REMEDIAL ACTION WORK PLAN

for

261 WALTON AVENUE
Bronx, New York
NYSDEC BCP Site No. C203135

Prepared for:

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September 12, 2024
Langan Project No. 17061701

CERTIFICATION

I, Jason Hayes, certify that I am currently a New York State registered professional engineer as defined in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375 and that this Remedial Action Work Plan (RAWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

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.

Jason Hayes	9/12/2024	
NYS Professional Engineer	Date	Signature

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LIST OF ACRONYMS

Acronym	Definition
AGV	Air Guideline Value
AOC	Area of Concern
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below Grade Surface
BTEX	Benzene, Toluene, Ethylbenzene, and Total Xylenes
BUD	Beneficial Use Determination
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
CQAP	Construction Quality Assurance Plan
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
CVOC	Chlorinated Volatile Organic Compound
DER	Division of Environmental Remediation
DMM	Division of Materials Management
EC	Engineering Control
EE	Environmental Easement
el	Elevation
ELAP	Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
FEMA	Federal Emergency Management Agency
FER	Final Engineering Report
IC	Institutional Control
µg/L	Microgram per Liter
µg/m^3	Microgram per Cubic Meter
mg/kg	Milligram per Kilogram
mg/L	Milligram per Liter
NAVD88	North American Vertical Datum of 1988
NYCRR	New York Codes, Rules and Regulations
NYCDEP	New York City Department of Environmental Protection
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation

Acronym	Definition
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	United States Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PGW	Protection of Groundwater
PID	Photoionization Detector
PPE	Personal Protective Equipment
ppm	Parts per Million
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	Recycled Concrete Aggregate
RCRA	Resource Conservation and Recovery Act
RE	Remedial Engineer
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RRU	Restricted Use Restricted-Residential
SCG	Standards, Criteria and Guidance
SCO	Soil Cleanup Objective
SGV	Standards and Guidance Values
SFMP	Soil/Fill Management Plan
SMP	Site Management Plan
SOE	Support of Excavation
SPDES	State Pollution Discharge Elimination System
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCL	Target Compound List
TOGS	Technical and Operational Guidance Series
UST	Underground Storage Tank
UU	Unrestricted Use
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

This Remedial Action Work Plan (RAWP) was prepared on behalf of Tuck-It-Away Associates, Deegan, LLC, and Walton Owner, LLC (collectively, the "Participant") for 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York (the "Site"). The Participant entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on July 21, 2020 and Brownfield Cleanup Program (BCP) Site No. C203135 was assigned to the Site. Walton Owner, LLC was added to the BCA pursuant to an amendment approved by the NYSDEC on May 3, 2022. The Participant proposes to remediate and redevelop the Site for residential and commercial use.

This RAWP summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI) completed during two phases between February 21, 2022 and May 3, 2023. This RAWP identifies and evaluates remedial action alternatives, including a Track 1 cleanup and a Track 4 cleanup with their associated costs, and identifies a preferred remedy. The preferred Track 1 cleanup described in this document is consistent with the procedures defined in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375-3.8 and the NYSDEC Division of Environmental Remediation (DER) Program Policy: Technical Guidance for Site Investigation and Remediation (DER-10) and complies with applicable federal, state, and local laws, regulations, and requirements.

Site Description/Physical Setting/Site History

The Site is located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York and is identified as Block 2344, Lot 60 on the New York City (NYC) Bronx Borough Tax Map. The Site encompasses an area of approximately 27,500 square feet (0.63 acres) and is currently vacant. The Site formerly contained a six-story building with a cellar, a two-story building, and a one-story building, which were formerly occupied by a commercial storage facility. The buildings were demolished between February and May 2023. Portions of the Site remain covered by the former building concrete foundation slabs. An asphalt-paved and gravel-covered parking lot surrounds the former building footprints. A site location map is provided as Figure 1.

The Site is bound by an industrial/manufacturing building to the north; Walton Avenue, followed by industrial buildings to the east; a gas station to the south; and Gerard Avenue, followed by the Major Deegan Expressway to the west. The proposed development will include construction of a mixed-use commercial and residential building with a cellar parking garage. A site plan is provided as Figure 2.

According to the 2013 United States Geological Survey (USGS) Central Park, N.Y.-N.J. Quadrangle 7.5-minute Series Topographic Map, the Site is at an elevation of approximately

25 feet above mean sea level (msl). According to a January 10, 2023 Land Title Survey completed by the Gallas Surveying Group, elevations in the asphalt- and gravel-paved portions of the Site vary between el. 22.29 (North American Vertical Datum of 1988 [NAVD88]) in the southwestern portion of the lot and el. 32.86 in the northeastern portion of the lot. The topography of the Site slopes to the southwest, towards the Harlem River.

Historical uses of environmental concern at the Site include an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909-1965); a card and paper warehouse (1927-1956); a brick, lime, and cement manufacturing company with a 550-gallon gasoline underground storage tank (UST) (1935); an automotive repair facility (1936-1976); and a furniture warehouse and showroom (1977-2007). The Site was most recently used as a commercial self-storage facility until a fire destroyed the six-story building in 2017. The names of the operators of the former commercial facilities prior to the self-storage facility are unknown.

Summary of the Remedial Investigation

The findings summarized below are based on data collected during previous investigations and the RI.

1. Stratigraphy: Fill characterized as dark brown to gray, fine- to coarse-grained sand and gravel with silt, brick, glass, concrete, metal and wood fragments was encountered across the Site beneath the existing surface cover to boring termination depths, which were down to 1 foot below the cellar slab in the former six-story building (i.e., about 13 feet bgs) and between 3 and 9 feet bgs in other portions of the Site. The fill overlies bedrock.
2. Hydrogeology: Synoptic groundwater measurements were collected on March 3, 2022, and May 3, 2023 from five on-site groundwater monitoring wells. Groundwater was encountered at depths ranging from about 6.9 to 16.8 feet below sidewalk grade and elevations between about el. 22.13 (NAVD88) in the northeastern portion of the Site (MW01) and el. 13.69 in the northwestern part of the Site (BRW17). The inferred groundwater flow direction is to the west towards the Harlem River.
3. Soil/Fill: Samples of soil/ fill contained semivolatile organic compounds (SVOC), metals, pesticides, polychlorinated biphenyls (PCB), and perfluorooctanoic acid (PFOA)/ perfluorooctanesulfonic acid (PFOS) at concentrations above the 6 NYCRR Part 375 UU and/or RRU SCO/Guidance Values (GV)[1], with the deepest exceedances

[1] Guidance values for PFOA and PFOS are provided in the NYSDEC guidance document "Sampling, Analysis and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs", dated April 2023.

at 9 feet bgs. Barium, cadmium, copper, mercury, and lead were detected in soil samples collected from the central, northwestern, and southwestern portions of the Site at concentrations one order of magnitude above the RRU SCOs (some at potentially hazardous concentrations); their presence, if not related to historic fill, may also be associated with releases of hazardous substances during historical vehicle repair operations between 1936 and 1976. PFOA/PFOS detected in four samples above the UU GVs may be associated with the application of fire suppressant foam during a 2017 fire. Acetone and methylene chloride were detected at concentrations above the UU SCOs in four soil samples; however, these compounds were also detected in trip blank and field blank samples and are common laboratory solvents associated with sample preservation. The detections are therefore not indicative of site-related conditions.

4. Groundwater Impacts: Two chlorinated VOCs, tetrachloroethene (PCE) and trichloroethene (TCE), were detected at concentrations one order of magnitude above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (SGVs) in groundwater on the northwestern part of the Site. The PCE and TCE likely originated from an off-site release (e.g., historical vehicle repair and plastics manufacturing on northeastern and eastern adjoining properties). 1,4-Dioxane and the pesticide dieldrin were detected above the NYSDEC SGVs in separate groundwater samples from the northwestern and southeastern parts of the Site, respectively. The detections may originate from an off-site source or soil matrix interference in the sample containing 1,4-dioxane related to sample turbidity. Five dissolved metals (magnesium, manganese, sodium, antimony, and selenium) detected in multiple samples above the NYSDEC SGVs are likely associated with a regional groundwater condition resulting from surface groundwater infiltration and/or dissolution of soil and bedrock. The detection of PFOA and PFOS in each groundwater sample above the NYSDEC April 2023 Ambient Water Quality Guidance Values (AWQGV) may either be associated with an on-site source (e.g., the application of fire suppressant foam during a 2017 fire) or a regional groundwater condition.

5. Soil Vapor: Fifteen (15) of the 18 VOCs addressed in the NYSDOH Decision Matrices were detected in soil vapor samples. The detection of petroleum-related VOCs in soil vapor does not directly correspond with impacts in soil and groundwater samples and therefore does not appear to be indicative of an on-site source. The chlorinated VOCs detected in soil vapor may be associated with potential off-site sources contributing to PCE- and TCE-impacted groundwater on the northern portion of the Site.

Qualitative Human Health Exposure Assessment

Based on the conceptual site model (CSM) and the review of environmental data, complete on-site exposure pathways appear to be present, in the absence of monitoring and mitigation or engineering controls (EC) (e.g., Construction Health and Safety Plan [CHASP] with a Community Air Monitoring Program [CAMP], capping system, etc.), during current, construction/remediation and future use conditions.

Complete exposure pathways have the following five elements: 1) a contaminant source; 2) a contaminant release and transport mechanism; 3) a point of exposure; 4) a route of exposure; and 5) a receptor population. A discussion of the five elements comprising a complete pathway as they pertain to the Site is provided below.

Contaminant Sources

Contaminant sources include:

- Historical chemical releases during vehicle repair operations between 1936 and 1976 that has resulted in metals (i.e., barium, cadmium, copper, mercury, and lead) impacts in the northwestern, central, and southwestern portions of the Site.
- Potential application of fire suppressing foam during a 2017 fire resulting in PFOA and PFOS impacts to soil and groundwater.
- Contaminated soil from unknown sources used as backfill (SVOCs, PCBs, pesticides, and metals)
- Releases from off-site commercial operations (e.g., historical vehicle repair and plastic manufacturing and an existing gasoline station) that contributed to PCE and TCE impacts in groundwater and localized petroleum impacts in soil vapor.

Current Conditions

Contaminant sources include soil with varying concentrations of SVOCs, metals, pesticides, PCBs, and PFAS; groundwater with varying concentrations of VOCs, SVOCs, pesticides, metals, and PFAS; and soil vapor with concentrations of VOCs.

Contaminant release and transport mechanisms include potential release and transport during penetration of the Site cover for soil, groundwater, and soil vapor sampling. The potential receptor is the on-site sampling personnel and the nearby public. Under current conditions, the likelihood of exposure to humans is limited due to the following:

- The Site footprint is partially covered by continuous concrete building slabs and access to the Site is limited by secured construction fencing, which prevents contact with soil and groundwater.

- Sampling activities are completed in accordance with a HASP and CAMP that are designed to monitor and prevent exposure to both Site workers and the adjoining community to soil, groundwater, and soil vapor contaminants.
- Groundwater at the Site is not a potable water source.

Construction/ Remediation Activities

During the excavation and foundation construction stage of redevelopment, which includes remediation, points of exposure include disturbed and exposed soil during excavation, dust and potential organic vapors generated during excavation activities, and contaminated groundwater that may be encountered during excavation and during dewatering operations, if performed. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of potential organic vapors arising from contaminated soil vapor and groundwater, and inhalation of dust originating from contaminated soil. The receptor population includes construction and remediation workers and, to a lesser extent, the public adjacent to the Site.

The potential for completed exposure pathways is present since all five elements exist; however, the risk can be avoided or minimized by applying appropriate health and safety measures during construction and remediation, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, cleaning truck undercarriages before they leave the Site to prevent off-site soil tracking, maintaining Site security, and wearing the appropriate personal protective equipment (PPE).

The HASP, RAWP, and CAMP will be implemented during construction. The documents include measures such as conducting an air-monitoring program, donning PPE, covering soil stockpiles, altering work sequencing, maintaining a secure construction entrance, proper housekeeping, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction. Such measures will prevent completion of potential migration pathways for soil, groundwater, and soil vapor.

Proposed Future Conditions

For the proposed future conditions, residual contaminants may remain on-site, depending on the remedy, and would, to a lesser extent, include those listed under current conditions. If residual impacts exist and controls are not implemented, points of exposure could include potential cracks in the foundation of the proposed development, exposure during any future ground-intrusive work, or inhalation of soil vapor entering the building. Regional groundwater is not used as a potable water source in this part of the Bronx, and access to groundwater would be prevented by the building foundation. The receptor population includes residential and commercial use occupants, patrons, and employees, and the nearby community, including children. The possible routes of exposure can be avoided or mitigated by complete removal of contaminated soil or

construction and maintenance of a Site capping system (e.g., concrete building slab or at least 2 feet of clean soil) and implementation of a Site Management Plan (SMP), if necessary, depending on the remedy.

Human Health Exposure Assessment Conclusions

1. Human exposure to Site contaminants is limited under current conditions due to the presence of surface cover materials (concrete building slabs, asphalt pavement, and gravel), and limited access to the Site to investigation workers and authorized guests. The primary exposure pathways are dermal contact, ingestion, and/or inhalation of soil (particulates) and groundwater by Site investigation workers and, to a lesser extent, the nearby public. The exposure risks can be avoided or minimized by following the appropriate HASP and vapor and dust suppression measures, and by implementing a CAMP during investigation activities.
2. In the absence of mitigation and controls, there is potential for exposure during the construction-phase activities. The primary exposure pathways are:
    a. Dermal contact, ingestion, and/or inhalation of contaminated soil, groundwater, or soil vapor off-gassing from groundwater by construction workers.
    b. Dermal contact, ingestion, and inhalation of soil (dust) and soil vapor by the community in the vicinity of the Site.

    These can be avoided or minimized by implementing CAMP and stormwater and erosion control measures, and by following the appropriate HASP, vapor and dust suppression, Site security measures, and following a NYSDEC-approved RAWP.
3. The existence of a complete exposure pathway for Site contaminants to human receptors during proposed future conditions is unlikely, as all or the majority of impacted soil will be excavated and transported to an off-site disposal facility and any residual soil will be capped, if required, with an impermeable cover (i.e., building foundation). Regional groundwater is not used as a potable water source in this part of the Bronx. Soil vapor contaminants of concern were not identified by the RI. Engineering and institutional controls, if warranted, will be in place to mitigate exposure risk to residual contamination that may remain on-site.
4. It is possible that a complete exposure pathway exists for the migration of Site contaminants to off-site human receptors during current, construction-phase, and future conditions. Monitoring and control measures have been and will continue to be used during investigation and construction to prevent completion of this pathway. Under future conditions, the Site will be remediated, and engineering and/or

institutional controls will be implemented, if necessary, to prevent completion of this pathway.

Summary of the Remedy

A remedial alternatives analysis was performed as part of RAWP development, and the selected remedy is a Conditional Track 1 Unrestricted Use cleanup. The remedy consists of the following actions:

1. Development and implementation of a CHASP and CAMP for the protection of on-site workers, community/residents, and the environment during remediation and construction activities.
2. Removal and management of the building slabs and asphalt and gravel surface cover as construction and demolition (C&D) debris by the contractor in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies is not a requirement of the Remedial Engineer (RE). The RE is responsible for documenting that C&D debris is not comingled with contaminated Site soil and fill.
3. Preliminary waste characterization, as required, to facilitate off-site disposal of excavated material.
4. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
5. Decommissioning of monitoring wells.
6. Construction of a support of excavation (SOE) system to facilitate excavation of soil/fill that exceeds the UU SCOs.
7. Dewatering and treatment, as necessary, to facilitate SOE installation and to accommodate removal of soil that exceeds UU SCOs, and discharge of dewatering fluids in accordance with a New York City Department of Environmental Protection (NYCDEP) sewer discharge permit.
8. Excavation, stockpiling, and off-site transport of soil exceeding UU SCOs as defined by 6 NYCRR Part 375-6.8.
9. Removal, decommissioning, and off-site disposal of any encountered USTs and/or associated appurtenances (e.g., fill lines, vent line, and electrical conduit) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
10. Screening for indications of contamination (by visual means, odor, and monitoring with a photoionization detector [PID]) of excavated soil/fill during intrusive Site work.

11. Appropriate off-site disposal of non-native fill and soil from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
12. Collection and analysis of confirmation soil samples to confirm UU SCOs are achieved[2].
13. Backfilling of remediated areas to development grade with soil meeting UU SCOs, virgin stone, or RCA from a 6 NYCRR Part 360 NYSDEC-registered facility, and in compliance with Part 360 and Part 375-6.7(d).
14. Completion of a soil vapor intrusion (SVI) evaluation, which will include a provision for implementing actions recommended to address soil vapor intrusion, if indicated during the evaluation.

A contingency split Track 1/Track 4 cleanup will be performed if residual soil does not meet UU SCOs in portions of the Site. If the SVI evaluation indicates that mitigation or monitoring action is warranted, a Track 1 cleanup will only be achieved if the mitigation system or other required action is no longer needed within five years of the date of the Certificate of Completion. Remedial activities will be performed in accordance with this RAWP and the Department-issued Decision Document. Deviations from the RAWP and/or Decision Document will be reported to the NYSDEC for approval and explained in the FER.

[2] Bedrock is expected across the site at development depth; if all soil is removed from an area, the corresponding confirmation sample will not be collected.

1.0 INTRODUCTION

This Remedial Action Work Plan (RAWP) was prepared on behalf of Tuck-It-Away Associates – Deegan, LLC, and Walton Owner, LLC (collectively, the Participant) for 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York (the Site). The Participant entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on July 21, 2020 and Brownfield Cleanup Program (BCP) Site No. C203135 was assigned to the Site. Walton Owner, LLC was added to the BCA pursuant to an amendment approved by the NYSDEC on May 3, 2022. The Participant proposes to remediate and redevelop the Site for residential and commercial use.

This RAWP summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI) completed during two phases between February 21, 2022 and May 3, 2023. This RAWP identifies and evaluates remedial action alternatives, including a Track 1 cleanup and a Track 4 cleanup with their associated costs, and identifies a preferred remedy. Both remedies described in this document are consistent with the procedures defined in Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375-3.8 and the NYSDEC Division of Environmental Remediation (DER) Program Policy: Technical Guidance for Site Investigation and Remediation (DER-10) and complies with applicable federal, state, and local laws, regulations, and requirements. A Track 1 remedy is preferred for the Site.

1.1 Site Location and Description

The Site is located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York and is identified as Block 2344, Lot 60 on the New York City (NYC) Bronx Borough Tax Map. The Site encompasses an area of approximately 27,500 square feet (0.63 acres) and is currently vacant. The Site formerly contained a six-story building with a cellar, a two-story building, and a one-story building, all formerly occupied by a commercial storage facility. The buildings were demolished between February and May 2023. The concrete floor slabs remain within the footprints of the former buildings and an asphalt-paved and gravel-covered parking lot surrounds the former building footprints. A site location map is provided as Figure 1.

The Site is bound by an industrial/manufacturing building to the north; Walton Avenue, followed by industrial buildings to the east; a gas station to the south; and Gerard Avenue, followed by the Major Deegan Expressway to the west. The proposed development will include construction of a mixed-use commercial and residential building with a cellar parking garage. A site plan is provided as Figure 2.

According to the 2013 United States Geological Survey (USGS) Central Park, N.Y.-N.J. Quadrangle 7.5-minute Series Topographic Map, the Site is at an elevation of approximately

25 feet above mean sea level (msl). According to a January 10, 2023 Land Title Survey completed by the Gallas Surveying Group, elevations in the asphalt- and gravel-paved portions of the Site vary between el. 22.29 (North American Vertical Datum of 1988 [NAVD88]) in the southwestern portion of the lot and el. 32.86 in the northeastern portion of the lot. The topography of the Site slopes to the west, towards the Harlem River.

1.2 Redevelopment Plan

The proposed development includes removal of the existing Site cover, including the former building slabs, asphalt pavement, and gravel, and construction of a 12-story, mixed-use commercial and residential tower with a partial cellar. The new building will cover the entire Site, and the cellar will cover about 20,600 square feet. The northeastern portion of the building will not contain a cellar.

Excavation ranging to about 6 feet below grade surface (bgs) in the southwestern part of the Site to about 14 feet bgs in the northwestern part of the Site will be required to accommodate construction of the cellar floor slab. Limited excavation will be required in the southeastern part of the Site in the location of the former cellar. Excavation for the ground floor slab in the northeastern part of the Site (where no cellar is planned) will extend to about 5 feet bgs. Excavation for foundation footings will extend an additional 1.5 to 2.5 feet to depths of about 7.5 and 16.5 feet bgs, and excavation for two elevator pits will extend to about 14 feet and 19 feet bgs.

The building will contain parking and residential storage in the cellar, commercial space on the ground floor, and residential units on the upper floors. At least 30% of the residential apartments will be designated as affordable housing, pursuant to the 421-a Affordable Housing NY Program. The proposed development plans are included as Appendix B. The northeastern corner of the development will not include a cellar and is therefore referred to as an "unexcavated area" in the development plans. However, excavation to about 5 feet bgs will be required for remediation and construction of a foundation slab.

1.3 Description of Surrounding Property

The Site is in a mixed-use area with commercial, warehouse, and light industrial uses nearby. The following is a summary of adjoining and surrounding property use:

Direction	Adjoining Properties			Surrounding Properties
	Block No.	Lot No.	Description	
North	2344	83	Three-story industrial/manufacturing building	Light industrial/manufacturing and institutional buildings

Direction	Adjoining Properties			Surrounding Properties
	Block No.	Lot No.	Description	
East	NA	NA	Walton Avenue	Light industrial/manufacturing and commercial buildings
South	2344	52	BP Gas Station	Madison Avenue Bridge, Deegan Rock Memorial Park
West	NA	NA	Gerard Avenue	Major Deegan Expressway, commercial storage facility, and Harlem River

Land use within a half-mile radius is urban and includes residential, light industrial, and commercial buildings and institutional facilities.

