main Street and located at the confluence of the Housatonic and Naugatuck Rivers has long been considered the gateway to the Naugatuck River Valley. The competitive drive that powered the Naugatuck River Valley's rise to industrial prominence in the late 1800's – early 1900's led to the development of this area with factories and mills. The area currently consists of vacant lots, abandoned buildings, and some remaining industrial/commercial uses. A significant component, and one of the first steps, of the proposed redevelopment plan is to assess, remediate and remove the environmental impacts associated with the brownfield sites. BL Companies worked with the City of Derby and the Valley Regional Planning Agency to identify such environmental impacts, and to develop a remedial approach consistent and compatible with the proposed redevelopment plan for the DRZ. The scope of work included completion of a Phase I ESA and an extensive Phase II/III Site Investigation across the entire 22-acre DRZ. A preliminary Remedial Action Plan (RAP) has been prepared to achieve compliance with CTDEP Remediation Standards, which will be revised and completed upon acceptance of the site redevelopment plan.

Site Assessments / Characterization

Supervised the completion of more than 700 Phase I, II, and III Environmental Site Assessments (ESAs) on residential, commercial and industrial properties throughout New England, New York and New Jersey for individuals, developers, financial institutions, attorneys and municipalities. Developed standard protocols for Phase I ESAs, which meet or exceed ASTM and TASA guidelines.

Downtown Torrington Master Plan, Torrington, CT

Supervised and managed an analysis of the potential environmental liabilities and costs associated with a concept plan prepared for the redevelopment and revitalization of downtown Torrington. The Preliminary Environmental Assessment (PEA) included an area comprising approximately 100 acres within the downtown section of the city. The PEA identified and grouped properties as low, moderate, and high risk based on existing and past uses, current regulatory status, and applicability of the Connecticut Transfer Act. The PEA identified potential liabilities and a preliminary estimate of the potential costs to address impacts to soil and ground water with hazardous or regulated substances from current and historic use of the properties within the study area. Preliminary cost estimates for the abatement of hazardous building materials also were included in the PEA.

BL Companies

Samuel R. Haydock, MS, LEP

CONTINUED

Bridgeport Landing, Bridgeport, CT

Managed an analysis of potential environmental impacts and developed a Preliminary Remedial Action Plan for environmental compliance associated with the redevelopment of the Steel Point Peninsula in Bridgeport, Connecticut. The analysis included review of existing environmental studies and development of a preliminary approach for investigation and remediation to achieve compliance with the Connecticut Transfer Act and the CTDEP Remediation Standards. The analysis also included an evaluation of environmental impacts of the proposed redevelopment of the 50-acre peninsula, as required by the Connecticut Environmental Policy Act. Finally, the analysis included an evaluation of the permitting requirements and obstacles associated with redevelopment of the waterfront for public access and use as a marina, in the context of the CTDEP Office of Long Island Sound Program and the Connecticut Coastal Management Act.

Public High School, No. 2 Heating Oil Recovery System, Westbrook, CT

Supervised removal of 15,000-gallon UST and installation of No. 2 heating oil recovery system at a high school in Westbrook. Project tasks included removal of tank, free product in the tank grave, and oil saturated soils; design, installation and operation/maintenance of a combined ground water pump and treat/product recovery system. Upon recovery of free product, installation and operation of air sparging and vacuum extraction system was completed to treat dissolved phase contamination. Interaction with and permitting from both local and state regulatory agencies was required throughout the project.

Eveready Manufacturing Facility, New England

Directed the development of a site-wide management plan to deal with separate areas of solvent and heavy metal contamination in soil and ground water at Eveready's New England facility. Tasks associated with development of a site-wide management plan, which was approved by the State Department of Environmental Conservation, included determination of aerial and vertical extent of contamination and removal of contaminated soils (source areas); development of a ground water monitoring plan; and recommendation of ground water remedial options.

Remedial Investigation/Feasibility Study Assessment, NJ

Conducted a RI/FS assessment at a former OCF landfill in accordance with the New Jersey Department of Environmental Protection (NJDEP) approved work plan. The landfill contained Kaylo waste, which contained 12-14 percent asbestos and drums of unknown origin. Tasks associated with the assessment included: air photo evaluation; ground water monitoring well installation; ground water, surface water, surface soil and sediment sampling; and data evaluation and reporting. The investigation met the requirements of the NJDEP, demonstrated minimal impact to the environment and allowed OCF to proceed with cap placement and site closure.

Samuel R. Haydock, MS, LEP

CONTINUED

Underground Storage Tank (UST) Removal / Remediation

Directed UST removal at over 30 sites. At leaking UST sites, directed impacted soil removal and confirmation sampling. At many sites, conducted hydrogeological assessment program to determine the extent of petroleum contamination in shallow ground water detected following UST removal. Typical assessment program includes installation of shallow and deep monitoring wells, collection of soil and ground water samples, preparation of geologic cross-sections, installation of free product recovery system, excavation and disposal of petroleum-contaminated soils, interaction with local regulatory agencies and the design of a ground water recovery system for aquifer restoration, as needed.

Cable Manufacturing Facility, North Haven, CT

Supervised full site characterization, remediation and post-remediation monitoring for a cable manufacturing facility. The project involved the installation of 32 shallow and deep monitoring wells, 22 additional soil borings and completion of an 81-point soil gas survey to delineate the source area and plume limits for PCE contamination. Upon removal of source area and completion of post-remediation ground water monitoring, provided LEP verification that the site was investigated and remediated in accordance with CTDEP Remediation Standards. Final verification was accepted by the CTDEP.

Construction Services, Various Locations, Connecticut

Managed environmental component of construction-related projects for the Connecticut Department of Transportation, the Bridgeport Water Pollution Control Authority and the City of Middletown. Services included pre-construction site characterization, development of work plans, development of Health and Safety plans, Health and Safety monitoring, and handling and disposal of contaminated materials. Assignments also included the treatment and discharge of contaminated ground water at sewer installation and highway improvement projects.

Geophysical Study, Torrington Landfill, Torrington, CT

Directed geophysical investigations using an EM-34 ground conductivity meter to detect leachate plumes and potential leachate migration routes at industrial (RCRA) and municipal landfills in Torrington, as part of landfill closure. Evaluated surficial soils and bedrock cores in conjunction with geophysical data to determine the potential for plume migration to nearby wells. Also, directed other geophysical investigations utilizing an EM-31 ground conductivity meter and ground-penetrating radar to detect buried metallic objects and underground storage tanks.

Samuel R. Haydock, MS, LEP

CONTINUED

Water Supply Development, Residential and Golf Course Development, CT

Organized and executed site investigation to identify possible overburden and bedrock water sources for potable supply and irrigation use. Project included estimation of residential and irrigation water demands, locating proposed bedrock wells using surface geophysical methods (VLF and magnetometer), supervising drilling of deep bedrock water supply wells, conducting step testing of wells including analysis and reporting, and initiating permit applications for CTDEP and Connecticut Department of Public Health. Organized data collection plan for long term aquifer test encompassing both on-site and off-site ground water and surface water monitoring of wetlands, streams, and private domestic wells.

Geologic and Hydrogeologic Site Evaluation – Connecticut

Conducted extensive hydrogeologic investigation to evaluate ability for high-volume on-site sewage disposal at a coastal property in southern Connecticut. Project involved drilling, logging, and installation of multiple monitoring wells across the site to assess geologic and hydrogeologic conditions. Conducted aquifer tests including analysis and reporting to determine aquifer parameters for 3-D ground water model. Developed 3-D model to simulate existing static and dynamic conditions in the aquifer and to predict aquifer response to septic loading. Also determined interaction between ground water and tidal surface water and evaluated potential impact to tidal marsh. Conducted investigations into vertical hydraulic gradients across site, collected salinity and water level measurements both on-site and off-site. Created conceptual geologic block model of site based on site geology. Conducted on-site and off-site ground water and surface water sampling for nitrate loading investigation.

Water Diversion and Level A Mapping, Statewide, Connecticut

Senior Hydrogeologist responsible for managing water diversion permit applications and Level A mapping projects for several water companies throughout Connecticut. Diversion applications require an evaluation of water withdrawal on sensitive receptors and other environmental resources. Level A mapping involves the delineation of area of contribution of well fields via computer modeling. In addition, some projects required safe yield analysis for bedrock and gravel wells to meet water supply planning requirements.

Water Supply Development/Feasibility Study, Brookfield, CT

Project Manager for a feasibility study involving the evaluation of potential water supply sources (surface water, bedrock, surficial aquifer, municipal water) to serve 25 homes with gasoline-contaminated wells. The evaluation included geology, hydrogeology, DEP, DPH and DPUC requirements, and cost benefit analysis.