The nearest ecological receptor is the Harlem River, which is located approximately 500 feet west of the Site. Sensitive receptors, as defined in DER 10, located within a half mile of the Site include those listed below:

Number	Name (Approximate distance from Site)	Address
1	Health Opportunities High School (0.08 miles north of the Site)	350 Gerard Avenue Bronx, NY 10451
2	Community School for Social Justice (0.10 miles north of the Site)	350 Gerard Avenue Bronx, NY 10451
3	Family Life Academy Charter School III (0.14 miles north of the Site)	370 Gerard Avenue Bronx, NY 10451
4	P.S. 168 (0.2 miles east of the Site)	339 Morris Avenue Bronx, NY 10451
5	Success Academy Bronx 1 Middle School (0.24 miles east of the Site)	339 Morris Avenue Bronx, NY 10451
6	KIPP NYC College Prep High School (0.31 miles southeast of the Site)	201 East 144th Street Bronx, NY 10451
7	Sunshine Learning Center (0.26 miles northeast of the Site)	253 East 142nd Street Bronx, NY 10451
8	Global Community Charter School (0.28 miles northwest of the Site)	2350 5th Avenue New York, NY 10037
9	Hostos Community Children's Center (0.28 miles north of the Site)	475 Grand Concourse New York, NY 10039
10	Family Life Academy Charter School II (0.32 miles southeast of the Site)	296 East 140th Street Bronx, NY 1454
11	The Jewish Board: Harlem Child Development Center (0.34 miles northwest of the Site)	34 West 139th Street New York, NY 10037

Number	Name (Approximate distance from Site)	Address
12	Creciendo Daycare (0.35 miles east of the Site)	281 East 143rd Street Apt. 12-F Bronx, NY 10451
13	Cuddly Bundles Childcare (0.38 miles north of the Site)	137 East 150th Street Bronx, NY 10451
14	Democracy Prep Charter Middle School (0.39 miles northwest of the Site)	2230 5th Avenue New York, NY 10037
15	Zeta Charter School Bronx 1 (0.41 miles southeast of the Site)	222 Alexander Avenue Bronx, NY 10454
16	PS 18 John Peter Zenger (0.41 miles northeast of the Site)	502 Morris Avenue Bronx, NY 10451
17	St. Mark the Evangelist School (0.42 miles northwest of the Site)	55 West 138th Street New York, NY 10037
18	New York City Housing Authority's Lincoln Day Care Center (0.42 miles west of the Site)	212 Madison Avenue New York, NY 10037
19	PS 49 Willis Avenue (0.46 miles southeast of the Site)	383 East 139th Street Bronx, NY 10454
20	South Bronx Classical Charter School II (0.48 miles southeast of the Site)	333 East 135th Street Bronx, NY 10454
21	The Laboratory School of Finance and Technology (0.49 miles east of the Site)	360 East 145th Street Bronx, NY 10454

1.4 Site History

1.4.1 Historical Site Use

Previous Site uses include an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909-1965); a card and paper warehouse (1927-1956); a brick, lime, and cement manufacturing company with a 550-gallon gasoline underground storage tank (UST) (1935); an automotive repair facility (1936-1976); and a furniture warehouse and showroom (1977-2007). The Site was most recently used as a commercial self-storage facility until a fire destroyed the six-story building in 2017.

1.4.2 Previous Environmental Reports

Previous environmental reports were reviewed and summarized below and are included in Appendix C.

- *December 13, 2011 Phase I Environmental Site Assessment (ESA), prepared by Airtek Environmental Corporation*
- *February 16, 2012 Limited Phase II ESA, prepared by IVI Environmental, Inc.*
- *June 8, 2015 ASTM E1528-14 Transaction Screen Environmental Site Assessment Report, prepared by LCS, Inc.*

Phase I ESA, prepared by Airtek Environmental Corporation (December 13, 2011)

Airtek Environmental Corporation conducted a Phase I ESA on behalf of M & T Bank in accordance with ASTM E1527-13. The Site was occupied and owned by Tuck-It-Away Associates and used for self-storage at the time of the assessment. The Phase I ESA identified the following Recognized Environmental Conditions (REC):

Previous Site use included an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909-1965); a card and paper warehouse (1927-1956); a brick, lime, and cement manufacturing company with a 550-gallon gasoline UST (1935); an automotive repair facility (1936-1976); and a furniture warehouse and showroom (1977-2007).

Current and historical use of the adjoining and surrounding properties included the following:

- The southern adjoining property was occupied by a piano factory and lumber storage facility (1908-1935) and then by a gasoline station (1951-present). The property is associated with closed NYSDEC Spill Numbers 9408104 and 0207682.
- The northern adjoining property was used for furniture manufacturing, storage, and fur processing and dyeing with an associated paint shop (1935-1951).
- The northeastern adjoining property across Walton Avenue was used as an automotive sales and service facility (1935 and 1977 – 2007), a gasoline station (1944 – 2002) and a car wash (1992 – 2011). The Site is associated with open NYSDEC Spill No. 9909720.
- The eastern adjoining property across Walton Avenue was a gasoline filling station (1935) and plastics manufacturing facility (1947-1951).

As part of the Lower Concourse Rezoning, dated May 8, 2009, the Site was assigned an E-Designation (E-227) for hazardous materials and air quality (for fuel oil/natural gas restriction and exhaust stack location limitations).

Limited Phase II ESA, prepared by IVI Environmental, Inc. (February 16, 2012)

IVI Environmental, Inc. conducted a Limited Phase II ESA in February 2012 to investigate the RECs identified in the Phase I ESA. The Limited Phase II ESA included a geophysical survey, advancement of 10 soil borings and collection and laboratory analysis of 8 soil samples from the asphalt-paved area. The following summarizes the findings of the investigation:

Subsurface soil was identified as soil containing fill material and silty sand and clay. The fill was observed to depths between about 0.8 and 9 feet bgs. Drilling refusal on presumed bedrock was encountered in each boring at depths ranging from approximately 0.8 feet bgs in the northeastern part of the Site to 9 feet bgs in the northwestern part of the Site. Groundwater was not encountered.

Petroleum impacts (i.e., visual, olfactory and/or photoionization detector [PID] readings) were not observed in the borings. Soil samples were collected from the bottom of each soil boring and analyzed for volatile organic compounds (VOC), semivolatile organic compounds (SVOC) and Resource Conservation and Recovery Act (RCRA) metals.

Soil sample results were compared to the NYSDEC 6 NYCRR Part 375 Unrestricted Use (UU) and Restricted Use Restricted-Residential (RRU) Soil Cleanup Objectives (SCO). Analytes with detections above the UU SCOs are listed below, with those above the RRU SCOs shown in **bold** with maximum detected concentrations in parentheses.

- No VOCs were detected at concentrations above UU or RRU SCOs.
- SVOCs: **benzo(a)anthracene** (8.3 milligrams per kilogram [mg/kg]), **benzo(a)pyrene** (10 mg/kg), **benzo(b)fluoranthene** (13 mg/kg), **benzo(k)fluoranthene** (6.3 mg/kg), **chrysene** (7.9 mg/kg), **dibenzo(a,h)anthracene** (1.2 mg/kg) and **indeno(1,2,3-cd)pyrene** (3.7 mg/kg).
- Metals: barium (386 mg/kg), **cadmium** (6.9 mg/kg), **lead** (8,440 mg/kg), mercury (0.56 mg/kg) and silver (3.69 mg/kg).

ASTM E1528-14 Transaction Screen Environmental Site Assessment Report, prepared by LCS Inc. (June 8, 2015)

LCS Inc. conducted an ASTM 15-28-14 Transaction Screen Environmental Site Assessment Report for M&T Bank of New York to identify potential environmental concerns (PECs) for financing purposes. The Site was occupied by Tuck-It-Away Self Storage at the time of the Site inspection and the report identified the following PECs:

Historical Site use included an auto wrecking yard and vehicle repair facility. The above-referenced 2012 IVI Environmental, Inc. Limited Phase II ESA identified metal and SVOCs at concentrations above Part 375 SCOs throughout the Site.

The Site was assigned a New York City E-Designation for hazardous materials and air quality.

Adjoining properties, including a southern adjoining gasoline station, could potentially impact subsurface conditions on the Site.

1.5 Significant Threat

NYSDEC has determined that the Site is not a significant threat to human health and the environment.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The RI was conducted between February 21, 2022 and May 26, 2023 and was performed in accordance with the Remedial Investigation Work Plan (RIWP), which was approved by NYSDEC on November 9, 2021; 6 NYCRR Part 375-1, 3.8, and 6.8; NYSDEC DER-10; and the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006, with updates. The RI was completed in two phases, including investigation of the exterior portions of the Site in 2022 and areas within the footprints of the former buildings in 2023. The objectives of the RI were to (1) supplement the existing environmental data to determine, to the extent possible, the nature and extent of contamination in soil, groundwater, and soil vapor at the Site, and (2) to provide sufficient information to evaluate remedial alternatives.

2.1 Field Investigation

The RI consisted of the following:

- Geophysical surveys to clear soil boring, monitoring well, and soil vapor probe locations and to identify unidentified UST, physical obstructions, and subsurface utilities
- Advancement of 19 soil borings and collection of 41 grab soil samples (including quality assurance/quality control [QA/QC] samples) for analysis for Part 375 VOCs, SVOCs, herbicides, pesticides, polychlorinated biphenyls (PCB), metals (including hexavalent and trivalent chromium and cyanide), 1,4-dioxane, and per- and polyfluoroalkyl substances (PFAS)
- Installation of five permanent groundwater monitoring wells and collection of one groundwater sample from each well, in addition to QA/QC samples, for analysis for Part 375 VOCs, SVOCs, pesticides, herbicides, PCBs, PFAS, 1,4-dioxane, and Part 375/Target Analyte List (TAL) metals (including hexavalent and trivalent chromium and cyanide)
- Surveying and synoptic gauging of groundwater monitoring wells to evaluate groundwater elevation.
- Installation of seven temporary soil vapor points, and collection of one soil vapor sample from each location (in addition to a duplicate sample) and two ambient air samples for VOCs

2.1.1 Summary of Remedial Investigation Findings

The findings are based on data collected during the RI and previous investigations. Soil, groundwater, and soil vapor analytical results are shown on Figures 3A, 3B, 4 and 5. The findings summarized herein are based on qualitative data (field observations and instrumental readings)

and laboratory analytical soil, groundwater, and soil vapor sample results. The findings are as follows:

6. Stratigraphy: Non-native fill predominantly consisting of dark brown to gray, fine- to coarse-grained sand and gravel with silt, brick, glass, concrete, metal and wood fragments was encountered across the Site beneath the existing surface cover to boring termination depths, which were down to 1 foot below the cellar slab in the former six-story building (i.e., about 13 feet bgs) and between 3 and 9 feet bgs in other portions of the Site. The fill overlies bedrock.

7. Hydrogeology: Synoptic groundwater measurements were collected on March 3, 2022, and May 3, 2023 from five on-site groundwater monitoring wells. Groundwater was encountered at depths ranging from about 6.9 to 16.8 feet below sidewalk grade and elevations between about el. 22.13 (NAVD88) in the northeastern portion of the Site (MW01) and el. 13.69 in the northwestern part of the Site (BRW17). The inferred groundwater flow direction is to the west towards the Harlem River.

8. Soil/Fill: Samples of soil/fill contained SVOCs, metals, pesticides, PCBs, and perfluorooctanoic acid (PFOA)/ perfluorooctanesulfonic acid (PFOS) at concentrations above the 6 NYCRR Part 375 UU and/or RRU SCO/Guidance Values (GV)[3], with the deepest exceedances at 9 feet bgs. Barium, cadmium, copper, mercury, and lead were detected in soil samples collected from the central, northwestern, and southwestern portions of the Site at concentrations one order of magnitude above the RRU SCOs (some at potentially hazardous concentrations); their presence, if not related to historic fill, may also be associated with releases of hazardous substances during historical vehicle repair operations between 1936 and 1976. PFOA/PFOS detected in four samples above the UU GVs may be associated with the application of fire suppressant foam during a 2017 fire. Acetone and methylene chloride were detected at concentrations above the UU SCOs in four soil samples; however, these compounds were also detected in trip blank and field blank samples and are common laboratory solvents associated with sample preservation. The detections are therefore not indicative of site-related conditions.

9. Groundwater Impacts: Two chlorinated VOCs, tetrachloroethene (PCE) and trichloroethene (TCE), were detected at concentrations one order of magnitude above

[3] Guidance values for PFOA and PFOS are provided in the NYSDEC guidance document "Sampling, Analysis and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs", dated April 2023.

the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water (SGVs) in groundwater on the northwestern part of the Site. The PCE and TCE likely originated from an off-site release (e.g., historical vehicle repair and plastics manufacturing on northeastern and eastern adjoining properties). 1,4-Dioxane and the pesticide dieldrin were detected above the NYSDEC SGVs in separate groundwater samples from the northwestern and southeastern parts of the Site, respectively. The detections may originate from an off-site source or soil matrix interference in the sample containing 1,4-dioxane related to sample turbidity. Five dissolved metals (magnesium, manganese, sodium, antimony, and selenium) detected in multiple samples above the NYSDEC SGVs are likely associated with a regional groundwater condition resulting from surface groundwater infiltration and/or dissolution of soil and bedrock. The detection of PFOA and PFOS in each groundwater sample above the NYSDEC April 2023 Ambient Water Quality Guidance Values (AWQGV) may either be associated with an on-site source (e.g., the application of fire suppressant foam during a 2017 fire) or a regional groundwater condition.

10. Soil Vapor: Fifteen (15) of the 18 VOCs addressed in the NYSDOH Decision Matrices were detected in soil vapor samples. The detection of petroleum-related VOCs in soil vapor does not directly correspond with impacts in soil and groundwater samples collected on site and therefore does not appear to be indicative of an on-site source. The chlorinated VOCs detected in soil vapor may be associated with potential off-site sources contributing to PCE- and TCE-impacted groundwater on the northern portion of the Site.

2.2 Geological Conditions

Geological and hydrogeological observations are described below. Soil boring logs, a groundwater contour map, and groundwater monitoring well construction logs are appended to the RI Report (RIR). Geologic cross-sections are provided as Figures 7A through 7D.

2.2.1 Non-Native Fill

Non-native fill was encountered beneath the surface cover and predominantly consists of dark brown to gray, fine- to coarse-grained sand and gravel with silt, brick, glass, concrete, metal and wood fragments. Fill was observed from immediately below surface cover to boring termination depths, which varied between 0.8 and 1 foot below the former cellar slab of the former 6-story building (i.e., about 12.8 to 13 feet bgs) and between about 2.5 and 9 feet bgs in the exterior areas and ground floor portions of the former 1- and 2-story buildings.

2.2.2 Native Soil

Native soil was not encountered in the RI borings.

2.2.3 Bedrock

Drilling refusal at the assumed top of bedrock was encountered during the RI at depths ranging from about 0.8 feet below the cellar slab of the former 6-story building (i.e., about 12.8 feet bgs) and 9 feet bgs in the northwestern portion of the Site.

2.2.4 Hydrogeology

Synoptic groundwater measurements were collected on March 3, 2022, and May 3, 2023 from five groundwater monitoring wells. The measured depth to groundwater on May 3, 2023 was 0.81 feet below the cellar slab of the former six-story building (i.e., about 12.8 feet bgs) and between 6.93 and 9.83 feet bgs in the exterior areas and ground floors of the former 1- and 2-story buildings. Groundwater was between el. 22.13 (NAVD88) in the northeastern part of the Site and el. 14.20 in the southern part of the Site. Based on the low recharge during sampling and the variability of the groundwater elevations, shallow groundwater is inferred to primarily be perched and therefore subject to variations in precipitation and surface water infiltration. The inferred regional groundwater flow direction is to the west towards the Harlem River. The presence of shallow bedrock and the observed perched groundwater condition, underground utilities and other subsurface structures may locally influence the direction of groundwater flow.

2.2.5 Conceptual Site Model

A conceptual site model (CSM) has been developed based on the findings of the RI and previous investigations. The purpose of the CSM is to develop a simplified framework for understanding the distribution of impacted materials, potential migration pathways, and potentially complete exposure pathways.

Potential Sources of Contamination

Potential sources of contamination include:

- Historical chemical releases during vehicle repair operations between 1936 and 1976 that resulted in metals (i.e., barium, cadmium, copper, mercury, and lead) impacts in the northwestern, central, and southwestern portions of the Site.
- Application of fire suppressing foam during a 2017 fire that resulted in PFOA and PFOS impacts to soil and groundwater.
- Contaminated soil from unknown sources used as backfill (SVOCs, PCBs, and metals)
- Releases from off-site commercial operations (e.g., historical vehicle repair and plastic manufacturing and an existing gasoline station) that contributed to PCE and TCE impacts in groundwater and localized petroleum impacts in soil vapor.

Exposure Media

The impacted media include soil, groundwater, and soil vapor.

Soil throughout the Site contains several SVOCs, metals, PCBs, pesticides, and PFOA/PFOS at concentrations above the UU SCO/GV and/or RRU SCO/GV. The impacts are associated with historical Site use (metals and PFOA/PFOS) and conditions in non-native fill. Non-native fill exhibiting impacts extends from below the surface cover to down to 1 foot below the cellar slab in the former 6-story building (i.e., about 13 feet bgs) and between 0.8 and 9 feet bgs in other portions of the Site.

Groundwater contains PCE, TCE, 1,4-dioxane, and dieldrin in localized occurrences at concentrations above the NYSDEC SGVs and PFOA/PFOS and metals at concentrations above the NYSDEC SGVs throughout the Site. PCE, TCE, and PFOA/PFOS are attributable to historical off-site sources.

Petroleum-related and chlorinated VOCs were identified in soil vapor at concentrations below 36 $\mu g/m^3$ and 11 $\mu g/m^3$, respectively.

Receptor Populations

The majority of the Site is currently covered by the concrete slabs of the former on-site buildings and asphalt pavement with gravel covering the northern portion of the Site. Access to the Site is restricted via construction fencing with locked gates. Current receptor populations include authorized visitors to the Site associated with pre-development assessment and investigation activities. During Site development, human receptors will be limited to construction and remediation workers, authorized guests visiting the Site, and the public and pedestrians adjacent to the Site. Under future conditions, receptors will include the residential and commercial use occupants, patrons and employees, and the nearby community, including children.

2.2.6 Description of Areas of Concern

Based on the history of the Site, the findings of previous environmental investigations, and the RI, the following AOCs were identified and are described below and shown on Figure 8.

AOC 1: Prior Site Use

Historical operations at the Site include an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909 – 1965); a brick, lime, and cement manufacturing company with a 550-gallon gasoline UST (1935); and an automotive repair facility (1936 – 1976). Fire suppression was also employed during a 2017 fire that destroyed the former self-storage facility.

Undocumented petroleum and chemical releases during historical operations potentially impacted soil, groundwater and/or soil vapor.

AOC 1 Findings Summary

Field indications of impacts were limited to PID readings above background concentrations in three borings at total concentrations between 3.8 and 10.5 ppm. The readings did not coincide with staining, odors, or detections of VOCs or SVOCs in soil or groundwater at concentrations indicative of a petroleum or chemical release. Acetone and methylene chloride were each detected in up to two samples above the UU SCOs but were not detected in groundwater samples above the NYSDEC SGVs. Acetone and methylene chloride were also detected in soil vapor at or near the locations at which the soil detections were identified; however, the soil vapor concentrations are of a similar order of magnitude as those detected throughout the Site and are not indicative of a localized hot spot or release.

SVOCs and PCBs were detected at concentrations above the UU and/or RRU SCOs, but below those that are indicative of a petroleum or chemical release during historical operations. Five metals (barium, cadmium, copper, mercury, and lead) were detected in several soil samples at concentrations one order of magnitude above the RRU SCOs (some at potentially hazardous concentrations). The detections were generally between 0 and 4 feet bgs, and the highest concentrations were in samples collected from the central, northwestern, and southwestern portions of the Site. These metals were not detected in corresponding total and dissolved-phase groundwater samples at concentrations above the NYSDEC SGVs.

PFOS and PFOA were detected at concentrations above the UU GVs and below the RRU GVs in soil samples collected from the northwestern and southwestern portions of the Site. PFOS and PFOA were detected in each groundwater sample at concentrations above the AWQGVs. The detections may be associated with deployment of fire suppression foam during the 2017 fire.

Groundwater samples did not contain petroleum-related compounds at concentrations above the NYSDEC SGVs. Two chlorinated VOCs, PCE and TCE, were detected at concentrations above the NYSDEC SGVs in a groundwater sample collected from the northwestern part of the Site. TCE was not detected in the other samples, and PCE was detected at concentrations below the NYSDEC SGVs in two wells on the central and southwestern part of the Site. The absence of PCE and TCE in corresponding soil samples indicates that the PCE and TCE impacts in groundwater likely originate from an off-site source.

Petroleum-related VOCs (i.e., benzene, toluene, ethylbenzene, and xylenes [BTEX]) were detected in all soil vapor samples. The detection of petroleum-related VOCs in soil vapor does not correspond with impacts in soil or groundwater and does not appear to indicate an on-site source.

AOC 1 Conclusions

Although PID detections above background were identified in three soil samples within AOC 1, the observations did not correlate with analytical indications of petroleum or other impacts in soil or groundwater. One soil vapor sample in the central portion of the Site contained BTEX at a concentration one order of magnitude above that in other samples; the soil vapor detection may indicate either a localized petroleum impact or an off-site source.

Detections of acetone and methylene chloride in up to two soil samples at concentrations above the UU SCOs are likely artifacts of the laboratory analytical process because they were also detected in QA/QC trip blank and field blank samples and are common laboratory solvents. Detections of barium, cadmium, copper, mercury, and lead in several soil samples at concentrations one order of magnitude above the RRU SCOs reflect soil impacts and potentially hazardous concentrations of metals that may be associated with historical vehicle repair operations between 1936 and 1976 or with AOC 2. The impacts were observed throughout the Site, but highest in the northwestern, central, and southwestern portions of the Site.

The detection of PCE and TCE above the NYSDEC SGVs in a groundwater sample collected from the northwestern part of the Site does not correspond with chlorinated VOC detections in soil or soil vapor at concentrations above comparison criteria. The apparent occurrence of PCE and TCE is not indicative of an on-site release but rather an off-site source.

Detections of PFOS and PFOA in soil samples above the UU GVs and in groundwater samples above the AWQGVs may be associated with the potential deployment of fire suppression foam during the 2017 fire that destroyed the former self-storage facility or indicative of a regional condition due to the Site location in a dense urban area.

AOC 2: Non-Native Fill

Non-native fill from unknown sources is present throughout the Site from below the surface cover down to about 9 feet bgs. Contaminants associated with non-native fill, including SVOCs and metals, were identified in soil samples at concentrations above the UU and/or RRU SCOs.

AOC 2 Findings Summary

Soil Samples

- Non-native fill was observed from below the surface cover to boring termination depths, which were down to 1 foot below the cellar slab in the former 6-story building (i.e., about 13 feet bgs) and between 3 and 9 feet bgs in the exterior areas and ground floor portions of the former 1- and 2-story buildings.

- Two VOCs (acetone and methylene chloride) were detected at concentrations above the UU SCOs in samples collected from between 1 and 4 feet bgs in borings on the central portion of the Site.