Avon Water Company, Avon, CT

Managed aquifer exploration and installation of gravel well. Activities included the installation of 50 test borings in a flood plain along the Farmington River, selection of the well site, development of a data collection plan, completion of a pump test and data analysis. Estimated well yield: 2,500 GPM.

BL Companies

Samuel R. Haydock, MS, LEP

CONTINUED

Water Resource Development, Waterbury, VT

Managed a water supply development program for the Town of Waterbury, Vermont, as required by the Vermont Department of Health. The project involved the following; Town-wide exploration for suitable gravel deposits (none were found due to geology and demographics); Town-wide bedrock geologic survey and fracture trace analysis to define potential water-bearing fractures or geologic contact zones; geophysical mapping of target areas defined in step two using a magnetometer and a VLF electromagnetic receiver; data evaluation and drilling at selected sites; completion of a step-drawdown and 120-hour constant discharge tests at five bedrock wells; and determination of long-term safe yield for each well. The project was successfully completed with state approval of four bedrock wells with approved yields greater than 100 GPM each, and one well with an approved yield of 325 GPM.

Proposed Water Supply Development, Bottled Water Facility, VT

Managed water supply development/site feasibility for private landowner with intent to market bottled water. Selected four well sites, which had the potential to produce more than 2,000 GPM, the largest producing bedrock aquifer in Vermont.

Land Use Impact Studies, Statewide, Connecticut and Vermont

Project Manager for many studies relating to the impact of development and construction to wetlands, rivers, upland streams, animal habitats, ground water and other sensitive receptors in Connecticut and Vermont. Tasks included field sampling, review of available published data, completion of permit applications, presentations at public hearings and interaction with state and local officials.

NPDES/Connecticut Department of Environmental Protection, Storm Water Permitting, Statewide, Connecticut

Project Manager responsible for managing storm water permitting at several industrial sites in Connecticut. Project Management included budget development, client interfacing, storm water sampling, data analysis and application submittals.

Connecticut Department of Environmental Protection, Storm Water Permitting, Connecticut

Project Manager responsible for managing storm water permitting at several industrial sites in Connecticut. Project Management included budget development, client interfacing, storm water sampling, data analysis and application submittals.

Samuel R. Haydock, MS, LEP

CONTINUED

Harbor Road Bridge Replacement, Fairfield, CT

Environmental Manager during the permitting, design and replacement of the Harbor Road Bridge in Fairfield, Connecticut. This unique project involved the replacement of a two span historic bridge located at the confluence of the Mill River and Southport Harbor, and was complicated by the need to preserve a residence and office located in the middle of the river, between the two spans, and a stone dam and sluiceway constructed in the late 1800s and located beneath the bridge. Project planning included interfacing and coordinating with the Town of Fairfield, the ConnDOT, the Army Corps of Engineers (ACOE), and the local neighborhood preservation groups. Project tasks included identifying and surveying wetlands and sensitive habitat adjacent to and downstream of the bridge, sampling sediments in the work zone for the presence of regulated compounds, developing a sediment disposal work plan, preparing a CTDEP Structures Dredge and Fill Permit Application, preparing a ACOE Individual Permit Application, and developing a construction management plan to protect the wetlands and sensitive habitat.

Summer Place Garage, Stamford, CT

Managed the Site Investigation and Handling and Disposal of Contaminated Soil during construction of the Summer Place Garage in Stamford, Connecticut. The Site Investigation included the completion of an extensive soil and groundwater sampling program to determine if regulated compounds were present in soil that would be excavated during construction activities and/or ground water discharged during dewatering activities. The investigation identified the presence of petroleum hydrocarbons and volatile organic compounds in soil and ground water.

Developed a Site Management Plan that included all handling and disposal requirements for contaminated soil and ground water. Construction means and methods were modified to avoid dewatering. Using the remediation options allowed under the Connecticut Department of Environmental Protection Remediation Standard Regulations, managed soil in a manner to minimize off-site disposal and to encapsulate contaminated soil beneath the garage and the adjacent roadway, thereby eliminating any threats to human health or the environment and saving the City of Stamford considerable sums of money in disposal costs and replacement fill costs. Additional on-site activities include air monitoring and health and safety monitoring.

SUMMARY OF QUALIFICATIONS

Mr. Haydock has more than 20 years of experience in environmental and land-use consulting. His technical background includes designing and managing site characterization studies for contaminant investigations, design and management of site remediation and brownfields redevelopment projects, ground water exploration and development, water resource assessment and land-use impact evaluations.