- Nine SVOCs (2-methylphenol, 3- & 4-methylphenols, benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenzo[a,h]anthracene, and indeno[1,2,3-cd]pyrene) were detected at concentrations above the UU and/or RRU SCOs in samples collected from between 0 and 4 feet bgs in 6 borings throughout the Site. A sample collected from between 0 and 2 feet bgs in a boring on the southwestern part of the Site contained the highest concentration of a single SVOC (benzo[a]anthracene) at 2.71 mg/kg.

- Eleven metals (arsenic, barium, cadmium, chromium [III], copper, lead, manganese, mercury, nickel, silver, and zinc) were detected at concentrations above the UU and/or RRU SCOs in samples collected from all soil borings at depths between 0 and 9 feet bgs. Five metals (barium, cadmium, copper, mercury, and lead) were detected at concentrations one order of magnitude above the RRU SCO in six borings on the northwestern, central, and southwestern portions of the Site.

- Total PCBs and three pesticides (4-4' DDE, 4-4' DDD, and 4-4' DDT) were detected above the UU SCO in three borings in the central part of the Site at depths between 1 and 2 feet bgs.

Groundwater Samples

Based on measurements during the RI, groundwater is below the soil-bedrock interface. Shallow groundwater is likely perched and influenced by surface water infiltration during precipitation events.

Of the compounds commonly associated with non-native fill (i.e., SVOCs and metals), one SVOC (1,4-dioxane) was detected above the NYSDEC SGV in a groundwater sample from the northwestern portion of the Site. The turbidity in the sample containing 1,4-dioxane was 264 Nephelometric Turbidity Units (NTU), which exceeded the target value of 50 NTU, and may therefore indicate interference from entrained fill material.

One pesticide, dieldrin, was detected above the NYSDEC SGV in a groundwater sample from the southwestern portion of the Site.

Groundwater samples also contained five dissolved metals (magnesium, manganese, sodium, antimony, and selenium) at concentrations above the NYSDEC SGVs.

AOC 2 Conclusions

Non-native fill throughout the Site contains SVOCs, metals, PCBs, and one pesticide at concentrations above the UU SCO and RRU SCOs. As discussed in AOC 1, detections of acetone and methylene chloride at concentrations above the UU SCOs are likely attributable to the introduction of solvents during the laboratory analytical process. The detection of five metals (barium, cadmium, copper, mercury, and lead) in six soil samples in the northwestern, central, and southwestern part of the Site at concentrations one order of magnitude above the RRU SCOs (some at potentially hazardous concentrations) may be associated with on-site vehicle repair between 1936 and 1976 (AOC 1) or with non-native fill.

The analytical results do not indicate SVOCs, pesticides, or metals impacts to groundwater associated with non-native fill. Though 1,4-dioxane and dieldrin were detected in groundwater at concentrations above the NYSDEC SGVs, the compounds were not identified in soil, except for one dieldrin detection at a location about 200 feet from the location of the groundwater exceedance. The dissolved metal detections in groundwater are likely associated with regional groundwater conditions, as discussed below.

Soil vapor is not considered to be a media of concern for AOC 2.

AOC 3: Off-Site Current and Historical Use

Current and historical operations at adjoining and surrounding properties include a gasoline station (1951 – present) at the southern adjoining property (cross-gradient), a gasoline station (1935) and plastics manufacturing facility (1947 – 1951) on the eastern adjoining property (up-gradient), a vehicle repair facility (1935 and 1977 – 2007) and a gasoline station (1944 – 2002) on a northeastern adjoining property (cross-gradient), and a fur processing and dyeing facility (1935 – 1951) with an associated paint shop (1935) on the northern adjoining property (cross-gradient). Undocumented petroleum and chemical releases during current and historical operations at these properties potentially impacted groundwater and/or soil vapor at the Site.

AOC 3 Findings Summary

Groundwater Samples

Two chlorinated VOCs, PCE and TCE, were detected at concentrations one order of magnitude above the NYSDEC SGVs in a groundwater sample and the corresponding duplicate sample collected from the northwestern part of the Site. TCE was not detected in the other samples; PCE was detected at concentrations below the NYSDEC SGVs in two wells on the central and southwestern part of the Site.

One SVOC (1,4-dioxane) and one pesticide (dieldrin) were detected above the NYSDEC SGVs in separate groundwater samples from the northwestern and southeastern portions of the Site, respectively.

Five dissolved metals (magnesium, manganese, sodium, antimony, and selenium) were also detected in groundwater at concentrations above the NYSDEC SGVs. Magnesium, manganese, sodium, and selenium were detected in each sample, whereas antimony was detected in three of the five samples.

PFOS and PFOA were detected in each groundwater sample at concentrations above the AWQGVs.

Soil Vapor Samples

VOCs, including petroleum-related compounds and chlorinated VOCs, were detected in soil vapor samples at concentrations below 36 µg/m3 and 11 µg/m3, respectively.

AOC 3 Conclusions

The analytical results indicate that migration of PCE- and TCE-impacted groundwater onto the Site from an off-site source likely resulted in the identified impacts on the northwestern part of the Site. Chemical releases during historical vehicle repair operations and plastics manufacturing on northeastern and eastern adjoining properties, respectively, may be the source the on-site impacts.

The presence of magnesium, manganese, sodium, antimony, and selenium in a majority of the groundwater samples indicates that these metals are indicative of a regional groundwater condition resulting from surface water infiltration and/or the composition of soil and bedrock. The detection of the pesticide dieldrin in one groundwater sample collected from the cellar of the former six-story building on the southeastern part of the Site is indicative of an off-site source, as there is limited overlying fill (i.e., less than one foot) in that area and the turbidity at the time of sampling was below the target value of 50 NTU. The presence of 1,4-dioxane in groundwater is likely related to interference from entrained fill, as the turbidity in groundwater at the time of sampling was 264 NTU.

The presence of PFOA and PFOS in groundwater throughout the Site may either be associated with an on-site source (i.e., the deployment of fire suppression foam during the 2017 fire) or a regional groundwater condition, as the Site is in a dense urban area.

The detection of BTEX in soil vapor on the central portion of the Site does not correspond with detections of petroleum-related compounds in soil or groundwater and may therefore be

associated with either a localized impact or an off-site source (e.g., the gasoline station on the southern adjoining property). Similarly, the chlorinated VOCs detected in soil vapor may be associated with the potential off-site sources of PCE- and TCE-impacted groundwater on the northern portion of the Site.

2.2.7 Nature and Extent of Contamination

Soil Contamination

Soil containing fill material extends to bedrock, which is between 3 and 9 feet bgs in the exterior areas and ground floor portions of the former 1- and 2-story buildings and down to 1 foot below the cellar slab in the former 6-story building (i.e., about 13 feet bgs). The fill contains several SVOCs and metals, three pesticides, PCBs, and PFOA/PFOS at concentrations above the UU and/or RRU SCOs/GVs.

The fill predominantly consists of dark brown to gray, fine- to coarse-grained sand and gravel with silt, brick, glass, concrete, metal and wood fragments. Field indications of impacts were limited to PID readings above background concentrations in three borings on the central and western portions of the Site at concentrations between 3.8 and 10.5 ppm. The readings do not coincide with staining, odors, or detections of VOCs or SVOCs indicative of a petroleum or chemical release. Detections of metals at concentrations one order of magnitude above the RRU SCOs on the northwestern, central, and southwestern portions of the Site and detections of PFOA/PFOS above the UU GVs are also present in the soil/fill layer.

Groundwater Contamination

Shallow groundwater is below the bedrock-soil interface and likely perched within bedrock. Groundwater contaminants include two chlorinated VOCs, one SVOC, one pesticide, dissolved metals, and PFOA/PFOS.

Two chlorinated VOCs, PCE and TCE, were detected at concentrations one order of magnitude above the NYSDEC SGVs in groundwater on the northwestern part of the Site.

1,4-Dioxane and one dieldrin were detected above the NYSDEC SGVs in separate groundwater samples from the northwestern and southeastern portions of the Site, respectively.

Five dissolved metals (magnesium, manganese, sodium, antimony, and selenium) were detected at concentrations above the NYSDEC SGVs.

PFOS and PFOA were detected in each groundwater sample at concentrations above the AWQGVs.

Soil Vapor Contamination

Fifteen (15) of the 18 VOCs addressed in the NYSDOH Decision Matrices were detected in soil vapor samples. The detection of petroleum-related VOCs does not correspond with impacts in soil and groundwater samples and therefore does not appear to be indicative of an on-site source. The chlorinated VOCs detected in soil vapor may be associated with potential off-site sources contributing to PCE- and TCE-impacted groundwater on the northern portion of the Site.

2.3 Qualitative Human Exposure Assessment

Based on the CSM and the review of environmental data, complete on-site exposure pathways appear to be present, in the absence of monitoring and mitigation or engineering controls (EC) (e.g., Construction Health and Safety Plan [CHASP] with a Community Air Monitoring Program [CAMP], capping system, etc.), during current, construction/remediation and future use conditions.

Complete exposure pathways have the following five elements: 1) a contaminant source; 2) a contaminant release and transport mechanism; 3) a point of exposure; 4) a route of exposure; and 5) a receptor population. A discussion of the five elements comprising a complete pathway as they pertain to the Site is provided below.

2.3.1 Contaminant Sources

Sources of contamination include:

- Historical chemical releases during vehicle repair operations between 1936 and 1976 that has resulted in metals (i.e., barium, cadmium, copper, mercury, and lead) impacts in the northwestern, central, and southwestern portions of the Site.
- Application of fire suppressing foam during a 2017 fire that has resulted in PFOA and PFOS impacts to soil and groundwater.
- Contaminated soil from unknown sources used as backfill (SVOCs, PCBs, pesticides, and metals)
- Releases from off-site commercial operations (e.g., historical vehicle repair and plastic manufacturing and an existing gasoline station) that contributed to PCE and TCE impacts in groundwater and localized petroleum impacts in soil vapor.

2.3.2 Current Conditions

Contaminant sources include soil with varying concentrations of SVOCs, metals, pesticides, PCBs, and PFAS; groundwater with varying concentrations of VOCs, SVOCs, pesticides, metals, and PFAS; and soil vapor with concentrations of VOCs above those detected in ambient air.

Contaminant release and transport mechanisms include potential release and transport during penetration of the Site cover for soil, groundwater, and soil vapor sampling. The potential receptor is the on-site sampling personnel and the nearby public. Under current conditions, the likelihood of exposure to humans is limited due to the following:

- The Site footprint is partially covered by continuous concrete building slabs and access to the Site is limited by secured construction fencing, which prevents contact with soil and groundwater.
- Sampling activities are completed in accordance with a HASP and CAMP that are designed to monitor and prevent exposure to both Site workers and the adjoining community to soil, groundwater, and soil vapor contaminants.
- Groundwater at the Site is not a potable water source.

2.3.3 Construction/Remediation Activities

During the excavation and foundation construction stage of redevelopment, which includes remediation, points of exposure include disturbed and exposed soil during excavation, dust and potential organic vapors generated during excavation activities, and contaminated groundwater that may be encountered during excavation and during dewatering operations, if performed. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of potential organic vapors arising from contaminated soil vapor and groundwater, and inhalation of dust originating from contaminated soil. The receptor population includes construction and remediation workers and, to a lesser extent, the public adjacent to the Site.

The potential for completed exposure pathways is present since all five elements exist; however, the risk can be avoided or minimized by applying appropriate health and safety measures during construction and remediation, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, cleaning truck undercarriages before they leave the Site to prevent off-site soil tracking, maintaining Site security, and wearing the appropriate personal protective equipment (PPE).

This RAWP, including the Construction Health and Safety Plan (CHASP, Appendix E) and CAMP, will be implemented during construction. The documents include measures such as conducting an air-monitoring program, donning PPE, covering soil stockpiles, altering work sequencing, maintaining a secure construction entrance, proper housekeeping, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction. Such

measures will prevent completion of potential migration pathways for soil, groundwater, and soil vapor.

2.3.4 Proposed Future Conditions

For the proposed future conditions, residual contaminants may remain on-site, depending on the remedy, and would, to a lesser extent, include those listed under current conditions. If residual impacts exist and controls are not implemented, points of exposure could include potential cracks in the foundation of the proposed development, exposure during any future ground-intrusive work, or inhalation of soil vapor entering the building. The receptor population includes residential and commercial use occupants, patrons, and employees, and the nearby community, including children. The possible routes of exposure can be avoided or mitigated by complete removal of contaminated soil (i.e., a Track 1 cleanup) or construction and maintenance of a Site capping system (e.g., concrete building slab or at least 2 feet of clean soil) and implementation of a Site Management Plan (SMP), if necessary, depending on the remedy.

2.3.5 Human Health Exposure Assessment Conclusions

1. Human exposure to Site contaminants is limited under current conditions due to the presence of surface cover materials (concrete building slabs, asphalt pavement, and gravel), and limited access to the Site to investigation workers and authorized guests. The primary exposure pathways are dermal contact, ingestion, and/or inhalation of soil (including particulates) and groundwater by Site investigation workers and, to a lesser extent, the nearby public. The exposure risks can be avoided or minimized by following the appropriate HASP and vapor and dust suppression measures, and by implementing a CAMP during investigation activities.
2. In the absence of mitigation and controls, there is potential for exposure during the construction-phase activities. The primary exposure pathways are:
    a. Dermal contact, ingestion, and/or inhalation of contaminated soil, groundwater, or soil vapor off-gassing from groundwater by construction workers.
    b. Dermal contact, ingestion, and inhalation of soil (dust) and soil vapor by the community in the vicinity of the Site.

    These can be avoided or minimized by implementing CAMP and stormwater and erosion control measures, and by following the appropriate CHASP, vapor and dust suppression, Site security measures, and following a NYSDEC-approved RAWP.

3. The existence of a complete exposure pathway for Site contaminants to human receptors during proposed future conditions is unlikely, as all or the majority of impacted soil will be excavated and transported to an off-site disposal facility and any residual soil will be capped, if required, with an impermeable cover or two feet of clean soil. Regional groundwater is not used as a potable water source in this part of the Bronx. A source of groundwater contamination was not identified during the RI. Soil vapor contaminants of concern were not identified by the RI. Engineering and institutional controls, if warranted, will be in place to mitigate exposure risk to residual contamination that may remain on Site.
4. It is possible that a complete exposure pathway exists for the migration of Site contaminants to off-site human receptors during current, construction-phase, and future conditions. Monitoring and control measures have been and will continue to be used during investigation and construction to prevent completion of this pathway. Under future conditions, the Site will be remediated, and engineering and institutional controls will be implemented, if necessary, to prevent completion of this pathway.

2.4 Remedial Action Objectives

Based on the results of the RI, the following Remedial Action Objectives (RAO) have been identified for the Site:

2.4.1 Soil

RAOs for Public Health Protection:

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection:

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

2.4.2 Groundwater

RAOs for Public Health Protection:

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

RAOs for Environmental Protection:

- Remove the source of Site groundwater or surface water contamination.

2.4.3 Soil Vapor

RAOs for Public Health Protection:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into building(s) at the Site based on known contaminants identified during the RI and this remedial action.

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

This section presents an analysis of the proposed remedial alternatives that can potentially be achieved under the BCP. The SCOs for Alternative I would be the Part 375 UU SCOs under a Track 1 cleanup. The proposed SCOs for Alternative II are RRU SCOs under a Track 4 cleanup. Both alternatives would achieve the established RAOs.

3.1 Identification of Standards, Criteria and Guidance

In accordance with New York Environmental Conservation Law (ECL) §27-1415 and DER-10, the objectives of the remedial action are to: (1) reduce the concentrations of contaminants of concern at the Site to meet those levels that will protect public health and the environment, and (2) isolate the Site from migration of contaminated groundwater and soil vapor from potential off-site sources. In accordance with DER-10, remedial alternatives will be developed that eliminate or mitigate on-site environmental impacts or human exposures, to the extent practical, resulting from off-site contamination. Where identifiable on-site sources of contamination are found, the sources will be removed or treated to the extent practical.

Also, in accordance with DER-10, the RAOs for this Site are defined as medium-specific objectives for the protection of public health and the environment and are developed based on contaminant-specific standards, criteria, and guidance (SCG). The SCGs for the Site include:

- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (issued May 3, 2010, latest update April 9, 2019)
- NYSDEC DER-23 Citizen Participation Handbook for Remedial Programs (March 2010)
- NYSDEC DER-32 Brownfield Cleanup Program Applications and Agreements (June 2017)
- NYSDEC TOGS 1.1.1 – Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (1998)
- NYSDEC TOGS 5.1.8 – New York State Stormwater Management Design Manual (2008)
- NYSDEC TOGS 5.1.10 – New York Standards and Specifications for Erosion and Sediment Controls (2005)
- NYSDEC CP-51 - Soil Cleanup Guidance (2010)
- NYSDEC CP-43 Groundwater Monitoring Well Decommissioning Policy (2009)
- NYSDOH – Guidance for Evaluating Soil Vapor Intrusions in the State of New York (2006) and subsequent updates

- Title 10 of the Official Compilation of Codes, Rules and Regulations of the State of New York, Chapter 1, Part 5-1 – Drinking Water Supplies, Public Water Systems
- 6 NYCRR Part 360 – General Provisions
- 6 NYCRR Part 364 – Waste Transporter Permits
- 6 NYCRR Part 370 – Hazardous Waste Management System
- 6 NYCRR Part 375 – Environmental Remediation Programs
- 6 NYCRR Part 376 – Land Disposal Restrictions
- 6 NYCRR Part 700-706 – Surface Water and Groundwater Classification Standards
- 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Regulations
- Code of Federal Regulations (CFR) Title 29 Part 1910.120 – Hazardous Waste Operations and Emergency Response Standard
- CFR Title 29 Part 1926 – Safety and Health Regulations for Construction
- NYSDEC Spill Response Guidance Manual
- Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs, NYSDEC (April 2023)

3.2 Technical Description of Alternative I – Track 1

Alternative I, a Conditional Track 1 remedy, would include implementation of the following remedial elements.

1. Development and implementation of a CHASP and CAMP for the protection of on-site workers, community/residents, and the environment during remediation and construction activities.
2. Removal and management of the building slabs and asphalt and gravel surface cover as construction and demolition (C&D) debris by the contractor in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not comingled with contaminated Site soil and fill.
3. Preliminary waste characterization, as required, to facilitate off-site disposal of excavated material.
4. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.

5. Decommissioning of monitoring wells.
6. Construction of a support of excavation (SOE) system to facilitate excavation of soil/fill that exceeds the UU SCOs.
7. Dewatering and treatment, as necessary, to facilitate SOE installation and to accommodate removal of soil that exceeds UU SCOs, and discharge of dewatering fluids in accordance with a New York City Department of Environmental Protection (NYCDEP) sewer discharge permit.
8. Excavation, stockpiling, and off-site transport of soil exceeding UU SCOs as defined by 6 NYCRR Part 375-6.8.
9. Removal, decommissioning, and off-site disposal of any encountered USTs and/or associated appurtenances (e.g., fill lines, vent line, and electrical conduit) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
10. Screening for indications of contamination (by visual means, odor, and monitoring with a PID) of excavated soil/fill during intrusive Site work.
11. Appropriate off-site disposal of non-native fill and soil from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
12. Collection and analysis of confirmation soil samples to confirm UU SCOs are achieved[4].
13. Backfilling of remediated areas to development grade with soil meeting UU SCOs, virgin stone, or recycled concrete aggregate (RCA) from a 6 NYCRR Part 360 NYSDEC-registered facility, and in compliance with Part 360 and Part 375-6.7(d).
14. Completion of a soil vapor intrusion (SVI) evaluation, which will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion, if indicated during the evaluation.

The Alternative I remediation extent is shown on Figure 9 and is based on data presented in the RIR. UU SCOs are provided in Table 1. The requirements for each of the Alternative I tasks are described below.

[4] Bedrock is expected across the site at development depth; if all soil is removed from an area, the corresponding confirmation sample will not be collected.

3.2.1 On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP would be enforced during excavation to protect on-site workers from accidents and acute and chronic exposures to the identified contaminated media. Public health would be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP would include continuous perimeter monitoring of dust and organic vapor using aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel would monitor Site perimeters for visible dust and odors. The environment would be protected by implementing and enforcing the appropriate soil erosion prevention measures.

3.2.2 Documentation of Soil/C&D Material Separation during Surface Cover Removal

The asphalt and gravel surface cover would be removed by the contractor and managed as C&D debris in accordance with Part 360 and 361 to allow for SOE installation and remedial excavation. Review and certification of C&D transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not comingled with contaminated Site soil and fill.

3.2.3 Preliminary Waste Characterization Sampling

A waste characterization study would be performed, as warranted, for soil intended for off-site disposal in a manner acceptable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC results would be reported in the Final Engineering Report (FER). Data available for excavated soil/fill to be disposed of at a given facility would be submitted to the disposal facility with an application prior to shipment and receipt.

3.2.4 Soil Erosion, Pollution, and Sediment Control Measures

A Stormwater Pollution Prevention Plan (SWPPP) would be prepared during the project design process and provided to NYSDEC when completed. Erosion and sediment controls for the Site would be designed in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control. Best Management Practices (BMP) would be employed to mitigate erosion and prevent the migration of sediment off-site throughout construction.

3.2.5 Monitoring Well Decommissioning

The existing groundwater monitoring wells would be decommissioned in accordance with NYSDEC CP-43 Groundwater Monitoring Well Decommissioning Policy. Well decommissioning would be performed by an experienced driller and logged by the driller and field personnel

supervised by the RE. The only exception to this is if the full length of the well is to be excavated during remediation and development. In that case, all well materials would be removed in conjunction with excavation. Decommissioning documentation would be provided in the FER.

3.2.6 Support of Excavation

An SOE system would be constructed to accommodate removal of soil that exceeds UU SCOs. Remedial excavation along the Site perimeter would extend below the water table in the northwestern portion of the Site to a depth of at least 9 feet bgs.

3.2.7 Excavation Dewatering

Dewatering would be required to achieve a Track 1 UU SCO cleanup. The contractor would follow the Rules of the City of New York (RCNY), Title 15, Chapter 19, Use of the Public Sewers and the NYCDEP "Procedure for Obtaining Letter of Approval for Groundwater Discharge to Sanitary or Combined Sewer" and would use the approval to obtain a Temporary Discharge of Groundwater into the City Sewer System Permit. Dewatering would require, at a minimum, a settling tank prior to discharge to the sewer. Additional pretreatment (e.g., bag filters, oil-water separators, and carbon filtration) may be required prior to discharge to the New York City sewer system. If daily discharge exceeds 10,000 gallons, the contractor would also have to obtain approval from NYCDEP's Bureau of Water and Sewer Operations, Chief of Permitting and Compliance.

3.2.8 Soil/Fill Removal

SVOCs, metals, PCBs, and pesticides were detected in non-native fill at concentrations that exceed the UU SCOs. To achieve a Track 1 cleanup, fill removal and disposal would extend from surface grade to depths ranging from 3 and 9 feet bgs in the exterior areas and ground floor portions of the former one- and two-story buildings and down to 1 foot below the cellar slab in the former six-story building (i.e., about 13 feet bgs). The estimated volume of soil and non-native fill requiring removal and off-site disposal for a Track 1 cleanup is approximately 3,835 cubic yards, with the final volume depending on the exact depth of fill that extends to bedrock.

To guide proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated Site material. Waste characterization sampling will be performed for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

3.2.9 UST System Removal

Any USTs encountered during remedial excavation would be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5, 6 NYCRR Part

613.9, and NYSDEC CP-51. USTs and/or associated appurtenances would be registered and administratively closed with the NYSDEC PBS unit. Petroleum-impacted soil/fill, if encountered, would be excavated, stockpiled separately, characterized, and removed for off-site disposal at a permitted disposal facility in accordance with applicable regulations. If the area-wide remedial excavation does not extend beyond the bottom of the encountered tank, additional confirmation soil samples under the tank excavation would be collected, per DER-10.

3.2.10 Confirmation Soil Sampling

Under a Track 1 remedy, all soil exceeding UU SCOs would be excavated. To confirm attainment of UU SCOs in areas where soil will remain on-site (i.e., in areas where bedrock will not be encountered), confirmation soil samples would be collected from the excavation base at a frequency of one per 900 square feet, per NYSDEC DER-10. Sidewall samples would not be collected from the Site perimeter because SOE measures (e.g., sheeting and secant pile wall) would preclude access to soil along excavation sidewalls. Any confirmation soil samples, including QA/QC samples, would be collected and analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals including hexavalent and trivalent chromium, PFAS, and 1,4-dioxane. If all soil is removed to bedrock in a sampling area, the confirmation sample will not be collected. If confirmation sampling indicates that UU SCOs have not been achieved at the stated remedial depth, the Participant will notify NYSDEC, submit the sample results and, in consultation with NYSDEC, determine if further remedial excavation is necessary. Excavation below depths at which confirmation samples indicate that UU SCOs have been achieved will proceed as excavation for development.

3.2.11 Excavation Backfill

Areas of the Site requiring over-excavation to achieve a Track 1 cleanup would be backfilled to development grade (i.e., the grade required to complete construction of the foundation components). Excavation backfill would comply with 6 NYCRR Part 375-6.7(d) and NYSDEC DER-10 Section 5.4(e), Table 5.4(e)10, and Appendix 5.

Imported material would consist of fill that meets UU SCOs or other acceptable fill such as virgin stone from a quarry or RCA. If RCA is imported to the Site, it would come from a NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of RCA acquisition. RCA imported from compliant facilities would not require chemical testing, unless required by NYSDEC under its terms for operation of the facility. Imported RCA must be derived from recognizable and uncontaminated concrete (less than 10% by weight passing through a No. 80 sieve). RCA is not acceptable for, and would not be used as, Site cover or drainage material. An estimated 80 cubic yards of backfill would be required to raise the Site to development grade upon completion of the Track 1 remedial excavation.

3.2.12 SVI Evaluation

Langan will evaluate the site for potential soil vapor intrusion, based on soil vapor data obtained during the RI, the status of the remedy (i.e., the potential presence of remaining contaminant sources), and the depth and configuration of the new building foundation. No new soil vapor or indoor air samples will be collected, unless a potential new source of impacted soil vapor is identified during implementation of the RAWP, which would be summarized in the SVI evaluation at the completion of the remedy. The findings of the SVI evaluation will be presented in the FER. The findings will include a provision for implementing actions recommended to address soil vapor intrusion if the evaluation identifies new evidence of soil vapor intrusion that differs from the findings of the RI. RI data indicated that soil vapor mitigation was not likely required. If the SVI evaluation indicates that mitigation or monitoring action is warranted, a Track 1 cleanup will only be achieved if the mitigation system or other required action is no longer needed within five years of the date of the Certificate of Completion.

3.3 Technical Description of Alternative II – Track 4 Remedy

Alternative II, a Track 4 remedy, would be executed by accomplishing the following tasks:

1. Development and implementation of a CHASP and CAMP for the protection of on-site workers, community/residents, and the environment during remediation and construction activities.
2. Removal and management of the building slabs and asphalt surface cover as C&D debris by the contractor in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not comingled with contaminated Site soil and fill.
3. Implementation of preliminary waste characterization, as required, to facilitate off-site disposal of excavated material.
4. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
5. Decommissioning of monitoring wells.
6. Construction of the SOE system, as needed, to facilitate excavation of any contaminant source material throughout the Site and excavation of soil/fill that exceeds the RRU SCOs to a minimum depth of 2 feet bgs.
7. Excavation and off-site disposal of two metals-impacted hotspots that extend to 4 and 5 feet bgs in the northwestern and western parts of the Site, and collection of confirmation endpoint samples.

8. Dewatering and treatment, as necessary, to facilitate SOE installation and to accommodate the removal of soil that exceeds RRU SCOs, and discharge of dewatering fluids in accordance with a NYCDEP sewer discharge permit.
9. Excavation, stockpiling, and off-site transport of soil exceeding RRU SCOs as defined by 6 NYCRR Part 375-6.8.
10. Removal, decommissioning, and off-site disposal of any encountered USTs and/or associated appurtenances (e.g., fill lines, vent line, and electrical conduit) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
11. Screening for indications of contamination (by visual means, odor, and monitoring with a PID) of excavated soil/fill during intrusive Site work.
12. Appropriate off-site disposal of non-native fill and soil from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
13. Collection and analysis of confirmation soil samples to confirm RRU SCOs are achieved.
14. Placement of a physical demarcation layer (e.g., orange snow fencing or equivalent material) where soil exceeding the RRU SCOs remains and not covered by impervious surfaces at the excavation bottom prior to backfilling.
15. Backfilling of remediated areas to development grade with documented soil meeting the lower of RRU and Protection of Groundwater (PGW) SCOs, virgin stone, or RCA from a 6 NYCRR Part 360 NYSDEC-registered facility and in compliance with Part 360.
16. Construction of a composite cover system consisting of a reinforced concrete foundation slab in interior areas and concrete pavers and/or at least 2 feet of clean imported fill meeting the lesser of the Part 375 Restricted Use Residential (RU) and PGW SCOs.
17. Completion of an SVI evaluation, which will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion, if indicated during the evaluation.
18. Establishment of an NYSDEC-approved Site Management Plan (SMP) to provide for long-term management of Engineering Controls (ECs) and Institutional Controls (ICs), including the performance of periodic inspections and certification that the controls are performing as they were intended.
19. Recording of an Environmental Easement to memorialize the remedial action and the ECs and ICs to mandate that owners of the Site continue to maintain these controls as required.

The requirements for each of the above tasks are described below. The Alternative II remedial extent is shown on Figure 10. The remedial extent is derived from data collected during the RI and previous environmental reports.

3.3.1 On-Site Worker, Public Health, and Environmental Protection

A Site-specific CHASP would be enforced during excavation to protect on-site workers from accidents and acute and chronic exposures to the identified contaminated media. Public health would be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP would include continuous perimeter monitoring of dust and organic vapor using aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel would monitor Site perimeters for visible dust and odors. The environment would be protected by implementing and enforcing the appropriate soil erosion prevention measures.

3.3.2 Documentation of Soil/C&D Material Separation during Surface Cover Removal

The asphalt surface cover would be removed by the contractor and managed as C&D debris in accordance with Part 360 and 361 to allow for SOE installation and remedial excavation. Review and certification of C&D transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not comingled with contaminated Site soil and fill.

3.3.3 Preliminary Waste Characterization Sampling

A waste characterization study would be performed, as warranted, for soil intended for off-site disposal in a manner acceptable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC results would be reported in the FER. Data available for excavated soil/fill to be disposed of at a given facility would be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

3.3.4 Soil Erosion, Pollution, and Sediment Control Measures

A SWPPP would be prepared during the project design process and provided to NYSDEC when completed. Erosion and sediment controls for the Site would be designed in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control. BMPs would be employed to mitigate erosion and prevent the migration of sediment off-site throughout construction.

3.3.5 Monitoring Well Decommissioning

The existing groundwater monitoring wells would be decommissioned in accordance with NYSDEC CP-43 Groundwater Monitoring Well Decommissioning Policy. Well decommissioning would be performed by an experienced driller and logged by the driller and field personnel supervised by the RE. The only exception to this is if the full length of the well is to be excavated during remediation and development. In that case, all well materials would be removed in conjunction with excavation. Decommissioning documentation would be provided in the FER.

3.3.6 Support of Excavation

An SOE system, as necessary, would be constructed to accommodate removal of contaminant source material and the two metals-impacted hot spots to depths extending to about 4 to 5 feet bgs.

3.3.7 Removal of Metals-Impacted Soil

Metals-impacted soil that extends to about 4 and 5 feet bgs in the northwestern and western portions of the Site, respectively, will be excavated for off-site disposal at a permitted off-site facility. Following excavation, confirmation endpoint samples would be collected from the base of each excavation at a frequency of 1 per 900 square feet and from each of the four sidewalls at a frequency of 1 per 30 linear feet to confirm that remaining lead and barium do not exceed 1,000 mg/kg and 400 mg/kg (i.e., the Part 375 Restricted Use – Commercial SCOs), respectively, and metals are below the Resource Conservation and Recovery Act (RCRA) limit for characteristic hazardous waste.

3.3.8 Excavation Dewatering

Based on the documented depth of groundwater and the anticipated remedial excavation depths, dewatering will likely not be required to achieve a Track 4 RRU cleanup. However, if dewatering is warranted, the contractor would follow the RCNY, Title 15, Chapter 19, Use of the Public Sewers and the NYCDEP "Procedure for Obtaining Letter of Approval for Groundwater Discharge to Sanitary or Combined Sewer" and would use the approval to obtain a Temporary Discharge of Groundwater into the City Sewer System Permit. Dewatering would need, at a minimum, a settling tank prior to discharge to the sewer. Additional pretreatment (e.g., bag filters, oil-water separators, carbon filtration, etc.) may be required prior to discharge to the New York City sewer system. If daily discharge exceeds 10,000 gallons, the contractor would also have to obtain approval from NYCDEP's Bureau of Water and Sewer Operations, Chief of Permitting and Compliance. Dewatering would also require receipt of an NYSDEC Long Island Well Permit.

3.3.9 Soil/Fill Removal

SVOCs, metals, PCBs, PFOA/PFOS and pesticides were detected in non-native fill at concentrations that exceed the RRU SCOs. To achieve Track 4 cleanup, soil/fill removal and disposal would extend from surface grade to a minimum depth of 2 feet bgs, with deeper excavation for two metals-impacted hot spots, as discussed in Section 3.3.7. Residual soil exceeding the RRU SCOs and remaining in place following completion of the remedy would be managed with ECs and ICs. Excavation for foundation construction would extend from about 6 feet bgs in the southwestern part of the Site to about 14 feet bgs in the northwestern part of the Site. The estimated volume of soil and non-native fill requiring removal and off-site disposal for a Track 4 cleanup is approximately 1,875 cubic yards, with the final volume depending on the depth of additional/fill that contains contaminant source material based on field observations and confirmation sampling.

3.3.10 UST System Removal

Any USTs encountered during remedial excavation would be decommissioned in accordance with applicable NYSDEC tank closure requirements, including DER-10 Section 5.5, 6 NYCRR Part 613.9, and NYSDEC CP-51. USTs and/or associated appurtenances would be registered and administratively closed with the NYSDEC PBS unit. Petroleum-impacted soil/fill, if encountered, would be excavated, stockpiled separately, characterized, and removed for off-site disposal at a permitted disposal facility in accordance with applicable regulations. If the area-wide remedial excavation does not extend beyond the bottom of the encountered tank, additional confirmation soil samples under the tank excavation would be collected, per DER-10.

3.3.11 Documentation Soil Sampling

Per DER-10, post-excavation documentation samples would be collected to document the soil levels achieved by the remedy and inform the SMP. Remaining soil that may exceed the SCOs would be controlled with ICs and ECs. Sidewall samples would be collected from the two metal hot spot excavations (Section 3.3.7) and the vertical midpoint of any excavation sidewall that is not obstructed by SOE. Documentation samples of soil remaining following remedial and construction excavation would be collected from the excavation base at a sampling frequency of one sample per 900 square feet of excavation base, and from the excavation sidewalls at a frequency of one sample per 30 linear feet of sidewall. If contaminant source areas are encountered during the remedial excavation (e.g., petroleum-impacted soil), confirmation/documentation samples would be collected at a frequency of one sample per 900 square feet of excavation base, and one sample per 30 linear feet of sidewall in those areas.

Based on the Site dimensions, up to 31 potential base and 24 potential sidewall documentation endpoint soil samples (plus QA/QC samples) would be collected. If all soil is removed to bedrock

in a sampling area, the confirmation sample will not be collected. No sidewall documentation samples are expected, except in the areas of metals-impacted soil removal, because sidewall samples would not be collected in areas where the SOE obstructs access to sidewall soil and sidewall soil is off-site.

Documentation samples will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals including hexavalent and trivalent chromium, PFAS, and 1,4-dioxane.

3.3.12 Demarcation Barrier

Portions of the remedial excavation may be backfilled to bring the Site to the grade required for construction activities. A physical demarcation layer, consisting of orange snow-fencing material or equivalent material will be placed on residual Site soil prior to backfilling in areas that are not excavated to bedrock and require backfill.

3.3.13 Excavation Backfill

Areas of the Site requiring over-excavation to achieve a Track 4 cleanup would be backfilled to development grade (i.e., the grade required to complete construction of the foundation components and exterior cover system). Excavation backfill would comply with 6 NYCRR Part 375-6.7(d) and NYSDEC DER-10 Section 5.4(e), Table 5.4(e)10, and Appendix 5.

Imported material would consist of fill that meets the lesser of the RRU and the PGW SCOs or other acceptable fill such as virgin stone from a quarry or RCA. If RCA is imported to the Site, it would be delivered from an NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of RCA acquisition. RCA imported from compliant facilities would not require chemical testing, unless required by NYSDEC under its terms for operation of the facility. Imported RCA must be derived from recognizable and uncontaminated concrete (less than 10% by weight passing through a No. 80 sieve). RCA is not acceptable for, and would not be used as, Site cover or drainage material. An estimated 20 cubic yards of backfill would be required to raise the Site to development grade upon completion of the contaminant source and metals- impacted soil removal. Where portions of the remedial area are not covered by impervious surfaces, a physical demarcation barrier consisting of snow fencing would be placed at the excavation bottom prior to backfilling.

3.3.14 Composite Cover System

A composite cover system consisting of a reinforced concrete foundation slab in interior areas and concrete pavers and/or at least 2 feet of clean imported fill meeting the lesser of the Part 375 RU and PGW SCOs would be constructed. The Site cover system would serve as an EC for the protection of human health by preventing contact with residual soil and groundwater.

Additionally, to incorporate NYSDEC green remediation principles and techniques to the extent feasible in the development at this Site, the building will include as an element of construction a minimum 20-mil vapor barrier/waterproofing membrane on the foundation, which may improve energy efficiency.

3.3.15 SVI Evaluation

Langan will evaluate the site for potential soil vapor intrusion, based on soil vapor data obtained during the RI, the status of the remedy (i.e., soil excavation), and the depth and configuration of the new building foundation. No new soil vapor or indoor air samples will be collected, unless a potential new source of impacted soil vapor is identified during implementation of the RAWP, which would be summarized in the SVI evaluation at the completion of the remedy. The findings of the SVI evaluation will be presented in the FER. The findings will include a provision for implementing actions recommended to address soil vapor intrusion, if indicated during the evaluation.

3.3.16 Site Management Plan and Environmental Easement

An Environmental Easement (EE) would be recorded that references ICs and EC that are part of the selected remedy, which would be binding upon all subsequent owners and occupants of the property. The ICs would perform the following:

Restrict Site use to restricted-residential, commercial, and industrial uses

Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDEC or NYSDOH

Require implementation of an NYSDEC-approved SMP

Require the completion and submission to the NYSDEC of a periodic certification of ICs and EC in accordance with Part 375

Include notice of use restrictions for the Site soil

The ICs required in the EE include the requirements for the operation, maintenance, and monitoring of the EC, which consists of the composite cover system described in this alternative and any additional ECs established through the SMP under future Site development.

The SMP would identify all use restrictions, ECs, and long-term monitoring and maintenance requirements. The SMP provides a plan that, if followed, would ensure the ICs and/or ECs remain in place and are effective. The SMP would include, but may not be limited to:

An Excavation Work Plan, which details the provisions for management of future excavations in areas of remaining contamination

Descriptions of the EE provisions, including any land use, and/or groundwater use restrictions

Provisions for evaluation of the potential for soil vapor intrusion for any buildings developed on the Site

Provisions for the management and inspection of the identified ECs

Descriptions for maintaining Site access controls and NYSDEC notification

Steps necessary for the periodic reviews and certification of the ICs and/or ECs

A Monitoring Plan to assess the performance and effectiveness of the remedy, which includes, but may not be limited to:

- Evaluation for vapor intrusion for any future buildings developed on the Site, beyond the currently envisioned development, as may be required by the IC and EC Plan discussed above
- A schedule of monitoring and frequency of submittals to NYSDEC

3.4 Evaluation of Remedial Alternatives

The following is an evaluation of the proposed remedial alternatives based on the NYSDEC BCP remedy evaluation criteria listed below. The first two criteria are considered "threshold criteria" and the remaining criteria are "balancing criteria". A remedial alternative must meet the threshold criteria in order to be considered and evaluated further under the balancing criteria.

- Protection of human health and the environment
- Compliance with standards, criteria, and guidance (SCG)
- Short-term effectiveness and impacts
- Long-term effectiveness and impacts
- Reduction of toxicity, mobility, or volume of contaminated material
- Implementability
- Cost effectiveness
- Community acceptance
- Land use

3.4.1 Protection of Public Health and the Environment

Alternative I – The remedy would eliminate pathways of exposure from on-site contaminated media. Remediating the Site to Track 1 standards would result in the removal of 3,835 cubic yards of soil with contaminant concentrations above UU SCOs. The RAOs for public health and environmental protection would be met through the removal of contaminated soil, which would eliminate any possibility for ingestion and inhalation of or dermal contact with contaminated soil particles. Since all soil above UU SCOs would be removed and no ICs and ECs would be required

for this remedy to maintain the Site in the future, this remedy is the most protective of human health and the environment.

Alternative II – The remedy would mitigate pathways of exposure to on-site contaminated media. A Track 4 cleanup would result in the removal and off-site disposal of on-site soil to the proposed remedial excavation depth to about 2 feet bgs throughout the Site and to about 4 and 5 feet bgs in the metals-impacted hot spots. Residual contaminants may remain in some areas, provided they are not a source of contamination, and would be capped to preclude direct exposure risk. The RAOs for public health and environmental protection would be met through the combination of contaminant removal, ECs (including Site capping), and ICs (including an EE and SMP). In addition, groundwater in the Bronx is not used as a source of drinking water.

3.4.2 Compliance with Standards, Criteria, and Guidance

Both remedial alternatives comply with applicable SCGs listed in Section 3.1 by removing on-site sources of contamination to achieve the RAOs. During implementation of either remedy, protection of public health and the environment would be maintained by enforcing a Site-specific CHASP and CAMP. Occupational Safety and Health Administration (OSHA) requirements for on-site construction safety would be followed by any Site contractors performing work under Alternative I or II.

3.4.3 Short-Term Effectiveness and Impacts

Alternative I - The most significant short-term adverse impacts and risks to the community are potential complications and risk involved with constructing SOE, bulk soil excavation, and import of backfill. Increased traffic (and potential impositions to pedestrians and greater greenhouse gas emissions) associated with construction would result from the remedial excavation to achieve a Track 1 cleanup and subsequent import of backfill to bring the Site up to construction sub-grade in the northeastern slab-on-grade portion of the Site. Increased construction-related noise levels would result from hauling soil that exceeds UU SCOs to achieve Track 1 standards, relative to Alternative II.

Off-site transport of the excavated soil and fill to achieve Alternative I would require about 153 25-cubic-yard-capacity truck trips, and backfilling of the Site to achieve construction sub-grade would require about 4 25-cubic-yard capacity truck trips. Implementing Alternative I would require approximately 10 months of effort (assuming normal work hours). Truck traffic would be routed on the most direct course using major thoroughfares where possible and flaggers would be used to protect pedestrians at Site entrances and exits. A Track 1 remedy would generally require the removal of all soil to the depth of bedrock, eliminating confirmation sampling.

Alternative II - Alternative II would result in similar short-term adverse impacts and risks to the community, but for a shorter duration than Alternative I. The excavated soil and fill would require approximately 75 25-cubic-yard capacity truck trips (approximately 51% fewer truck trips than Alternative I) and would require substantially less import of soil or stone to backfill excavation areas. Implementing the Alternative II concept would require approximately 6 months of effort (assuming normal work hours). The shorter implementation period means fewer potential impacts to the community, such as a shorter period of truck traffic and less potential for exposure to contaminated media.

Under both remedial alternatives, the effects of these potential adverse impacts to the community, workers and the environment would be minimized by implementing appropriate control plans (including the CHASP, CAMP, and dust, odor and vapor control measures). Dust would be controlled by the on-site application of water spray, slowing the pace of work, applying foam and/or dust suppressant, and/or covering portions of the excavation when required. Work would be modified or stopped according to the action levels defined in the CAMP. There would be fewer short-term impacts for Alternative II than Alternative I.

3.4.4 Long-Term Effectiveness and Impacts

Alternative I – A Track 1 remedy would remove all contaminated media exceeding UU SCOs from the Site. Because an Environmental Easement and SMP are not required as part of the Track 1 remedy, Article 141 of the NYCDOH code would be relied upon to prevent ingestion of groundwater, which prohibits potable use of groundwater without prior approval. Future Site use would be unrestricted, as removal of contaminants across the Site would be complete and permanent, thereby eliminating environmental risks and satisfying the objectives of this criterion.

Alternative II – Contaminants in soil would remain at concentrations above UU SCOs; however, all contaminant source material would be removed and potential exposure to remaining contaminated soil would be prevented by the cover system. In addition, groundwater is not a source of potable water in New York City and would not be accessible due to the building foundation. Long-term effectiveness of this alternative would be achieved through the implementation of the SMP and through enforcement of the EE.

3.4.5 Reduction of Toxicity, Mobility, and Volume

Alternative I – The Track I remedy would permanently and significantly reduce the toxicity, mobility, and volume of contamination through excavation and removal of all on-site soil exceeding the UU SCOs. Therefore, Alternative I provides the greatest reduction of the toxicity, mobility, and volume of contaminated material.