BL Companies

Samuel R. Haydock, MS, LEP

CONTINUED

Contaminant Investigation and Remediation experience includes completion of Phase I, II, and III Environmental Assessments, completion of Remedial Investigations (RI)/Feasibility Studies (FS), development of comprehensive Remedial Action Plans, RCRA compliance and closure, interfacing with regulatory agencies, landfill leachate plume studies, contaminant source area delineation/removal, and design installation and operation of ground water and vapor recovery systems.

Ground water resource development experience includes preparation of drilling and exploration contract specifications, water supply feasibility studies, fracture-trace analysis, geophysical exploration, geologic logging, design and installation of well fields, pump testing and aquifer analysis, delineation of recharge areas, preparation of diversion permit applications, and Level A aquifer mapping.

Land-use impact studies have involved wetland studies, habitat evaluation, water budget analyses, assessment of impacts from development on natural and cultural resources, alternative and mitigation analyses, and preparation and submittal of local, state, and federal land-use permit applications. Conducted extensive mapping programs of surface and subsurface geologic/hydrogeologic resources and Aquifer Protection Areas.

BL Companies

Guy F. LaBella, PhD, PE, LEP
Manager, Environmental Operations

Experience/ Expertise Summary

Guy F. LaBella has over 30 years of experience in environmental and civil engineering. He is familiar with Federal and State Regulations, environmental sampling protocols and field testing, and health and safety equipment and practices. Mr. LaBella's responsibilities have included project management, coordination, administration and review of environmental projects, preparation of Phase I Environmental Site Assessments, Phase II/III Subsurface Investigations, Remedial Action Plans, plans and specifications for handling contaminated materials and/or hazardous waste, underground storage tank closure reports, and preparing health and safety plans for construction projects, other responsibilities include training of personnel, preparation of storm water pollution prevention plans, spill prevention control and countermeasure plans, permitting, report development and coordination of field and laboratory activities. He has also managed, written, and reviewed 100's of hazardous building material inspections (HBMI) reports. These inspections included identifying asbestos containing materials, lead-based paint, PCBs, florescent lighting ballasts, and mercury vapor lightning.

Mr. LaBella has conducted and/or supervised the completion of more than 500 Phase Environmental Site Assessments (ESAs) and Phase II/III Subsurface Investigations for residential, commercial, municipal and industrial properties throughout the continental US. These ESAs have been performed under the requirements of various lending institutions, state hazardous waste programs (CT Transfer Act, Chapter 21e of the Massachusetts Contingency Plan), State Agencies (Department of Transportation, Department of Economic Development) as well as the ASTM Standard of Practice. Clients for these services included individuals, developers, financial institutions, attorneys, and municipalities.

Mr. LaBella has experience and expertise in evaluating and analyzing the physical condition of various types of commercial, industrial, and residential buildings having performed numerous property condition assessments in Connecticut, New York, Massachusetts, Rhode Island, and Texas. These property condition assessments included site inspections, file review, and the preparation of cost estimates for immediate repairs as well as replacement reserve analysis.

Education/ Registration

Ph.D in Environmental Engineering, Kennedy-Western University, 2000
MS in Environmental Engineering, University New Haven, 1990
BS in Civil Engineering, Norwich University, 1970

Licensed Environmental Professional: Connecticut
Professional Engineer: Connecticut, Massachusetts, Rhode Island, Vermont, New York, New Jersey, Pennsylvania

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Relevant Experience

- **Property Condition Assessments**
  Conducted and/or supervised the completion of more than 75 Property Condition Assessments (PCAs) for residential, commercial, and industrial properties throughout northeast and Texas. PCAs were conducted for 10 commercial sites in the greater Dallas, Texas area containing large warehouse and office facilities. We have recently completed PCAs at 12 sites for a national company, as well as a PCA for large office/warehouse facility in Massachusetts. Currently we are working PCAs for 61 sites for a national drug store.

- **Adrian's Landing, Hartford, CT**
  Project Manager during underground storage tank (UST) investigation and removal activities during the demolition phases of the project. Supervised the geophysical investigation of the project, supervised/conducted hazardous waste inspection of CNG and surrounding buildings, prepared documents for the closure of the hazardous waste storage areas, prepared plans and specifications for the removal of the USTs, handling and disposal of contaminated soil, and preparation of UST closure reports.