Alternative II – The Track 4 remedy would significantly reduce the toxicity, mobility, and volume of contaminated material by removing any identified contaminant source material throughout the Site, including metals-impacted soil from two hot spots, and removing contaminated soil exceeding RRU SCOs to depths of down to at least 2 feet bgs. Soil exceeding RRU SCOs would remain below the remediation depth and would be managed using ECs and ICs according to an SMP.

Under both scenarios, contaminated groundwater may remain beneath the Site, subject to management by ECs and ICs under Track 4 and Article 141 of the NYCDOH code would be relied upon under Track 1 to prevent ingestion of groundwater, which prohibits potable use of groundwater without prior approval. Documented groundwater exceedances of the NYSDEC SGVs are attributable to regional background and off-site conditions; therefore, mitigation of off-site groundwater migration will not be warranted.

3.4.6 Implementability

Alternative I – Implementing a Track 1 remedy would be marginally more challenging than a Track 4 remedy, because of the requisite dewatering and SOE and potential underpinning along the northern Site perimeter associated with protection of the neighboring buildings and streets. This remedy would consist primarily of excavation with standard bucket excavators, dewatering and treatment of groundwater, and import of soil for backfill to construction sub-grade in the slab-on-grade northeastern portion of the Site. The availability of local contractors, personnel, and equipment suitable for working in a structurally challenging environment is high due to the frequency of this type of work in the region. The Alternative I remedial activities would increase traffic in the area compared to Alternative II. Also, a longer timeframe and additional costs associated with the excavation of additional soil, SOE installation, and import of backfill would be necessary.

Alternative II – The technical feasibility of implementing the Alternative II remedy is greater than that of Alternative I, as the requisite SOE system would be diminished, and the volume of soil required for excavation and backfilling would be reduced. This alternative would consist of excavation with standard bucket excavators and cover system. Dewatering would likely be minimal or not required. The availability of local contractors, personnel, and equipment suitable to working in a structurally challenging environment is high due to the frequency of this type of remediation in the region.

3.4.7 Cost Effectiveness

Alternative I – Based on the assumptions detailed for Alternative I, the estimated remediation cost of a Track 1 Cleanup is about $1.7 million. Because the Site would be remediated to UU SCOs, there are no long-term operation, maintenance, or monitoring costs associated with the

proposed remedy. This alternative is the costliest because of additional time and costs associated with handling and disposal of soil above UU SCOs, SOE construction, import of backfill, and dewatering. Table 3 details the individual cost components used to arrive at this cost estimate.

Alternative II – Based on the assumptions detailed for Alternative II, the estimated remediation cost of a Track 4 Cleanup is about $1.1 million. This alternative is about 35% less expensive than a Track 1 remedy because the costs for handling and disposal of soil, constructing SOE, dewatering, and import of backfill would be less. However, Alternative II will require long-term costs associated with the maintenance of ECs and ICs and annual inspections required under the EE and SMP. Table 4 details the individual cost components used to arrive at this cost estimate.

3.4.8 Community Acceptance

Both remedial alternatives are expected to be acceptable to the community because the potential exposure pathways to on-site contamination would be eliminated (Track 1) or significantly reduced (Track 4) upon completion of the remedial actions. The Track 1 remedy will result in greater short-term impacts to the community due to increased truck traffic but will provide a longer-term benefit to the community via removal of a higher contaminant volume. The selected remedy will be subject to a 45-day public comment period in accordance with the Citizen Participation Plan (CPP), included as Appendix D. Any substantive public comments received would be addressed before the remedy is approved.

3.4.9 Land Use

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with both remedial alternatives. The proposed development would include a mixed-use commercial and residential space, which is expected to cover the entire Site footprint. Review of previous environmental and public documents led to the following conclusions:

1. The current and proposed use of the Site and its surroundings would be compatible with the selected remedy.
2. The proposed Site use conforms to applicable zoning laws and maps.
3. The proposed Site use conforms to historical and/or recent development patterns in the area.
4. The Site falls within the boundaries of the existing Port Morris Harlem Riverfront Brownfield Opportunity Area (BOA).
5. The Site is in an urban setting that is characterized by residential, commercial, and mixed-use developments. There are no areas zoned for agricultural use in the proximity of the Site.
6. There are no federal or state land designations.

7. The population growth patterns and projections support the proposed land use.
8. The Site is accessible to existing infrastructure.
9. The Site is not in close proximity to important cultural resources, including federal or state historic or heritage sites or Native American religious sites.
10. The nearest ecological receptor is Harlem River, which is located approximately 500 feet west of the Site.
11. Municipal water supply wells are not present in this area of New York City; therefore, groundwater from the Site would not affect municipal water supply wells or recharge areas.
12. According to the Federal Emergency Management Agency (FEMA) National Flood Insurance Rate Map (Panel No. 3604970083F), the Site is in an area of 0.2% annual chance flood (Zone X).
13. The Site geology is described in Section 2.2.
14. There are no known ICs currently in effect at the Site.

3.5 Selection of Preferred Remedy

Both alternatives would be protective of human health and the environment and would meet the remedy selection criteria. Alternative II would achieve all of the remedial action goals established for the project and would impact the community less in the short-term, but would reduce contaminant mobility, toxicity and volume to a lesser extent than Alternative I. Alternative I would be more effective in the long-term because it would achieve unrestricted land use that would be free of long-term Site management, ECs, ICs, an EE, and associated future costs that would be required under Alternative II; however, the technical feasibility and additional short-term costs associated with constructing the SOE, dewatering, and importing backfill are greater than those associated with Alternative II. Both alternatives are considered acceptable to the community and are consistent with land use requirements.

Alternative I is feasible, although it brings a marginally higher risk of compromising the adjacent northern building, and increased truck traffic and greater greenhouse gas emissions. Alternative II is feasible but requires ongoing ICs and ECs that would be managed pursuant to an SMP and EE.

The Alternative I Track 1 remedy is the selected remedy, with a contingency split Track 1/Track 4 remedy if residual soil in portions of the Site do not meet the UU SCOs. Figure 9 depicts the Alternative I cleanup plan.

3.5.1 Zoning

According to the New York City Planning Commission Zoning Map 6a, the Site is located within a mixed-used residential and commercial district (R8A/C2-4). The height factor regulations for R8A districts encourage mid-rise apartment buildings on smaller zoning lots and on larger lots, taller buildings set back from the street. With regard to the commercial overlay, C2-4 districts are "…commercial overlays mapped within residence districts. Mapped along streets that serve local retail needs, they are found extensively throughout the city's lower- and medium-density areas and occasionally in higher-density districts". Zoning is consistent with the proposed mixed-use development. The surrounding area is used for residential, commercial, light industrial, and institutional purposes.

3.5.2 Surrounding Property Uses

The current, intended, and reasonably anticipated future land use of the Site and its surroundings are compatible with the selected remedy.

3.5.3 Citizen Participation

The CPP is discussed in Section 4.1.9.

3.5.4 Environmental Justice Concerns

According to the New York State Data Clearinghouse, the Site is in a potential environmental justice area.

3.5.5 Land Use Designations

Pursuant to a November 2020 zoning map amendment from a Special Mixed-Use District (MX-13) to an R8A/C2-4 zoning district and zoning text amendment to establish the rezoning area as a Mandatory Inclusionary Housing area, an E-Designation (E-590) for hazardous materials, air quality (for fuel oil/natural gas restriction and exhaust stack location limitations), and noise was placed on the Site. This will require approvals from the New York City Office of Environmental Remediation (NYC OER) to satisfy these designations.

3.5.6 Population Growth Patterns

The population growth patterns and projections support the proposed land use for increased affordable housing opportunities.

3.5.7 Accessibility to Existing Infrastructure

Currently, there are no buildings located on the Site. Upon completion of the proposed development, water and sewer service will be provided by NYC water and sewer utilities, and

electric and natural gas services will be supplied by Consolidated Edison. The property is near New York City subway and bus routes.

3.5.8 Proximity to Cultural Resources

According to the New York State Historic Preservation Office New York City Landmark's Preservation Commission map, there are no City Landmark listed sites located within ½-mile of the Site. According to the National Park Service Database of listed properties on the National Register map, no properties in the National Register (NR) of Historic Places are located within approximately ½-mile of the Site. The proposed remedy is therefore not anticipated to adversely impact these cultural resources.

The Site is not close to important federal, state, or local natural resources, including waterways, wildlife refuges, wetlands, and critical habitats of endangered or threatened species. The nearest ecological receptor is the Harlem River, which is located approximately 500 feet west of the Site.

3.5.9 Off-Site Groundwater Impacts

Municipal water supply wells are not present in this area of New York City; therefore, groundwater from the Site cannot affect municipal water supply wells or recharge areas.

3.5.10 Geography and Geology of the Site

The Site geology is described in Section 2.2 of this report.

3.5.11 Current Institutional Controls

There are no current ICs assigned to the Site, except for the aforementioned New York City E-Designation for hazardous materials, noise, and air quality considerations.

3.6 Summary of Selected Remedial Actions

Alternative I, a Conditional Track 1 Unrestricted Use cleanup with UU SCOs, will include implementation of the following remedial elements:

1. Development and implementation of a CHASP and CAMP for the protection of on-site workers, community/residents, and the environment during remediation and construction activities.
2. Removal and management of the building slabs and asphalt and gravel surface cover as C&D debris by the contractor in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not comingled with contaminated Site soil and fill.

3. Preliminary waste characterization, as required, to facilitate off-site disposal of excavated material.
4. Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
5. Decommissioning of monitoring wells.
6. Construction of a SOE system to facilitate excavation of soil/fill that exceeds the UU SCOs.
7. Dewatering and treatment, as necessary, to facilitate SOE installation and to accommodate removal of soil that exceeds UU SCOs, and discharge of dewatering fluids in accordance with a NYCDEP sewer discharge permit.
8. Excavation, stockpiling, and off-site transport of soil exceeding UU SCOs as defined by 6 NYCRR Part 375-6.8.
9. Removal, decommissioning, and off-site disposal of any encountered USTs and/or associated appurtenances (e.g., fill lines, vent line, and electrical conduit) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
10. Screening for indications of contamination (by visual means, odor, and monitoring with a PID) of excavated soil/fill during intrusive Site work.
11. Appropriate off-site disposal of non-native fill and soil from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
12. Collection and analysis of confirmation soil samples to confirm UU SCOs are achieved[5].
13. Backfilling of remediated areas to development grade with soil meeting UU SCOs, virgin stone, or RCA from a 6 NYCRR Part 360 NYSDEC-registered facility, and in compliance with Part 360 and Part 375-6.7(d).
14. Completion of an SVI evaluation, which will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion, if indicated during the evaluation.

A contingency split Track 1/Track 4 cleanup will be completed if residual soil does not meet UU SCOs in portions of the Site. If the SVI evaluation indicates that mitigation or monitoring action

[5] Bedrock is expected across the site at development depth; if all soil is removed from an area, the corresponding confirmation sample will not be collected.

is warranted, a Track 1 cleanup will only be achieved if the mitigation system or other required action is no longer needed within five years of the date of the Certificate of Completion. Remedial activities will be performed in accordance with this RAWP and the Department-issued Decision Document. Deviations from the RAWP and/or Decision Document will be promptly reported to the NYSDEC for approval and fully explained in the FER.

4.0 REMEDIAL ACTION PROGRAM

4.1 Governing Documents

The primary documents governing the remedial action are summarized in this section.

4.1.1 Standards, Criteria, and Guidance

The following standards, criteria, and guidance are typically applicable to Remedial Action projects in New York State, and will be consulted and adhered to as applicable:

- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response
- 6 NYCRR Part 364 - NYS Waste Transporter Permit
- 6 NYCRR Part 360 - NYS Solid Waste Management Requirements
- 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Subpart 373-4 – Facility Standards for the Collection of Household Hazardous Waste and Hazardous Waste from Conditionally Exempt Small Quantity Generators
- 6 NYCRR Subpart 374-1 – Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
- 6 NYCRR Subpart 374-3 – Standards for Universal Waste
- 6 NYCRR Part 375 – Environmental Remediation Programs
- 6 NYCRR Part 376 – Land Disposal Restrictions
- 6 NYCRR Part 613 - Petroleum Bulk Storage
- 6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Permits
- 12 NYCRR Part 56 – Industrial Code Rule 56 (Asbestos)
- CP-43 – Commissioner Policy on Groundwater Monitoring Well Decommissioning (December 2009)
- CP-51 – Soil Cleanup Guidance (2010)
- DER-10 – Technical Guidance for Site Investigation and Remediation (May 3, 2010)
- DER-23 – Citizen Participation Handbook for Remedial Programs (March 2010)
- DER-31 – Green Remediation (2010)

- DER-32 – Brownfield Cleanup Program Applications and Agreements (2017)
- DER-33 – Guide to Drafting and Recording Institutional Controls (2010)
- Sampling, Analysis, and Assessment of Per- and Polyfluoroalklyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs, NYSDEC (April 2023)
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006 with revisions)
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations (June 1998)
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)
- New York State Climate Act (2019)
- USEPA OSWER Directive 9200.4-17 – Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (December 1997)
- Screening and Assessment of Contaminated Sediment (Division of Fish, Wildlife and Marine Resources, June 2014)

4.1.2 Green and Sustainable Remediation and Climate Resiliency

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term
- Reducing direct and indirect greenhouse gases and other emissions
- Increasing energy efficiency and minimizing use of non-renewable energy
- Conserving and efficiently managing resources and materials
- Reducing waste, increasing recycling and increasing reuse of materials that would otherwise be considered a waste
- Maximizing habitat value and creating habitat when possible
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development

- Incorporating the GSR principles and techniques to the extent feasible in the future development at this site (i.e., future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York [or most recent edition] to improve energy efficiency as an element of construction)

To evaluate the remedy with respect to GSR principles as part of the remedial program, a Best Management Practice (BMP) assessment will be conducted in accordance with the ASTM Guide for Standard Cleanups, and an environmental footprint analysis will be conducted for each remedial alternative using SiteWise™. The results of the environmental footprint analysis will be provided as an addendum to this RAWP.

BMPs for the project related to these GSR metrics, and BMPs for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial program, as appropriate. The project design specifications will include detailed requirements, including implementation of the BMPs described in Section 4.1.3. A BMP assessment and an environmental footprint analysis will also be conducted at the completion of the remedy. As practicable, water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction, and material use will be estimated at the end of the remediation phase. Progress with respect to GSR metrics will be tracked during implementation of the remedial action and reported in the FER.

A climate screening assessment will also be conducted for the site, and a climate screening checklist will be provided as an addendum to this RAWP.

4.1.3 Green Remediation Principles and Best Management Practices

The NYSDEC DER-31 Green Remediation Policy requires that green remediation concepts and techniques be considered during all stages of the remedial program, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology.

Green remediation principles and techniques will be implemented to the extent feasible in the remediation phase of the remedy per DER-31. The green remediation components that will be evaluated are as follows:

- Waste Generation
- Energy Usage
- Emissions
- Water Usage
- Land and/or Ecosystems

The remedy will include the implementation of several BMPs related to these green remediation components. The BMPs are outlined below.

Waste Generation

Waste generation considers the management of waste associated with remedial activities and any waste reduction projects including, but not limited to, material reuse and recycling. Several waste streams will be generated during implementation of the remedy (e.g., dewatering fluids, soil, polyethylene sheets used for stockpile coverage and separating types of contamination, nitrile gloves for endpoint sampling, disposable sample ware, acetate liners from drilling operations, tubing and buckets from groundwater performance monitoring, decontamination materials). When possible, an effort will be made to minimize consumption/generation of such materials. If possible, decontamination and reuse of applicable materials will be considered. Electronic methods of data collection (e.g., tablets) will also be used to reduce paper and pen consumption when possible.

Electrical Energy Use

Energy usage considers the electricity needed for remediation activities. Energy will be required for charging equipment (e.g., PID, air monitoring equipment, groundwater sampling equipment). Battery-powered equipment will be turned off when not in use to limit charging activities.

Emissions

Emissions tracking considers fuel usage for transportation of personnel to and from the site, trucks used for export of contaminated material or import of backfill material, equipment and laboratory sample couriers, and construction equipment.

To reduce fuel usage, trucks and heavy machinery operators will be encouraged to reduce idling time and shut down vehicles or equipment when not in use. The contractor will also be encouraged to perform routine, on-time maintenance such as oil changes to improve fuel efficiency.

When possible, personnel will be encouraged to take public transport and equipment/sample deliveries and pickups will be consolidated to reduce transport needs.

Water Usage

Water usage considers sources of water for tasks such as decontamination, irrigation, etc. The public water supply will be used when water is required for decontamination activities or dust suppression. This will be required for effective implementation of the remedy and the protection of human health. Water will only be consumed when necessary, and consumption will be in accordance with local regulations.

Land and/or Ecosystems

Land and/or ecosystems consider any disturbances and restoration of land and/or ecosystems as part of the implementation/operation of the remedy. No ecosystems will be disturbed during construction. Environmental footprint summaries will be provided with the environmental footprint analysis as an addendum to this RAWP.

Climate Change Impacts

According to preliminary Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) No. 360497021 (revised September 5, 2007), the site falls within Zone X, which is designated for areas of 0.2 % annual chance of flood; areas of one percent annual chance flood with average depths of less than one foot or with drainage areas less than one square mile; and areas protected by levees from one percent annual chance flood. The potential exists for an increase in stormwater runoff with time because of an increase in extreme storm events as a result of climate change. In the near term, during construction, BMPs for storm water management will be followed and enhanced measures will be taken before, during and after extreme weather events. In the long term, the redevelopment of the site will include improvement of the site drainage, which will help to mitigate the effects of flooding. A climate screening checklist will be provided with the environmental footprint analysis as an addendum to this RAWP.

Reporting

The FER will include a discussion of the green remediation practices/technologies employed throughout the remedial program. A footprint analysis using a DER accepted model, and any tracking methods used through the construction including restoration activities will be included. Before approval of an FER and issuance of a COC, all project reports will be submitted in digital form on electronic media (PDF).

4.1.4 Site Specific Construction Health & Safety Plan

The RE prepared a Site-specific CHASP (Appendix E). The CHASP addresses Site-specific contaminants and applies only to remedial and construction-related work on-site. Contractors operating on the Site are required to adhere to their own plans that, at a minimum, meet the requirements of the CHASP. Remedial work performed under this plan will be in compliance with governmental requirements, including site and worker safety requirements mandated by OSHA. The CHASP provides a mechanism for establishing on-site safe working conditions, safety organization, procedures, and PPE requirements during implementation of the remedy. The CHASP meets the requirements of 29 CFR 1910 and 29 CFR 1926 (which includes 29 CFR 1910.120 and 29 CFR 1926.65). The CHASP includes, but is not limited to, the following components:

- Organization and identification of key personnel
- Training requirements
- Medical surveillance requirements
- List of Site hazards
- Excavation safety
- Drill rig safety
- Work zone descriptions and monitoring procedures
- Personal safety equipment and PPE requirements
- Decontamination requirements
- Standard operating procedures
- Protective measure plan
- CAMP

Safety Data Sheets (SDS)

The Participant and the contractors preparing the remedial documents submitted to the State and those performing the construction work are responsible for the preparation of an appropriate CHASP and for the appropriate performance of work according to that plan and applicable laws.

The CHASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion. The Langan Site Safety Coordinator will be William Bohrer. If required for Site workers, confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses. Langan personnel will not enter confined spaces.

4.1.5 Quality Assurance Project Plan

The RE prepared a Quality Assurance Project Plan (QAPP) that describes the quality control components to guide the proposed remedy in accomplishing the remedial goals, remedial action objectives, and the remediation in accordance with the design specifications. The QAPP is provided as Appendix F and includes:

- Responsibilities of key personnel and their organizations for the proposed remedy
- Qualifications of the quality assurance officer
- Sampling requirements including methodologies, quantity, volume, locations, frequency, acceptance and rejection criteria

- Description of the reporting requirements for quality assurance activities, including weekly quality assurance review reports, periodic quality assurance and quality control audits, and other report and data submissions

4.1.6 Construction Quality Assurance Plan

The RE prepared this Construction Quality Assurance Plan (CQAP) that describes the quality control components that will guide the proposed remedy in accomplishing the remedial goals and RAOs, and the remediation in accordance with the design specifications. Because the remedy is being accomplished concurrent with building construction, the contractor and construction manager will have the primary responsibility to provide construction quality. A list of engineering personnel involved in implementation of the CQAP and procedures that will be carried out by the remedial engineering team are identified below. Project personnel resumes are provided in Appendix G.

The following project personnel are anticipated to implement the RAWP.

Remediation Engineer (RE):	Jason Hayes, P.E.
Project Manager:	Stuart Knoop, P.G.
Langan Health & Safety Officer:	Tony Moffa, ASP, CHMM, COSS
Langan Site Safety Coordinator:	William Bohrer, P.G.
Qualified Environmental Professional (QEP):	Michael Burke, P.G., CHMM
Field Team Leader:	Kaitlyn Gioia
Quality Assurance Officer:	Mimi S. Raygorodetsky

The QEP or RE will directly supervise Langan field representatives that will be on-site during the remedial action to monitor particulates and organic vapor in accordance with the CAMP. Daily reports will be submitted to the NYSDEC and NYSDOH and will include reporting of any CAMP results that exceed the specified action levels.

The QEP or RE will directly supervise Langan field representatives who will meet with the Construction Superintendent on a daily basis to discuss the plans for that day and schedule upcoming activities. The field representative will document remedial activities in the daily report. This document will be forwarded to the Field Team Leader on a daily basis and to the Project Manager and the RE on a weekly basis.

The QEP or RE will directly supervise Langan field representatives who will screen the excavation with a PID during intrusive activities. PID readings will be noted in the record. PID readings that exceed action levels will be reported to the NYSDEC and NYSDOH in the daily reports. The field representative will collect the post-excavation documentation samples in accordance with this RAWP.

A photo log will be kept to document construction activities by still photos. The photo log may also be used to record activities recorded in the daily report.

The project field book will be used to document sample collection and how it corresponds to the RAWP. Observations, field and/or laboratory tests will be recorded in the project field book or on separate logs. Recorded field observations may take the form of notes, charts, sketches, or photographs.

The Field Team Leader will maintain the current field book and original field paperwork during the performance of work. The Project Manager will maintain the field paperwork after completion and will maintain all submittal document files.

4.1.7 Soil/Fill Management Plan

The RE prepared a Soil/Fill Management Plan (SFMP) that includes detailed plans for managing soil/fill that are disturbed at the Site, including excavation, handling, storage, transport and disposal. It also includes controls that will be applied to these efforts to mitigate nuisances (e.g., dust and odor) in compliance with applicable federal, state and local laws and regulations. The SFMP is further described in Section 5.4.

4.1.8 Stormwater Pollution Prevention Plan

Because this project involves soil disturbance of more than 20,000 square feet, a Stormwater Pollution Prevention Plan (SWPPP) will be required, under New York City regulations. A SWPPP will be prepared during the project design process and provided to NYSDEC when completed. Erosion and sediment controls for the Site will be designed in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control. BMPs will be employed to mitigate erosion and prevent the migration of sediment off-site throughout construction.

The contractor will either dispose of accumulated water generated during dewatering at an off-site disposal facility permitted to accept the waste or follow the RCNY, Title 15, Chapter 19, Use of the Public Sewers and the NYCDEP "Procedure for Obtaining Letter of Approval for Groundwater Discharge to Sanitary or Combined Sewer" and will use the approval to obtain a Temporary Discharge of Groundwater into the City Sewer System Permit. Dewatering will need, at a minimum, a settling tank prior to discharge to the sewer. Additional pretreatment (e.g., bag filters, carbon filtration, etc.) may be required prior to discharge to the New York City sewer system. If daily discharge exceeds 10,000 gallons, the contractor will also have to obtain approval from NYCDEP's Bureau of Water and Sewer Operations, Chief of Permitting and Compliance. Collected groundwater or rainwater will be discharged, as defined by the NYCDEP permit, into the New York City sewer system, via an entry point acceptable to the NYCDEP. The dewatering

and treatment system will be designed by the contractor's New York State-licensed Professional Engineer. Copies of the dewatering design plan, and the NYCDEP permit, if warranted, will be provided to NYSDEC.

4.1.9 Community Air Monitoring Program

A site-specific CAMP was developed in accordance with the NYSDOH Generic CAMP included as Appendix 1A in DER-10 and includes special requirements for work within 20 feet of potentially exposed individuals or structures. Community air monitoring will be conducted as outlined in Section 5.4.12.

4.1.10 Contractor's Site Operations Plan

The RE will review plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and confirm that the plans and submittals are in compliance with this RAWP. The RE is responsible for documenting that contractor and subcontractor submittals for this remedial project are in compliance with this RAWP. Remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.11 Citizen Participation Plan

Fact Sheets describing the remedial action proposed in the RAWP will be distributed through DEC Delivers, the NYSDEC's email listserv service. Additional Fact Sheets will be distributed to announce 1) the completion of the Remedial Action with a summary of the FER and 2) the issuance of the Certificate of Completion for the Site.

No changes will be made to the approved Fact Sheets authorized for release by the NYSDEC without written consent of the NYSDEC. Other information, such as brochures and flyers, will not be included with the Fact Sheet mailing. The CPP for this project is included in Appendix D.

Document repositories have been established at the following locations and contain all applicable project documents:

Bronx Community Board 1
Attn: George Rodriguez, Chair
3024 Third Avenue
Bronx, NY, 10455
(718) 585-7117

New York Public Library – Mott Haven Branch
Attn: Jeanine Cross, Library Manager
321 East 140th Street
Bronx, NY 10454
(718) 665-4878

4.2 General Remedial Construction Information

4.2.1 Project Organization

Section 4.1.4 presents the anticipated project organization and associated roles, including key personnel, descriptions of duties, and lines of authority in the management of the RAWP. Information regarding the organization/personnel and their associated responsibilities is provided below. Resumes of key personnel involved in the Remedial Action are included in Appendix G.

4.2.2 Remediation Engineer

The RE for this project will be Jason Hayes, P.E. The RE is a registered professional engineer licensed by New York State. The RE will have primary direct responsibility for implementation of the remedial program for the Site. The RE will certify in the FER that the remedial activities were observed by Langan engineers, geologists and scientist under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with the RAWP. Other RE certification requirements are listed later in this RAWP.

The RE will document and advise on the work of other contractors and subcontractors involved in aspects of remedial construction, including groundwater treatment, soil excavation, stockpiling, characterization, removal and disposal, air monitoring, dewatering treatment system installation and implementation, construction of ECs, emergency spill response services, import of backfill, and management of waste transport and disposal. The RE will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The RE will review pre-remedial plans submitted by contractors for compliance with this RAWP and will certify compliance in the FER. The RE will provide the certifications listed in Section 10.1.

4.2.3 Remedial Action Construction Schedule

The remedial action construction schedule is discussed in Section 11 and is provided in Appendix H. The NYSDEC will be promptly notified of proposed changes, delays and/or deviations to the schedule.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the NYCDOB construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Participant of any variances issued by the NYCDOB. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

The Site perimeter will be secured with gated, signed, plywood fencing with points of entry and exit in accordance with NYCDOB and New York City Department of Transportation (NYCDOT) permits and requirements. The purpose of the fencing is to limit Site access to authorized personnel, protect pedestrians from Site activities, and maintain Site security.

4.2.6 Traffic Control

Site traffic will be controlled through designated points of access and will be continuously monitored and if necessary, a flagging system will be used to protect workers, pedestrians and authorized guests. Traffic will also adhere to applicable local, state, and federal laws. A truck route map is included as Figure 12.

4.2.7 Contingency Plan

Contingency plans, as described below, have been developed to effectively address unexpected discoveries of additional USTs or contaminated media.

4.2.7.1 Discovery of USTs

As a contingency, if a UST is discovered via exploratory test pit or excavation, it will be decommissioned in accordance with 6 NYCRR Part 613-1.9 and 613-2.6, and DER-10 section 5.5. Once the tank and its contents are removed, post-excavation soil samples will be collected per the NYSDEC DER-10 requirements, if deemed necessary by the NYSDEC and the RE. Post-excavation soil sampling is not expected where the remedial excavation will extend below the UST. If encountered, petroleum-contaminated soils will be removed. UST closure documentation, such as contractor affidavits, bills of lading for sludge disposal, and tank disposal receipts, will be provided as appendices in the FER. The NYSDEC Petroleum Bulk Storage (PBS) registration will be updated as necessary, depending on the type, number, and capacity of discovered tanks.

4.2.7.2 Discovery of Additional Contaminated Soil

During remediation and construction activities, the soil will be continuously monitored by the RE's field representatives using a PID, and visual and olfactory field screening techniques to identify additional contamination source material and soil that may not be suitable for disposal at the RE-approved disposal facilities. If discovered, such soil and non-native fill will be segregated

and sampled in accordance with disposal facility requirements. If the facility is not permitted to receive the suspect soil or non-native fill, the soil or non-native fill will be disposed of off-site at a permitted facility able to receive the material based on the characterization data.

Identification of unknown or unexpected contaminated media by screening during ground-intrusive Site work will be promptly communicated by phone and email to the NYSDEC Project Manager. These findings will be detailed in the daily reports and the subsequent monthly BCP progress report.

4.2.8 Worker Training and Monitoring

Worker training and monitoring will be conducted in accordance with the Site-specific CHASP, included as Appendix E.

4.2.9 Agency Approvals

The planned end use for the Site conforms to 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.

4.2.10 NYSDEC BCP Signage

Signs are optional for BCP Sites and should be discussed with the NYSDEC Project Manager. If a sign is to be displayed, it must follow NYSDEC specifications for design and content. The NYSDEC Project Manager can provide details on signage protocol.

4.2.11 Pre-Construction Meeting with NYSDEC

Prior to the onset of construction, a meeting will be held between the NYSDEC, RE, Participant, Construction Manager, and Contractor to discuss project roles, responsibilities, and expectations associated with the NYSDEC-approved RAWP.

4.2.12 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the CHASP. That document will define 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

The estimated engineering and contractor cost of the preferred remedy (Alternative I) is $1.7 million. An itemized and detailed summary of estimated costs for the preferred remedy is included as Table 3. This will be revised based on actual costs and submitted as an Appendix to the FER.

4.3 Site Preparation

4.3.1 Mobilization

Prior to commencing the remedial excavation, the Remediation Contractor will mobilize to the Site and prepare for remedial activities. Descriptions of mobilization and Site preparation activities may include the following:

- Identifying the location of all aboveground and underground utilities (e.g., power, gas, water, sewer, communications), equipment, and structures (as necessary to implement the remediation)
- Mobilizing necessary remediation personnel, equipment, and materials to the Site
- Constructing one or more stabilized construction entrances consisting of nonhazardous material capped with a gravel roadway at or near the Site exit, which takes into consideration the Site setting and Site perimeter
- Constructing an equipment decontamination pad for trucks, equipment, and personnel that come into contact with impacted materials during remedial activities
- Installing erosion and sedimentation control measures, as necessary
- Installing temporary fencing or other temporary barriers to limit unauthorized access to areas where remediation activities will be conducted

4.3.2 Erosion and Sedimentation Controls

Based on the size of the Site and the planned excavation, select common erosion and sedimentation control practices (i.e., perimeter silt fencing, inlet protection, stabilized construction entrances, and dust control via water sprinkling) will be necessary and will be performed in accordance with the project-specific SWPPP, which will be provided to NYSDEC prior to the start of RAWP implementation. Best management practices for soil erosion will be selected to minimize erosion and sedimentation off-site from the start of the remediation to the completion of development.

4.3.3 Monitoring Well Decommissioning

Existing groundwater monitoring wells will be properly decommissioned, in accordance with NYSDEC CP-43. The only exception to this is if the full length of the well is to be excavated during remediation and development. If required, well decommissioning will be performed by an experienced driller and logged by the driller and a Langan field engineer, scientist, or geologist. Decommissioning documentation will be provided in the FER.s

4.3.4 Temporary Stabilized Construction Entrance(s)

Temporary stabilized entrances will be constructed with gravel or RCA and graded so that runoff water will be directed to the Site. Vehicles exiting construction areas will be cleaned using clean water or dry brushing, as needed, to remove Site soil from the tires and undercarriages. The Contractor will protect and maintain the existing sidewalks and roadways at both Site access points.

4.3.5 Utility Marker and Easements Layout

The Participant and its contractors are responsible for identifying utilities and easements that might be affected by the remedial work and implementation of all required, appropriate, or necessary health and safety measures under this RAWP. The Participant and its contractors are responsible for safe execution of all invasive and other work performed under this RAWP. The Participant and its contractors must obtain any local, state, or federal permits or approvals pertinent to such work that may be required to implement this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

4.3.6 Sheeting and Shoring

Appropriate management of structural stability for on-site or off-site structures during remedial activities, including excavation, is the responsibility of the Participant and its contractors. The Participant and its contractors are responsible for safe execution of all invasive and other work performed under this RAWP. The Participant and its contractors must obtain any local, state, or federal permits or approvals that may be required to perform work under this RAWP. Further, the Participant and its contractors are responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved RAWP.

4.3.7 Equipment and Material Staging

The Contractor will notify the RE and the Participant, in writing with receipt confirmed, at least 30 calendar days in advance of pending Site mobilization. During mobilization to the Site construction equipment will be delivered, temporary facilities will be constructed, and temporary utilities will be installed. The Contractor will place and maintain temporary toilet facilities within the work areas for use by all Site personnel.

4.3.8 Truck Inspection Station

An outbound-truck inspection station will be set up at or near the Site exit. Before exiting the Site, trucks will be required to stop at the truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. If observed, soil and debris will be removed. Brooms, shovels and potable water will be utilized for the removal of soil

from vehicles and equipment, as necessary. The Contractor is responsible for collecting soil that is tracked immediately off-site and returning the soil to the Site.

4.3.9 Site Fencing

The Site perimeter will be secured with gated, signed, plywood fencing maintained by the Contractor. The purpose of the fencing is to limit Site access to authorized personnel, protect pedestrians from Site activities, and maintain Site security.

4.3.10 Demobilization

After remediation and construction is completed, the Contractor will be responsible for demobilizing labor, equipment, and materials not designated for off-site disposal. The RE will document that the Contractor performs follow-up coordination and maintenance for the following activities:

- Removal of sediment and erosion control measures and disposal of materials in accordance with applicable rules and regulations
- Removal of remaining contaminated material or waste
- Equipment decontamination
- General refuse disposal

4.4 Reporting

Periodic reports and an FER will be submitted to the NYSDEC as required to document the remedial action. The Project RE responsible for certifying all reports will be an individual licensed to practice engineering in New York State. Jason Hayes, P.E. of Langan, will have this responsibility. Should Mr. Hayes become unable to fulfill this responsibility, another suitably qualified Professional Engineer will take his place. In addition to the periodic reports and the FER, copies of all relevant contractor documents will be submitted to the NYSDEC.

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers during on-site remedial construction activities 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 soil and fill imported to and exported from the Site
- References to an alpha-numeric map for Site activities
- A summary of complaints with relevant details (names, phone numbers)

- A summary of CAMP findings, including action levels, CAMP exceedance and corrective measures, and
- 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 or 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.

4.4.2 Monthly Reports

Monthly reports will continue to be submitted to NYSDEC and NYSDOH Project Managers by the 10th day of the month following the reporting period and will include the following information, as well as the information required in the BCA:

- 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 soil and fill exported and imported, etc.)
- Description of approved activity modifications, including changes of work scope and/or schedule
- Sampling results received following internal data review and validation, as applicable
- 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 of remedial activities will be taken and submitted to the NYSDEC in digital (JPEG) format. Photographs will illustrate the remedial program elements and will be of acceptable quality. Representative photographs of the Site will be provided. Field photographs will be included in daily reports, as necessary, and a comprehensive photograph log will be included in the FER. Upon request, photographs will be submitted to the NYSDEC and NYSDOH Project Managers on CD or other acceptable electronic media. CDs will have a label and a general file inventory structure that separates photographs into directories and sub-directories according to logical Remedial Action components. A photograph log keyed to photo file ID numbers will be prepared to provide explanation for all representative photographs.

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 will be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

The management plan for documenting complaints is detailed below.

Item	Description
Approach	Complaints regarding remediation or construction activities/operations to be minimized and mitigation measures implemented to reduce the incidence of complaints.
Objective	To manage environmental complaints from the community regarding construction or remediation.
Implementation Strategy/Mitigation Measures	All complaints will be documented on a complaint register. The register will be maintained as an ongoing record. The entry will include following information: • Time, date and nature of complaint; • Type of communication (telephone, letter, personal, etc.); • Name, contact address and contact number; • Response and investigation undertaken as a result of the complaint; and action taken and signature of responsible person. Each complaint will be investigated as soon as practical in relation to requirements.
Monitoring	A representative of the Participant or the RE will follow up on the complaint within two weeks of receipt to ensure it is resolved.
Reporting	Upon receipt and following the complaint investigation and resolution, the NYSDEC will be notified. Complaint resolutions will be documented in daily reports.
Corrective Action	Should an incident or failure to comply occur in relation to the management of environmental complaints, one or more of the following corrective actions will be undertaken as appropriate: • Conduct additional training of staff to handle environmental complaints • Investigate why the environmental complaint was not addressed within the specified time frame • Investigate complaint and action follow-up to results of investigation

4.4.5 Deviations from the RAWP

Necessary deviations from the RAWP will be coordinated with the NYSDEC in advance. Notification will be provided to the NYSDEC by telephone/email for conditions requiring immediate action (e.g., conditions judged to be a danger to the surrounding community). Based

on the significance of the deviation, an addendum to this RAWP may be necessary and will include:

- Reasons for deviating from the approved RAWP
- Approval process to be followed for changes/editions to the RAWP
- Effect of the deviations on the overall remedy

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

Remediation will include excavation of all non-native fill and soil to depths required to meet UU SCOs, which are estimated to range between 3 and 9 feet bgs across the majority of the Site and about 1 foot below the cellar slab of the former 6-story building (i.e., about 13 feet bgs) in the southeastern portion of the Site. To guide proper handling and disposal of excavated material, waste characterization sampling will be completed for all identified contaminated Site material. Waste characterization sampling will be performed for the purposes of off-site disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws, rules, and regulations and facility-specific permits.

As a contingency, a split Track 1/Track 4 cleanup will be completed if any soil exceeding the UU SCOs remains below the remedial excavation. Under a split Track 1/Track 4 remedy, any soil exceeding the UU SCOs will be managed with ECs and ICs under an SMP.

5.1 Soil Cleanup Objectives

The SCOs for the Site will be the UU SCOs listed in Table 1. Soil and fill management on-site will be conducted in accordance with the SFMP as described below. Soil sample locations and results that exceed the Track 1 SCOs are shown on Figures 3A and 3B.

5.2 Confirmation and Documentation Sampling

5.2.1 Soil Sampling Frequency

The proposed remedy will achieve a Track 1 cleanup. Per DER-10, post-excavation confirmation samples will be collected in areas where soil remains at the Site to document the soil levels achieved by the remedy and inform the SMP; samples will not be collected in areas where the remedial excavation extends to bedrock. Confirmation soil samples will be collected at a sampling frequency of one sample per 900 square feet of excavation base. If contaminant source areas are encountered during the remedial excavation (e.g., petroleum-impacted soil), confirmation/documentation samples will be collected at a frequency of one sample per 900 square feet of excavation base in those areas.

Based on the Site area, up to 31 base confirmation soil samples and 24 sidewall confirmation samples (plus QA/QC samples) will be collected. Collection of sidewall confirmation samples will likely be precluded by the presence of SOE (e.g., pile lagging) around the Site perimeter. In areas of over-excavation for remediation where underlying soil is present, sidewall samples will be collected at a frequency of 1 per 30 linear feet when the sidewall slope is greater than 1:1. If confirmation sampling indicates that UU SCOs have not been achieved at the stated remedial depth, the Participant will notify NYSDEC, submit the sample results and, in consultation with

NYSDEC, determine if further remedial excavation is necessary. Excavation below depths at which confirmation samples indicate that UU SCOs have been achieved will proceed as excavation for development. The proposed sample locations are shown on Figure 11.

5.5.2 Methodology

Confirmation soil samples will be collected in accordance with NYSDEC DER-10 to document remedial performance and will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, metals (including hexavalent and trivalent chromium), PFAS, and 1,4-dioxane. Confirmation samples associated with any identified petroleum remediation areas that aren't otherwise excavated during general remediation will be analyzed for CP-51 listed VOCs and SVOCs.

5.5.3 QA/QC

Quality control procedures for documentation soil sampling are included in the QAPP (refer to Appendix F). Confirmation sample analytical results will be provided in the NYSDEC's electronic data deliverable (EDD) format for EQuIS™. Guidance on the sampling frequency is presented in NYSDEC DER-10 Section 5.4.

The QA/QC procedures required by the NYSDEC Analytical Services Protocol (ASP) and SW-846 methods will be followed. This will include instrument calibration, standard compound spikes, surrogate compound spikes, and analysis of quality control samples. The laboratory will provide sample bottles, which will be pre-cleaned and preserved. Where there are differences in the SW-846 and NYSDEC ASP requirements, the NYSDEC ASP will take precedence.

5.2.4 DUSR

ASP Category B deliverables will be prepared for all remedial performance samples collected during implementation of this RAWP. Data Usability Summary Reports (DUSR) will be prepared by a qualified data validator and the findings will be reported in the FER.

5.2.5 Reporting

Analytical laboratories that analyze documentation soil samples, prepare results, and perform contingency sampling will be NYSDOH ELAP-certified laboratories.

5.3 Estimated Material Removal and Backfill Quantities

As a pre-requisite to commencement of Site remediation, the contractor will remove asphalt, gravel, and concrete surface cover and manage it as C&D debris in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies is not a requirement of RE. The RE is responsible for documenting that C&D debris is not comingled with

contaminated Site soil and fill. The estimated volume of soil and fill requiring removal and off-site disposal for the Track 1 remedy is about 3,835 cubic yards. Over-excavation may be required in the northeastern portion of the Site in which a cellar will not be constructed. Virgin stone, RCA originating from a Part 360 registered facility and in compliance with Part 360, or soil that meets UU SCOs will be imported to the Site as backfill, where required. The estimated volume of material required for backfilling is 80 cubic yards.

5.4 Soil/Fill Management Plan

This section presents the approach to management and disposal of soil and non-native fill excavated from the Site. This plan is based on the current knowledge of Site conditions and will be augmented, as necessary, using additional data collected during remediation. As a pre-requisite to commencement of Site remediation, the contractor will remove asphalt, gravel, and concrete surface cover and manage it as C&D debris in accordance with Part 360 and 361 regulations.

A Langan field representative under the direction of the RE will monitor and document the handling and transport of contaminated soil and non-native fill removed from the Site for disposal as a regulated solid waste. A Langan field representative, under the direction of the RE, will assist the remediation contractor in identifying impacted soil and non-native fill during remediation, determining if soil and non-native fill is suitable for direct load out versus temporary on-site stockpiling, selection of samples for waste characterization, if necessary, and reviewing the contractor's proposed off-site disposal facilities. Separate stockpile areas will be constructed as needed for the various soil and non-native fill to be excavated or generated, with the intent to most efficiently manage and characterize the materials and to avoid comingling impacted soil and non-native fill with non-impacted soil. The following types of sol and non-native fill are reasonably anticipated to be encountered during remediation:

Non-hazardous Fill/Soil – This category refers to non-native fill and soil that contains contaminants above the Track 1 UU SCOs and will not be reused on-site. It will be excavated across the Site footprint and transported off-site for disposal at a facility permitted to accept the fill. Non-hazardous fill material will be excavated to depths between about 1 to 9 feet bgs for remediation and construction of the proposed cellar and ground floor slab. Characterization sampling will be completed in conformance with the requirements of the disposal facility.

Hazardous Lead-Impacted Soil – This category refers to fill material and native soil that contain lead above the Part 371 criteria for hazardous lead. This material will not be reused on-site. Hazardous lead-impacted soil may be identified during waste characterization sampling.

5.4.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a Langan field representative under the direct supervision of the RE during all remedial and development excavations into known or potentially contaminated soil and non-native fill. Soil screening is performed regardless of when the invasive work is done and includes all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the Certificate of Completion.

Resumes are provided herein for personnel responsible for field screening the excavation (i.e., those representing the RE) and other ground-intrusive work performed during remediation and development.

5.4.2 Stockpile Methods

Stockpiles will be constructed as necessary to separate and stage excavated soil and non-native fill pending loading or characterization sampling. Separate stockpile areas will be constructed to avoid comingling soil and non-native fill of differing waste types. Stockpile areas will meet the following minimum requirements:

- Excavated soil will be placed onto a 6-mil minimum thickness low-permeability liner of sufficient strength to prevent puncture during use; separate stockpiles will be created where soil and non-native fill types are different (e.g., petroleum-impacted material stockpiled in a contaminated soil area). The use of multiple layers of thinner liners is permissible.
- Equipment and procedures will be used to place and remove the soil that will minimize the potential to jeopardize the integrity of the liner.
- Stockpiles will be covered at the designated times (see below) with minimum 6-mil plastic sheeting or tarps that will be securely anchored to the ground. Stockpiles will be routinely inspected, and broken sheeting covers will be promptly replaced.
- Stockpiles will be covered upon reaching their capacity (i.e., about 1,000 cubic yards) until ready for loading. Stockpiles that have not reached their capacity, whether active or inactive, will be covered at the end of each workday.
- Each stockpile will be encircled with silt fences and hay bales, as needed, to contain and filter particulates from rainwater that has drained off the soils and to mitigate the potential for surface water run-off.
- Stockpiles will be inspected at a minimum of once daily and after every storm event. Results of inspections will be recorded in a logbook, maintained at the Site, and made available for inspection by the NYSDEC.