- **Hartford Library, Hartford, Connecticut**
  Project Manager for the renovation and additions to the Hartford Library in downtown Hartford. Project scope included conducting a Phase I environmental site assessment, Phase II subsurface investigation, Phase III investigation and preparation of a remedial action plan (RAP). The findings of the investigation and RAP were hen incorporated into construction bid documents. Prepared a health and safety plan and managed site personnel during site activities during construction and remedial activities.

- **Construction Services, Various Locations, Connecticut and Massachusetts**
  Managed environmental component of construction-related projects for the Connecticut Department of Transportation, numerous road/bridge contractors, architects, and municipalities. Services included pre-construction site characterization, development of work plans, development of Health and Safety plans, Health and Safety monitoring, preparation of plans and specifications, and handling and disposal of contaminated materials. Assignments also included the preparation of temporary discharge permits and treatment and discharge of contaminated ground water at sewer installations.

- **Peqounock River Bridge and Bridgeport Viaduct, Bridgeport, CT**
  Project Manager/Engineer for the Environmental Site Investigation for this ConnDOT project that involved the replacing of the Peck Drawbridge and portions of the Bridgeport Viaduct. The investigation consisted of conducting a Phase I, II, and III for seven properties that would be impacted by this project. Based upon the results of the investigation, a remedial action plan (RAP) was prepared. Environmental issues identified and needed to be addressed included the demolition of overhead structures, piers and buildings, removal of USTs, and open and controlled excavation of river sediments. The RAP outlined environmental work requirements and proposed a strategy that allowed for continued progress of the project while effectively managing associated contaminated and hazardous soils and reducing or eliminating the environmental and health issues. Plans and specifications were prepared addressing the requirements outlined in the RAP and included in the bid documents.

- **Bridgeport Regional Maritime Complex, Bridgeport, CT**
  Authored the health and safety plan for Mohawk Northeast in accordance with 29 CFR 1926, Safety and Health Regulations for Construction and 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response. Mohawk Northeast was the contractor responsible for the dredging of Yellow Mill Pond as well as the construction of waterfront structures. The HASP was prepared after review of a Supplemental Phase III Remedial Investigation Report, Sediment Core Logs and a Remedial Action Plan. The presence of contaminants in the excavated/dredged materials required special management activities by the Contractor, including health and safety controls, erosion and sedimentation controls, and stockpiling, transportation, and disposal of contaminated soil and water.

John K. Bogdanski, MS, PG

SENIOR
PROJECT MANAGER

EDUCATION

MS in Geology, Idaho State University, 1987

BS in Earth Science, Adelphi University, 1983

REGISTRATION

Professional Geologist: Delaware, Pennsylvania

American Institute of Professional Geologists, 1996

PUBLICATIONS

Bogdanski, J.K., et al., Implementation of an Automated DNAPL Recovery System at a Former MGP Site. Institute of Gas Technologies, 1998

Bogdanski, J.K., et al., Field Evaluation of the Co-management of Utility Low-Volume Wastes With High-Volume Coal Combustion By-Products: SX Site. Electric Power Research Institute, 1998.

Bogdanski, J.K., et al., Field Evaluation of the Co-management of Utility Low-Volume Wastes With High-Volume Coal Combustion By-Products: CL Site. Electric Power Research Institute, 1997.

Bogdanski, J.K., Significance of Compositional and Textural Modifications of Sand-Sized Sediments of the South Fork Salmon River, West-Central Idaho, Master's Thesis, Idaho State University, 1987.

RELEVANT PROJECT EXPERIENCE

Brownfield Cleanup Program, Whole Foods Market, Brooklyn, NY

Project Manager for Whole Foods Market's environmental investigation, cleanup, and redevelopment of former industrial sites being conducted under the New York State Department of Environmental Conservation Brownfield Cleanup Program. Work included Brownfield Cleanup Agreement (BCA) application and agreement process, remedial investigation work plans, remedial selection, remedial design, remedial action, site redevelopment design (including store, parking and public waterfront esplanade), and citizen participation activities.

MGP Program Manager, (numerous sites), Consolidated Edison Company, New York, NY

Project manager for Con Edison Company's MGP Site Investigation and Remediation Program being conducted under a Voluntary Cleanup Agreement between Con Edison and the New York State of Environmental Conservation. Responsibilities include compressive historical research and reporting, site prioritization for approximately 50 sites, management of remedial investigations and site remediation activities, development and maintenance of an MGP program extranet web page and extensive community relation efforts.

MGP Program Manager, PECO Energy Company (PECO), PA

Program manager for PECO Energy Company's MGP site investigation and remediation program. Responsibilities included development and oversight of site investigation, risk assessment, remediation and site closure programs for multiple MGP sites under the Pennsylvania Department of Environmental Protection (PADEP) Act 2 Regulations.



John K. Bogdanski, MS, PG

CONTINUED

Contaminated Sediment Investigation, Consolidated Edison Company, Bronx River, NY
Project Manager for comprehensive investigation of the Bronx River. Provided evidence that contaminated sediments near the site could not be attributed to former MGP operations. The investigation included the study of sediment physical characteristics, advanced statistical analyses of sediment chemistry, and the analyses of gas chromatographs 'Fingerprints' distributions. The physical and chemical data were supported by a detailed historical review of the river basin including river reconstruction history, dredging history, and the identification of non-MGP sediment contamination sources. The compressive study allowed the NYSDEC to conclude that no further delineation of MGP impacts in the river were necessary and no remedial measures were warranted for the Bronx River. It was anticipated that a citizens action group associated with the river was intent on having Con Edison remediate the river sediments adjacent to the former MGP.

Former MGP Holder Station, Kingsbridge Station, Consolidated Edison Company, Bronx, NY
Project Manager for site characterization investigation and report used to demonstrate to the NYSDEC that the concentrations and distribution of contamination detected at the site is associated with the generalized effects of urban activities and are not the result of sources related to former gas operations. The completeness of the site characterization and reporting resulted in a NYSDEC No Further Action determination. A letter from Joseph Moloughney (Project Manger) of the NYSDEC to Consolidated Edison Company of New York on the Kingsbridge Site Characterization Report stated "I would offer Kingsbridge as a good example of a report to support no further action. It went through DOH's review easily, with no comments being generated by them. I think it is largely based on the cohesiveness of the text and data presentation, all laid out to support the final conclusion."

Former MGP Site, East 173 Street, Consolidated Edison Company, Bronx, NY
Project Manager for site investigation and remediation program at a former MGP site located in a portion of a public recreation park. The remedial investigation activities determined that subsurface soils and groundwater within the park are impacted by former MGP operations and remediation of subsurface soils is necessary. A Proposed Remedial Approach and a Remedial Action Work Plan were developed that would achieve the goals for remedy selection under the NYSDEC Voluntary Cleanup Program. A detailed set of remediation design plans and specifications were developed that are the basis of the remedial action. An Operation Maintenance and Monitoring Plan was developed to establish a set of procedures and restrictions to manage potential future human exposure to MGP-impacted soil and groundwater left in place below a clean cover that will be part of planned remedial construction. Groundwater and river water chemistry was used to show that active groundwater remediation was not necessary.

BL Companies

John K. Bogdanski, MS, PG

CONTINUED

Former MGP Site, Purdy Street Station, Consolidated Edison Company, Bronx, NY
The site is owned by the Roman Catholic Church and is surrounded by residential apartments, residential housing, public schools, and playgrounds. As a Project Manager, worked closely and successfully with representatives from the Roman Catholic Church and the school to ensure that the site characterization activities resulted in minimal disturbances to school operations and surrounding properties. An integrated investigation of the site geology, hydrology, soil, soil gas, and groundwater chemistry confirmed the presence of subsurface structures related to the former MGP operations and also MGP-related impacts to on-site subsurface soil and groundwater. Performed a remedial action selection in accordance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation.

SUMMARY OF QUALIFICATIONS

Mr. Bogdanski is a senior project manager with BL Companies. He is a licensed Professional Geologist and has more than 16 years of environmental consulting experience. Mr. Bogdanski has conducted and managed site characterizations, remedial investigations, innovative technology evaluations, and remedial system design, operation and maintenance for former manufactured gas plant (MGP) sites, coal-fired power plant sites, gasoline service stations, and other industrial and commercial properties.

Much of his MGP work has been conducted in the state of New York under the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program and the state of Pennsylvania under the Pennsylvania Department of Environmental Protection (PADEP) Land Recycling and Remediation Act (ACT 2) Brownfields program. He has extensive experience in conducting historical research, site characterization studies and remedial investigations and has managed the development of feasibility studies, risk assessments, and remedial designs. Specific innovative technology evaluation experience includes a pilot-scale study to evaluate in-situ treatment of MGP soils using vapor extraction, and a field-scale coal pile bactericide treatment study. Specific remedial system design experience includes design, construction management, startup, and operation of several automated and passive nonaqueous phase liquid (NAPL) recovery systems, groundwater extraction and treatment systems, and soil extraction and waste management projects.