5.4.3 Soil Excavation and Load Out

A Langan field representative under the supervision of the RE will monitor ground-intrusive work and the excavation and load-out of excavated soil and non-native fill.

The Participant and its contractors are solely responsible for safe execution of ground-intrusive and other remedial work performed under this RAWP. The Participant and its contractors are solely responsible for the identification of utilities and/or easements that might be affected by the work conducted under this RAWP.

Loaded vehicles leaving the Site will be appropriately lined, securely covered, manifested, and placarded in accordance with the appropriate federal, state, and local requirements, including applicable transportation requirements (i.e., New York State Department of Transportation [NYSDOT] and NYCDOT requirements). Trucks hauling non-native fill will not be lined unless free liquids are present or the material is grossly impacted.

A truck wash/cleaning area will be operated on-site (see Section 4.3.8). The RE will be responsible for documenting that outbound trucks will be washed/cleaned at the truck wash area, as necessary, before leaving the Site until the remedial construction is complete. Locations where vehicles enter or exit the Site will be inspected daily for evidence of off-site sediment tracking.

The RE will be responsible for documenting that egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during remediation and development. The remediation contractor will clean adjacent streets as necessary to maintain a clean condition with respect to Site-derived materials.

The Participant and associated parties preparing the remedial documents submitted to New York State, and the parties performing this work, are responsible for the safe performance of ground-intrusive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations).

The Participant and associated parties will arrange for Site development activities to not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

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 RAWP.

Mechanical processing of non-native fill and contaminated soil on-site is prohibited unless otherwise approved by NYSDEC. Mechanical screening, if proposed, must meet the following conditions:

- Screening equipment can be a source of dust; dedicated dust suppression methods will be in place (i.e., spraying water) during mechanical screening
- Screening equipment will be centrally located and no closer than 50 feet from the Site boundary
- Field personnel will consider and document the materials that are separated such as the screen overs (the material larger than the screen openings) and unders (the material smaller than the screen openings; the fines)
- If fill is screened, screening must consider the fill constituents established during the RI. The unders generated from screened fill are not soil but rather finer-grained fill that might resemble soil. Screened fill unders must be managed as a regulated solid waste unless specifically determined otherwise to be beneficially used (i.e., beneficial use determination [BUD] or request to import request).
- If the overs contain material other than recognizable, uncontaminated concrete, asphalt, rock, or brick, these materials (e.g., ash, coal, slag, or similar) would need to be defined/characterized prior to off-site disposal. Recognizable, uncontaminated concrete, asphalt, rock, or brick must be separated from the fine material and then sorted/segregated to comply with the acceptable criteria at the receiving registered or permitted Part 360 facility.

Primary contaminant sources (including, but not limited to, tanks and hotspots) identified during Site characterization, the RI, and implementation of the remedy 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 included with the FER. If the primary contaminant sources are removed under the Track 4 cleanup or under a dual Track remedy, the final excavation subgrade will be surveyed. No survey will be required if a Track 1 cleanup is achieved.

5.4.4 Soil Transport Off-Site

Transport of soil and non-native fill will be performed by licensed haulers in accordance with appropriate local, state, and federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Trucks loaded with soil and non-native fill will exit the vicinity of the Site using approved truck routes (Figure 12). These routes are the most appropriate routes to and from the Site and take into account:

- Limiting transport through residential areas and past sensitive sites
- Use of city mapped truck routes
- Limiting off-site queuing of trucks entering the facility

- Limiting total distance to major highways
- Promoting safety in access to highways
- Overall safety in transport

- Community input (where necessary)

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

Egress points for truck and equipment transport from the Site will be kept clean of soil and non-native fill during remediation and development.

To the extent possible, queuing of trucks will be performed on-site to minimize off-site disturbance. Off-site queuing will be minimized.

Soil and non-native fill 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 soil and non-native fill capable of producing free liquid, truck liners will be used.

5.4.5 Soil and Non-native Fill Off-Site Disposal

Disposal facilities will be determined at a later date and will be reported to the NYSDEC Project Manager prior to off-site transport and disposal of excavated soil and non-native fill. Soil and non-native fill excavated and removed from the Site will be handled, transported and disposed of in accordance with local, state (including 6 NYCRR Part 360) and federal 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 soil and non-native fill from this Site is prohibited without formal NYSDEC approval.

The following documentation will be obtained and reported by the RE for each disposal location used in this project to fully demonstrate and document that the disposal of soil and non-native fill derived from the Site conforms to applicable laws:

(1) A letter from the RE or BCP Participant to the receiving facility describing the soil and non-native fill to be disposed of and requesting formal written acceptance of the soil and non-native fill. This letter will state that soil and non-native fill to be disposed of is contaminated soil and non-native fill 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 RE. The letter will include as an attachment a summary of all chemical data for the material being transported (including waste characterization data).

(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 non-native fill and contaminated soil transported off-site will be handled, at a minimum, as a solid waste per 6 NYCRR Part 360. Non-native fill and contaminated soil excavated from the Site are prohibited from being disposed of at Part 360 Registration Facilities (also known as Soil Recycling Facilities). Hazardous waste is prohibited from being sent to a construction and demolition debris handling and recovery facility (6 NYCRR Part 361-5). Hazardous wastes derived from the Site will be managed, transported and disposed of in full compliance with applicable local, state and federal regulations.

Soil that is contaminated but non-hazardous and is removed from the Site is considered by the NYSDEC Division of Materials Management (DMM) to be C&D debris with contamination not typical of virgin soils. Soil and non-native fill will be considered a regulated solid waste unless a BUD is approved stating otherwise. This soil may be sent to a permitted Part 360 landfill in New York or other appropriate out-of-state disposal facility permitted to accept contaminated soil from a brownfield site. This soil may be sent to a permitted C&D processing facility without permit modifications only upon prior notification and approval from NYSDEC. This soil and non-native fill are prohibited from being sent or redirected to a New York Part 361.5 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C&D facility that provides a detailed explanation that the soil and non-native fill is derived from an NYSDEC DER remediation site, that the soil and non-native fill is contaminated, and that the soil and non-native fill 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 RE. The letter will include as an attachment a summary of chemical data for the soil and non-native fill being transported.

The FER will include an accounting of the destination of soil and non-native fill removed from the Site during implementation of the remedy, including excavated soil, contaminated soil, non-native fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of each material type must also include records and approvals for receipt of the material. This information will also be presented in a table to be included in the FER.

A "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 FER. Hazardous wastes derived from the Site will be stored, transported, and disposed of in compliance with applicable local, state, and federal regulations.

Appropriately licensed haulers, in compliance with applicable local, state, and federal regulations, will be used to transport the material removed from this Site.

A preliminary waste characterization study will be performed for soil intended for off-site disposal in a manner typically suitable to receiving facilities that receive waste from NYC construction sites. Additional sampling will be performed, as necessary, consistent with contractor-selected receiving facility permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC results will be reported in the FER. Data available for excavated soil and non-native fill to be disposed of at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

5.4.6 Soil and Non-native Fill Reuse On-Site

Soil excavated during the remedy may be reused on-site below the Site cap if the requirements in this section are met. Non-hazardous non-native fill or native soil that is not grossly impacted and meets the Track 1 UU SCOs may be reused at the discretion of the RE and upon approval of NYSDEC. Under a contingency Track 4 cleanup, fill may be used as backfill for the excavation from which the fill was taken without additional analytical testing, assuming no grossly-impacted soil/fill is observed. Under the Track 1 cleanup, fill may not be reused without further testing consistent with NYSDEC CP-51 Soil Cleanup Guidance Table 4 that confirm the reused soil meets the UU SCOs. Reused soil must be non-hazardous in accordance with the predetermined beneficial use listed in 6 NYCRR 360.13. Reuse of soil will be coordinated in advance with the NYSDEC project manager. Soil/fill intended for reuse on-site will be stockpiled separately from soil/fill designated for off-site disposal.

Demolition material proposed for reuse on-site, if any, will be sampled for asbestos. Concrete crushing or processing on-site is prohibited, unless NYSDEC specifically approves on-site processing and reuse of acceptable demolition material. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing is prohibited for reuse on-site. Contaminated on-site non-native 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.

5.4.7 Fluids Management

Liquids to be removed from the Site, including dewatering fluids, will be handled, transported, and disposed of in accordance with applicable local, state, and federal regulations. The Contractor will either dispose of the accumulated water at an off-site disposal facility permitted to accept the waste or discharge to the New York City sewer system, following treatment and permitting.

5.4.8 Demarcation

It is anticipated that the Site will be remediated to Track 1 SCOs; therefore, remaining contaminated soil will not be left on-site and a physical demarcation barrier will not be installed. A survey denoting the base and sidewalls of the excavation will not be required, because an Environmental Easement will not be filed.

If a Track 1 remedy is not achieved, a physical demarcation layer, consisting of orange snow fencing or equivalent material, will be placed on the top of residual soil to provide a visual reference in areas not otherwise covered by an impervious surface (e.g., concrete foundation slab). 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 SMP. In addition to the placement of a demarcation layer and after 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 residual contaminated soils. The survey will also measure the top of the Residuals Management Zone before the placement of cover soils, pavement, structures, or other materials. This survey will constitute the physical and written record of the upper surface of the Residuals Management Zone in the SMP. A map showing the survey results will be included in the FER and the SMP.

5.4.9 Backfill from Off-Site Sources

Materials proposed for import onto the Site will be approved by the RE and will be in compliance with the provisions in this RAWP prior to receipt at the Site. Imported soil for backfill must meet the UU SCOs; other acceptable fill for backfill includes virgin, native stone from a quarry or RCA that is provided by an NYSDEC Part 360-registered facility and complies with Part 360. Under a contingency Track 4 remedy, imported soil must meet the lower of the RRU and PGW SCOs. Material from industrial sites, spill sites, other environmental remediation sites, or other potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

Backfill will consist of clean fill (as described in the following paragraph) or other acceptable fill such as virgin stone from a quarry or RCA. Imported RCA will be from facilities permitted or registered by the NYSDEC. The import facilities will be identified in the FER. A PE/QEP will certify that the facilities have 6 NYCRR Part 360 registration and permitting for the period of acquisition of RCA. RCA imported from compliant facilities and virgin gravel, rock or stone from mines, quarries or facilities permitted or registered by the NYSDEC or the applicable state of origin and have no more than 10% by weight passing through a No. 80 sieve will not require additional testing unless required by NYSDEC under its terms for operation of the facility. Additional exemptions from testing requirements may be approved by NYSDEC Project Manager based on their review of requests by the PE/QEP. RCA imported to the Site must be derived from

recognizable and uncontaminated concrete. RCA is not acceptable for, and will not be used as, a Site cover.

Under the remedy, imported soil (i.e., clean fill) will meet the UU SCOs. Non-compliant soils will not be imported to the Site. Clean fill will be segregated at a source/facility that is free of environmental contaminants. Qualified environmental personnel will collect representative samples at a frequency consistent with NYSDEC CP-51 Soil Cleanup Guidance Table 4, or at a lesser frequency negotiated with the NYSDEC Project Manager, depending on the proposed backfill source. The samples will be analyzed for Part 375 VOCs, SVOCs, pesticides/herbicides, PCBs, cyanide, and metals including trivalent and hexavalent chromium, PFAS, and 1,4-dioxane (8270 SIM) by a NYSDOH ELAP-certified laboratory. Upon meeting these criteria, the certified-clean fill will be transported to the Site and segregated from impacted material, as necessary, on plastic sheeting until it is used as backfill.

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 the NYSDEC. The contents of this RAWP and NYSDEC approval of this RAWP should not be construed as an approval for this purpose.

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

5.4.10 Stormwater Pollution Prevention

The RE will provide documentation that the remediation contractor performs stormwater pollution prevention measures in accordance with the project-specific SWPPP, which will be provided prior to the start of RAWP implementation.

5.4.11 Contingency Plan

If USTs or other previously unidentified contaminant sources are found during on-site remedial excavation, sampling will be performed on product, if encountered, and surrounding subsurface soil/fill, if impacted or below the remedial excavation depth. Chemical analyses will be for full scan parameters (TCL VOCs and SVOCs, TAL metals, PCBs, and pesticides). Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during ground-intrusive work will be promptly communicated by phone to the NYSDEC Project Manager. These findings will also be detailed in the daily reports and the subsequent monthly BCP progress report.

5.4.12 Community Air Monitoring Plan

Community air monitoring will be conducted in compliance with the NYSDOH Generic CAMP and Special Requirements for Work within 20 feet of Potentially Exposed Individuals or Structures outlined below.

The CAMP will include real-time monitoring for VOCs and particulates at the downwind perimeter of each designated work area when ground-intrusive work is in progress. Continuous monitoring will be required for all ground-intrusive work. Ground-intrusive work includes, but is not limited to, soil/fill excavation and handling and utility trenching. Periodic monitoring for VOCs may be required during non-intrusive work such as the collection of soil samples. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location and taking a reading prior to leaving a sample location.

CAMP monitoring of total VOC levels will be conducted using PIDs, and monitoring for particulates will be conducted using particulate sensors equipped with filters that can detect airborne particulates less than 10 microns in diameter (PM10). Monitoring for particulates and odors will be conducted during ground-intrusive work by a Langan field representative under the supervision of the RE. The work zone is defined as the general area in which machinery is operating in support of remediation. A portable PID will be used to monitor the work zone and for periodic monitoring of total VOC levels during work such as soil sampling. The Site perimeter will be visually monitored for fugitive dust emissions.

The following actions will be taken based on total VOC measurements:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work will resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the work zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work will resume provided that the total VOC level 200 feet downwind of the hot zone 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 above background for the 15-minute average.
- If the total VOC level is above 25 ppm at the perimeter of the hot zone, work will be shut down.

The following actions will be taken based on PM10 measurements and visual dust observations:

- If the downwind PM10 level is 100 µg/m³ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression must be employed. Work may continue with dust suppression techniques provided that downwind PM10 levels do not exceed 150 µg/m³ above the background level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than 150 µg/m³ above the background level, work must 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 PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

Due to VOC impacts present at the site, special requirements for work within 20 feet of potentially exposed individuals or structures have been established. If work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of ECs will be considered to prevent exposures related to the work activities and to control dust and odors.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 µg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 µg/m^3 or less at the monitoring point.

Sustained concentrations of VOCs or PM10 will be reported to the NYSDEC and NYSDOH Project Managers and included in the daily report. In addition, a map showing the location of the downwind and upwind CAMP stations will be included in the daily report.

5.4.13 Odor, Dust and Nuisance Control Plan

Dust, odor, and nuisance control will be accomplished by the remediation contractor as described in this section. The FER will include the following certification by the RE: "I certify that ground-intrusive work during remediation and development-related construction was conducted in accordance with dust and odor suppression methodology defined in the RAWP."

5.4.13.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site. Specific odor control methods to be used as needed will include application of foam suppressants or tarps over the odor or VOC source areas, if encountered. 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 Site perimeter odor monitoring, including advising the Participant and contractor of conditions warranting the halt of work, will be the responsibility of the RE, who is responsible for certifying the FER. Application of odor controls is the responsibility of the Remedial Contractor.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, procedures may include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-site disposal; (b) use of chemical odorants in spray or misting systems; and (b) 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

A dust suppression plan that addresses dust management during ground-intrusive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated water distribution system or an on-site water truck for road wetting. Where required, the truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles
- 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

5.4.13.3 Other Nuisances

A plan for rodent control will be developed and used by the remediation contractor during Site preparation (including clearing and grubbing) and during remedial work.

A plan for noise control will be developed and used by the remediation contractor during Site preparation and remedial work and will conform, at a minimum, to the NYCDEP noise control standards.

5.4.13.4 Soil Vapor Intrusion Evaluation

Langan will evaluate the site for potential soil vapor intrusion, based on soil vapor data obtained during the RI, the status of the remedy (i.e., the presence of remaining contaminant sources), and the depth and configuration of the new building foundation. No new soil vapor or indoor air samples will be collected, unless a potential new source of impacted soil vapor is identified during implementation of the RAWP, which would be summarized in the SVI evaluation at the completion of the remedy. The findings of the SVI evaluation will be presented in the FER. The findings will include a provision for implementing actions recommended to address soil vapor intrusion, if the evaluation identifies new evidence of soil vapor intrusion that differs from the findings of the RI. RI data indicated that soil vapor mitigation was not likely required. If the SVI evaluation indicates that mitigation or monitoring action is warranted, a Track 1 cleanup will only be achieved if the mitigation system or other required action is no longer needed within five years of the date of the Certificate of Completion.

6.0 CONTAMINATION TO REMAIN ON-SITE

No residual contaminated soil will exist beneath the Site after the Track 1 remedy is complete. Based on the RI and geotechnical site investigation, the excavation will extend to bedrock and soil exceeding UU SCOs will be removed (refer to Figures 7A through 7D). A vapor barrier membrane and the concrete foundation will be constructed on bedrock and below the groundwater table beneath the cellar portions of the building. Soil pore space may exist within an approximately 3,900-square-foot potential backfilled area underneath the northeastern slab-on-grade portion of the Site. A vapor barrier will be installed as a construction element; soil vapor data do not indicate concentrations warranting mitigation.

Groundwater contamination resulting from on-site sources will be addressed via dewatering effluent treatment or disposal and will attenuate naturally after removal of all on-site sources during the cleanup. Installation of the future building foundation, including perimeter footings and foundation walls, into bedrock will further mitigate the potential migration of perched groundwater onto the site from adjoining properties. Furthermore, the potential for residual perched groundwater will be eliminated by excavation of the site into bedrock.

7.0 CONTINGENCY ENGINEERING CONTROLS

Following completion of the remedy, it is anticipated that the Site will meet Track 1 SCOs; therefore, neither ECs nor ICs will be required as part of the remedial action. In the event that a Track 1 cleanup is not achieved, implementation of ECs and ICs, including a composite cover system, Environmental Easement, and Site Management Plan (SMP), will be required. In the event that the SVI evaluation indicates that soil vapor mitigation is warranted, a sub-membrane depressurization system (SMDS) will also be installed within the northeastern portion of the building (i.e., the portion of the building in which the foundation slab is above groundwater) under a Conditional Track 1 remedy.

Contingency long-term engineering controls will be required as part of the remedial action if a Track 1 cleanup is not achieved. Exposure to residual contaminated soil will be prevented by an engineered, composite cover system that will be built across the site footprint. An engineered composite cover system will consist of a concrete building slab that will be underlain by a minimum 20-mil vapor barrier/waterproofing membrane. Exposure to VOC-impacted soil vapor, if indicated during the SVI evaluation, will be mitigated by installation of an SMDS within the northeastern portion of the building (i.e., the portion of the building in which the foundation slab is above groundwater).

The contingency composite cover system will be permanent ECs. The composite cover and SMDS will be inspected and the performance certified at specified intervals as required by the SMP. The SMP (to be included in the FER) will outline maintenance requirements and the procedures to be followed in the event that the composite cover system or SMDS are disturbed or compromised after the remedial action is complete. A proposal to discontinue the maintenance and monitoring of the SMDS, or to convert it to a passive system, may be submitted by the property owner based on confirmatory data that justifies such request. The maintenance and monitoring of the SMDS will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

An SMMP will be included in the SMP 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.

8.0 CONTINGENCY INSTITUTIONAL CONTROLS

Contingency ICs for the residual contamination will be incorporated into the remedy to render the overall Site remedy protective of public health and the environment if a Track 1 cleanup is not achieved. Two contingency elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement (EE) and an SMP.

A site-specific EE will be recorded with Bronx 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. It requires that the grantor of the EE and the grantor's successors and assigns adhere to all ECs and 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 EE. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the EE and grantor's successors and assigns.

8.1 Environmental Easement

An EE, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination above UU SCOs 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 EE is required. As part of this remedy, an EE approved by NYSDEC will be filed and recorded with the Bronx County Clerk. The EE will be submitted as part of the FER.

The EE renders the Site a Controlled Property. The EE must be recorded with the Bronx County Clerk or City Register before the Certificate of Completion can be issued by NYSDEC. A series of ICs is required under this remedy to implement, maintain and monitor the EC systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the site to restricted-residential, industrial and commercial use(s) only. These ICs are requirements or restrictions placed on the site that are listed in, and required by, the EE. ICs can, generally, be subdivided between controls that support ECs, and those that place general restrictions on site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides all of the methods and procedures to be followed to comply with this remedy.

Under a Track 4 scenario, the EC will be in the form of a long-term composite cover (i.e., concrete building foundation). The ICs that support the EC are:

- Compliance with the EE by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required.
- All ECs must be operated and maintained as specified in the SMP.
- All ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP. A composite cover system consisting of concrete building slabs must be inspected, certified and maintained as required in the SMP.
- 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.
- ECs may not be discontinued without an amendment or extinguishment of the EE. The EE may be extinguished only by release by the Commissioner of NYSDEC, or the Commissioner's designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

Adherence to these ICs for the site is mandated by the EE and will be implemented under the SMP (discussed in the next section).

The Controlled Property (site) will also have a series of ICs in the form of site restrictions and requirements. The site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming in residual site soil on the Controlled Property are prohibited.
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose as approved by NYSDOH and NYSDEC.
- All future activities on the Controlled Property that will disturb residual contaminated material, if present, are prohibited unless they are conducted in accordance with the soil management provisions in the SMP.
- The Controlled Property may be used for restricted-residential, commercial and industrial use only (as allowed by zoning), provided the long-term ECs and ICs included in the SMP are employed.
- The Controlled Property may not be used for a higher level of use, such as unrestricted residential use without an amendment or extinguishment of this EE.
- 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 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 statement must be certified by an expert that the NYSDEC finds acceptable.

8.2 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the FER and issuance of the Certificate of Completion for the Remedial Action. The SMP is submitted as part of the FER but will be written in a manner that allows its 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 EE and the SMP 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 ECs and ICs; (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, if applicable.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of IC/ECs; (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 and the guidelines provided by NYSDEC.

Site management, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annual, unless otherwise approved by NYSDEC. The SMP will be based on a calendar year and will be due for submission to NYSDEC by three months following the end of the reporting period.

No exclusions for handling of remaining contaminated soil will be provided in the SMP. All handling of remaining contaminated material will be subject to provisions contained in the SMP.