Mr. Bogdanski has significant experience applying hydrogeologic principals to organic and inorganic contaminant distribution and migration, and has extensive knowledge of a variety of investigatory methods for collection, analysis, and presentation of environmental data.

Mr. Bogdanski also has two years of experience as an exploration geologist responsible for conducting and supervising field exploration work to assist in the prediction of the extent of gold deposits, both as a guide to future mining and as a base for estimating reserves.

BL Companies

APPENDIX J

NYSDEC BCP SIGNAGE

SITE SIGNS FOR REMEDIAL PROGRAMS

Instructions

Signs are required at sites where remedial actions are being performed under one of the following remedial programs: State Superfund, Voluntary Cleanup Program (VCP), Brownfield Cleanup Program (BCP), and Environmental Restoration Program (ERP). They will not be required during the investigation and design phases. The cost of the sign will be borne by the parties performing the remedial action based on the legal document the activities are being performed under (i.e. volunteers/participants would pay 100% of the cost under the BCP; municipalities would pay 100% and then would be reimbursed for the cost under the ERP).

Sign Requirements

Size: Horizontal format - 96" wide by 48" high

Construction Materials: Aluminum or wood blank sign boards with vinyl sheeting.

Inserts: "Site Name", "Site Number", "Name of Party Performing Remedial Activities" and "Municipal Executive".
Indicate position, size and topography for specific inserts.

Color Scheme: Copy surrounding DEC logo - "NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION" - PMS 355

DEC logo: PMS 301 Blue
PMS 355 Green

Text:

Program (choose one):	PMS 301
Brownfield Cleanup Program	
Voluntary Cleanup Program	
State Superfund Program	
1996 Clean Water/Clean Air Bond Act - Environmental Restoration Program	
Site Name, Site Number, Party Performing Remedial Activities	PMS 355
Names of Governor, Commissioner, Municipal Executive	PMS 301
Transform the Past.....Build for the Future	PMS 355

Type Specifications: All type is Caslon 540, with the exception of the logotype.
Format is: center each line of copy with small caps and initial caps.

Production Notes: 96" wide x 48" high aluminum blanks will be covered with vinyl sheeting to achieve background color. Copy and logo will be silk screened on this surface.

See attached format

APPENDIX K

REMEDIATION COST ESTIMATE

Preliminary Cost Estimates - Remedial Construction Portion of Redevelopment
Proposed Mehadrin Dairy Facility
353 McKibbin Street, Brooklyn, New York

Remedial Component	Alternative 7 Track 1 Remediation in Accordance with RAWP Total Cost	Alternative 8 Track 4 Remediation in Accordance with RAWP Total Cost
Common Cost Components Needed for Remediation Only		
Mobilization/Demobilization		
SUBTOTAL	41,650	18,550
% TOTAL COSTS	1%	3%
Construction Management		
SUBTOTAL	96,300	36,900
% TOTAL COSTS	1%	6%
Excavation		
SUBTOTAL	4,381,000	203,000
% TOTAL COSTS	60%	31%
Engineered Controls		
SUBTOTAL	201,000	201,000
% TOTAL COSTS	3%	31%
Excavation dewatering, treatment, testing and discharge of effluent		
SUBTOTAL	254,550	6,630
% TOTAL COSTS	4%	1%
Common Excavation Costs		
SUBTOTAL	1,024,500	72,000
% TOTAL COSTS	14%	11%
Contingency (20%)	1,159,600	107,616
% TOTAL COSTS	17%	17%
TOTAL COST	**7,158,600**	**645,696**

Notes:

1. Assumes 2,000 cubic yards of soil reuse
2. A 20% contingency is included to account for variability in the estimated areas, volumes, labor, and material costs.
3. Environmental Reporting and Consulting Fees, as well as coordination with NYSDEC and NYC agencies, not included in cost.
4. The volume-weight relationship for soil is assumed to be 1.5 cubic yards per ton.
5. Construction Management includes remediation oversight and air monitoring
6. Engineered Controls includes installation of vapor barrier and installation of air sparging and ventilation systems.
7. Common Excavation Costs include perimeter air monitoring and excavation backfill.