9.0 FINAL ENGINEERING REPORT

An FER will be submitted to NYSDEC following implementation of the remedy defined in this RAWP. The FER will be prepared in conformance with NYSDEC DER-10 and will include the following:

- Documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan
- A comprehensive account of the locations and characteristics of material removed from the Site including the surveyed map(s) of each source, as necessary
- As-built drawings for constructed elements, certifications, manifests, and bills of lading
- A description of the changes to the remedy from the elements provided in the RAWP and associated design documents, if any
- A tabular summary of performance evaluation sampling results and material characterization results and other sampling and chemical analysis performed as part of the remedy
- Written and photographic documentation of remedial work performed under this remedy
- An itemized tabular description of actual costs incurred during implementation of the remedy
- If a Track 1 remedy is not achieved, a summary of remaining contamination that exceeds the contingency Track 4 SCOs – A table and a map that shows remaining contamination in excess of the SCOs will also be included
- An accounting of the destination of material removed from the Site, including excavated contaminated soil, non-native fill, solid waste, hazardous waste, non-regulated material, and fluids – Documentation associated with disposal of material must also include records and approvals for receipt of the material
- An accounting of the origin and chemical quality of material imported onto the Site

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

9.1 Certifications

The following certification will appear in front of the FER Executive Summary. The certification will be signed by the RE, Jason Hayes, P.E., who is a NYS-licensed Professional Engineer. The certification will be appropriately signed and stamped. The certification will include the following statements:

I _____certify that I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Work Plan (or Remedial Design or Plans and Specifications) was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Work Plan (or Remedial Design or Plans and Specifications).

The data submitted to DER demonstrates that the remediation requirements set forth in the Remedial Work Plan (or Remedial Design or Plans and Specifications) and all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established in the work plan (or Remedial Design or Plans and Specifications).

It is a violation of Article 145 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 145, New York State Education Law.

10.0 SCHEDULE

Remedial earthwork activities are anticipated to take about 14 months. Within 90 days of completion of all remedial activities at the Site, an FER will be submitted to NYSDEC as detailed in Section 8.0. The project is anticipated to start in the first quarter of 2025. A Gantt chart showing a detailed project schedule is included in Appendix H.

11.0 REFERENCES

1. Airtek Environmental Corp., "Phase I Environmental Assessment", dated December 13, 2011.
2. IVI Environmental, Inc., "Limited Phase II Environmental Site Assessment", dated February 16, 2012.
3. LCS Inc. "ASTM E1528-14 Transaction Screen Environmental Site Assessment Report", dated June 8, 2015.
4. Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., "Initial Geotechnical Investigation", dated October 10, 2017.
5. Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C., "Remedial Investigation Work Plan", dated November 4, 2021.
6. New York State Department of Health, Final Guidance for the Evaluation of Soil Vapor Intrusion in the State of New York, dated October 2006.
7. New York State Department of Environmental Conservation (NYSDEC), Division of Environmental Remediation (DER), Draft Brownfield Cleanup Program Guide, dated May 2004.
8. NYSDEC, DER, Technical and Administrative Guidance Memorandum No. 4031 Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Waste Sites, dated October 27, 1989.
9. NYSDEC, Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated May 3, 2010; effective June 18, 2010.
10. NYSDEC, Part 375 of Title 6 of the New York Compilation of Codes, Rules, and Regulations, Effective December 14, 2006.
11. New York State Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1) dated June 1998.
12. New York State Division of Water Technical and Operational Guidance Series (TOGS) 5.1.8 New York State Stormwater Management Design Manual, dated June 2008.
13. United States Environmental Protection Agency, Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, "EPA/540/S-95/504, April 1996.
14. NYSDEC, Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs, April 2023.

FIGURES



LEGEND

APPROXIMATE SITE BOUNDARY

2,000 0 2,000

SCALE IN FEET

NOTES:

1. BASEMAP ADAPTED FROM UNITED STATES GEOLOGICAL SURVEY (USGS) 7.5-MINUTE SERIES TOPOGRAPHICAL MAPS, CENTRAL PARK, NEW YORK, QUADRANGLE.

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Collectively known as Langan

Project	**261 WALTON AVENUE** BLOCK No. 2344, LOT No. 60 BRONX NEW YORK
Figure Title	**SITE LOCATION MAP**
Project No.	170601702
Date	6/17/2024
Scale	1"=2,000'
Drawn By	MG
Submission Date	
Figure No.	1

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Path: \\langan.com\data\NY\data7\170601701\Project Data\ArcGIS\APRX\170601701\170601701.aprx Date: 6/17/2024 User: Gsajbel Time: 10:16 AM



LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE FORMER BUILDING FOOTPRINT
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

40 0 40
SCALE IN FEET

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Project	261 WALTON AVENUE BLOCK No. 2344, LOT No. 60 BRONX NEW YORK
Figure Title	SITE PLAN
Project No.	170601702
Date	6/26/2024
Scale	1"=40'
Drawn By	MG
Figure No.	2

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Path: \\langan.com\data\NY\data7\170601701\Project Data\ArcGIS\APRX\170601701\170601701.aprx Date: 6/26/2024 User: Gsajbel Time: 5:07 PM

Location	SB19	SB19
Sample Name	SB19_2-3	SB19_8-9
Sample Date	2/22/2022	2/22/2022
Sample Depth	2-3	8-9
VOCs		
Acetone	<0.0083 U	<0.0077 U
Methylene Chloride	<0.0083 U	<0.0079 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.0945 U	<0.0926 U
3 & 4 Methylphenol (m&p Cresol)	<0.0945 U	<0.0926 U
Benzo(a)anthracene	0.461 D	0.0792 JD
Benzo(a)pyrene	0.551 D	0.0829 JD
Benzo(b)fluoranthene	0.57 D	0.0666 JD
Benzo(k)fluoranthene	0.405 D	0.0592 JD
Chrysene	0.507 D	0.0814 JD
Dibenz(a,h)anthracene	0.109 D	<0.0926 U
Indeno(1,2,3-cd)pyrene	0.343 D	0.0533 JD

Location	SB17	SB17	SB17
Sample Name	SB17_1-2	SB17_3-4	SBDUP01_022122
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	3-4	3-4
VOCs			
Acetone	0.034	<0.0083 U	0.018
Methylene Chloride	<0.01 U	0.0051 J	0.0088 J
SVOCs			
2-Methylphenol (o-Cresol)	<0.517 U	<0.087 U	<0.0935 U
3 & 4 Methylphenol (m&p C·esol)	<0.517 U	<0.087 U	<0.0935 U
Benzo(a)anthracene	0.591 D	0.341 J	**1.35 J**
Benzo(a)pyrene	0.653 D	0.391 J	**1.36 J**
Benzo(b)fluoranthene	0.57 D	0.407 J	**1.3 J**
Benzo(k)fluoranthene	0.562 D	0.369 J	**1.28 J**
Chrysene	0.628 D	0.364 J	**1.32 J**
Dibenz(a,h)anthracene	<0.517 U	0.113 J	**0.34 J**
Indeno(1,2,3-cd)pyrene	**0.504 JD**	0.365 J	**1.08 J**

Location	SB06	SB06
Sample Name	SB06_1-2	SB06_3-4
Sample Date	2/22/2022	2/22/2022
Sample Depth	1-2	3-4
VOCs		
Acetone	<0.0083 U	<0.01 U
Methylene Chloride	<0.0094 U	<0.013 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.0933 U	<0.0856 U
3 & 4 Methylphenol (m&p Cresol)	<0.0933 U	<0.0856 U
Benzo(a)anthracene	0.267 D	<0.0856 U
Benzo(a)pyrene	0.306 D	<0.0856 U
Benzo(b)fluoranthene	0.239 D	<0.0856 U
Benzo(k)fluoranthene	0.248 D	<0.0856 U
Chrysene	0.278 D	<0.0856 U
Dibenz(a,h)anthracene	0.0663 JD	<0.0856 U
Indeno(1,2,3-cd)pyrene	0.212 D	<0.0856 U

Location	SB12	SB12
Sample Name	SB12_0-1	SB12_1.5-2.5
Sample Date	2/22/2022	2/22/2022
Sample Depth	0-1	1.5-2.5
VOCs		
Acetone	<0.01 U	<0.0095 U
Methylene Chloride	<0.01 U	<0.0095 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.0898 U	<0.0838 U
3 & 4 Methylphenol (m&p Cresol)	<0.0898 U	<0.0838 U
Benzo(a)anthracene	0.0474 JD	<0.0838 U
Benzo(a)pyrene	0.056 JD	<0.0838 U
Benzo(b)fluoranthene	<0.0898 U	<0.0838 U
Benzo(k)fluoranthene	<0.0898 U	<0.0838 U
Chrysene	0.0531 JD	<0.0838 U
Dibenz(a,h)anthracene	<0.0898 U	<0.0838 U
Indeno(1,2,3-cd)pyrene	<0.0898 U	<0.0838 U

Location	SB18	SB18
Sample Name	SB18_0-1	SB18_5-6
Sample Date	2/22/2022	2/22/2022
Sample Depth	0-1	5-6
VOCs		
Acetone	<0.013 U	<0.0089 U
Methylene Chloride	<0.013 U	<0.01 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.0943 U	<0.0894 U
3 & 4 Methylphenol (m&p Cresol)	<0.0943 U	<0.0894 U
Benzo(a)anthracene	0.951 D	<0.0894 U
Benzo(a)pyrene	0.731 D	<0.0894 U
Benzo(b)fluoranthene	0.621 D	<0.0894 U
Benzo(k)fluoranthene	0.685 D	<0.0894 U
Chrysene	**1.03 D**	<0.0894 U
Dibenz(a,h)anthracene	0.197 D	<0.0894 U
Indeno(1,2,3-cd)pyrene	**0.521 D**	<0.0894 U

Location	SB09	SB09
Sample Name	SB09_1-2	SB09_3-4
Sample Date	2/21/2022	2/21/2022
Sample Depth	1-2	3-4
VOCs		
Acetone	<0.0066 U	<0.0089 U
Methylene Chloride	0.0075	0.015
SVOCs		
2-Methylphenol (o-Cresol)	<0.0839 U	<0.0843 U
3 & 4 Methylphenol (m&p Cresol)	<0.0839 U	<0.0843 U
Benzo(a)anthracene	<0.0839 U	<0.0843 U
Benzo(a)pyrene	<0.0839 U	<0.0843 U
Benzo(b)fluoranthene	<0.0839 U	<0.0843 U
Benzo(k)fluoranthene	<0.0839 U	<0.0843 U
Chrysene	<0.0839 U	<0.0843 U
Dibenz(a,h)anthracene	<0.0839 U	<0.0843 U
Indeno(1,2,3-cd)pyrene	<0.0839 U	<0.0843 U

Location	SB05	SB05	SB05
Sample Name	SB05_2-3	SB05_5-6	SBDUP02_022222
Sample Date	2/22/2022	2/22/2022	2/22/2022
Sample Depth	2-3	5-6	5-6
VOCs			
Acetone	0.0061 J	<0.0081 U	0.0071 J
Methylene Chloride	<0.0042 U	<0.012 U	<0.009 U
SVOCs			
2-Methylphenol (o-Cresol)	<0.0943 U	<0.0949 U	<0.0943 U
3 & 4 Methylphenol (m&p Cresol)	<0.0943 U	<0.0949 U	<0.0943 U
Benzo(a)anthracene	0.138 D	<0.0949 U	<0.0943 U
Benzo(a)pyrene	0.14 D	<0.0949 U	<0.0943 U
Benzo(b)fluoranthene	0.103 D	<0.0949 U	<0.0943 U
Benzo(k)fluoranthene	0.101 D	<0.0949 U	<0.0943 U
Chrysene	0.138 D	<0.0949 U	<0.0943 U
Dibenz(a,h)anthracene	<0.0943 U	<0.0949 U	<0.0943 U
Indeno(1,2,3-cd)pyrene	0.0905 JD	<0.0949 U	<0.0943 U

Location	SB08	SB08
Sample Name	SB08_1-2	SB08_2-3
Sample Date	2/22/2022	2/22/2022
Sample Depth	1-2	2-3
VOCs		
Acetone	<0.0095 U	<0.011 U
Methylene Chloride	<0.0095 U	<0.011 U
SVOCs		
2-Methylphenol (o-Cresol)	<0.0947 U	<0.0846 U
3 & 4 Methylphenol (m&p Cresol)	<0.0947 U	<0.0846 U
Benzo(a)anthracene	<0.0947 U	<0.0846 U
Benzo(a)pyrene	<0.0947 U	<0.0846 U
Benzo(b)fluoranthene	<0.0947 U	<0.0846 U
Benzo(k)fluoranthene	<0.0947 U	<0.0846 U
Chrysene	<0.0947 U	<0.0846 U
Dibenz(a,h)anthracene	<0.0947 U	<0.0846 U
Indeno(1,2,3-cd)pyrene	<0.0947 U	<0.0846 U

Location	SB02	SB02	SB02
Sample Name	SB02_1-2	SB02_2-3	SB02_3-4
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	2-3	3-4
VOCs			
Acetone	**0.15**	0.032	<0.011 U
Methylene Chloride	<0.011 U	0.0087 J	0.013
SVOCs			
2-Methylphenol (o-Cresol)	<0.45 U	<0.0868 U	<0.0831 U
3 & 4 Methylphenol (m&p Cresol)	<0.45 U	<0.0868 U	<0.0831 U
Benzo(a)anthracene	0.317 JD	0.156 D	<0.0831 U
Benzo(a)pyrene	0.306 JD	0.184 D	<0.0831 U
Benzo(b)fluoranthene	0.468 D	0.156 D	<0.0831 U
Benzo(k)fluoranthene	0.274 JD	0.143 D	<0.0831 U
Chrysene	0.529 D	0.162 D	<0.0831 U
Dibenz(a,h)anthracene	<0.45 U	<0.0868 U	<0.0831 U
Indeno(1,2,3-cd)pyrene	0.248 JD	0.141 D	<0.0831 U

Location	SB01	SB01	SB01	SB01
Sample Name	SB01_0-2	SB01_PFAS_0-2	SB01_2-4	SB01_PFAS_2-4
Sample Date	4/20/2023	4/24/2023	4/20/2023	4/24/2023
Sample Depth	0-2	0-2	2-4	2-4
VOCs				
Acetone	<0.024 U	NA	<0.031 U	NA
Methylene Chloride	<0.014 UJ	NA	<0.016 UJ	NA
SVOCs				
2-Methylphenol (o-Cresol)	<0.0884 U	NA	<0.0853 U	NA
3 & 4 Methylphenol (m&p Cresol)	<0.0884 U	NA	<0.0853 U	NA
Benzo(a)anthracene	0.119 D	NA	0.151 D	NA
Benzo(a)pyrene	0.105 D	NA	0.179 D	NA
Benzo(b)fluoranthene	0.117 D	NA	0.19 D	NA
Benzo(k)fluoranthene	0.0911 D	NA	0.141 D	NA
Chrysene	0.147 D	NA	0.19 D	NA
Dibenz(a,h)anthracene	<0.0884 U	NA	<0.0853 U	NA
Indeno(1,2,3-cd)pyrene	0.0961 D	NA	0.13 D	NA

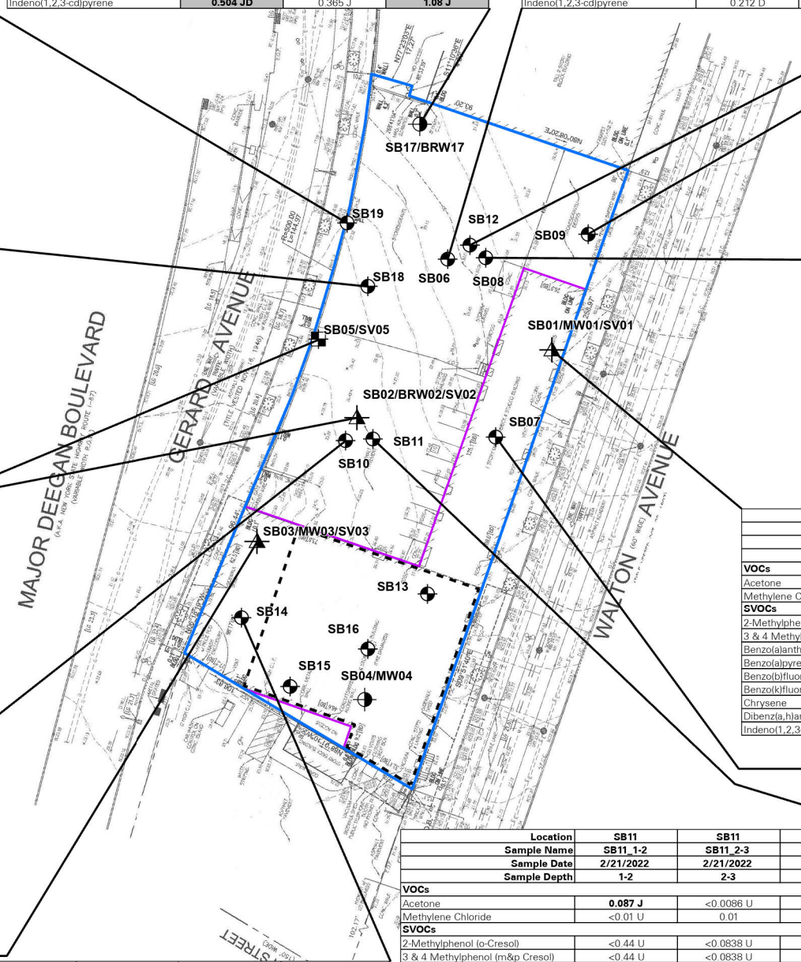
Location	SB10	SB10	SB10
Sample Name	SB10_1-2	SB10_2-3	SB10_3-4
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	2-3	3-4
VOCs			
Acetone	0.044	0.013	<0.017 U
Methylene Chloride	0.0074 J	0.01	**0.062**
SVOCs			
2-Methylphenol (o-Cresol)	**1.08 D**	<0.44 U	<0.0836 U
3 & 4 Methylphenol (m&p Cresol)	**0.801 D**	<0.44 U	<0.0836 U
Benzo(a)anthracene	**1.02 D**	<0.44 U	0.0434 JD
Benzo(a)pyrene	<0.464 U	<0.44 U	0.0441 JD
Benzo(b)fluoranthene	<0.464 U	<0.44 U	0.0427 JD
Benzo(k)fluoranthene	<0.464 U	<0.44 U	<0.0836 U
Chrysene	**1.05 D**	0.25 JD	0.0534 JD
Dibenz(a,h)anthracene	**0.411 JD**	<0.44 U	<0.0836 U
Indeno(1,2,3-cd)pyrene	**0.667 D**	<0.44 U	<0.0836 U

Location	SB11	SB11	SB11
Sample Name	SB11_1-2	SB11_2-3	SB11_3-4
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	2-3	3-4
VOCs			
Acetone	**0.087 J**	<0.0086 U	<0.0094 U
Methylene Chloride	<0.01 U	0.01	0.012
SVOCs			
2-Methylphenol (o-Cresol)	<0.44 U	<0.0838 U	<0.083 U
3 & 4 Methylphenol (m&p Cresol)	<0.44 U	<0.0838 U	<0.083 U
Benzo(a)anthracene	0.39 JD	<0.0838 U	<0.083 U
Benzo(a)pyrene	0.26 JD	<0.0838 U	<0.083 U
Benzo(b)fluoranthene	0.267 JD	<0.0838 U	<0.083 U
Benzo(k)fluoranthene	0.239 JD	<0.0838 U	<0.083 U
Chrysene	0.566 D	<0.0838 U	<0.083 U
Dibenz(a,h)anthracene	<0.44 U	<0.0838 U	<0.083 U
Indeno(1,2,3-cd)pyrene	0.285 JD	<0.0838 U	<0.083 U

Location	SB07	SB07	SB07
Sample Name	SB07_0-2	SB07_2-4	SBDUP03_042423
Sample Date	4/24/2023	4/24/2023	4/24/2023
Sample Depth	0-2	2-4	2-4
VOCs			
Acetone	<0.023 U	<0.014 U	<0.01 U
Methylene Chloride	<0.023 U	<0.0088 U	<0.0098 U
SVOCs			
2-Methylphenol (o-Cresol)	<0.0935 U	<0.0891 U	<0.0899 U
3 & 4 Methylphenol (m&p Cresol)	<0.0935 U	<0.0891 U	<0.0899 U
Benzo(a)anthracene	0.0971 D	0.826 D	**1.16 D**
Benzo(a)pyrene	0.0904 JD	0.733 D	0.999 D
Benzo(b)fluoranthene	0.116 D	0.92 D	**1.24 D**
Benzo(k)fluoranthene	<0.0935 U	0.334 D	0.466 D
Chrysene	0.0934 JD	0.849 D	**1.15 D**
Dibenz(a,h)anthracene	<0.0935 U	0.133 D	0.174 D
Indeno(1,2,3-cd)pyrene	0.0762 JD	**0.559 D**	**0.654 D**

Location	SB03	SB03
Sample Name	SB03_0-2	SB03_PFAS
Sample Date	4/20/2023	4/24/2023
Sample Depth	0-2	0-2
VOCs		
Acetone	<0.026 U	NA
Methylene Chloride	<0.013 UJ	NA
SVOCs		
2-Methylphenol (o-Cresol)	<0.0893 U	NA
3 & 4 Methylphenol (m&p Cresol)	<0.0893 U	NA
Benzo(a)anthracene	**2.71 D**	NA
Benzo(a)pyrene	**2.12 D**	NA
Benzo(b)fluoranthene	**1.98 D**	NA
Benzo(k)fluoranthene	**1.69 D**	NA
Chrysene	**2.55 D**	NA
Dibenz(a,h)anthracene	**0.475 D**	NA
Indeno(1,2,3-cd)pyrene	**1.09 D**	NA

Location	SB14	SB14	SB14
Sample Name	SB14_0-2	SB14_PFAS_0-2	DUP01_PFAS_042423
Sample Date	4/20/2023	4/24/2023	4/24/2023
Sample Depth	0-2	0-2	0-2
VOCs			
Acetone	<0.021 U	NA	NA
Methylene Chloride	<0.014 UJ	NA	NA
SVOCs			
2-Methylphenol (o-Cresol)	<0.0943 UJ	NA	NA
3 & 4 Methylphenol (m&p Cresol)	<0.0943 UJ	NA	NA
Benzo(a)anthracene	**1.51 D**	NA	NA
Benzo(a)pyrene	**1.09 D**	NA	NA
Benzo(b)fluoranthene	0.924 D	NA	NA
Benzo(k)fluoranthene	**0.913 D**	NA	NA
Chrysene	**1.44 D**	NA	NA
Dibenz(a,h)anthracene	0.247 D	NA	NA
Indeno(1,2,3-cd)pyrene	**0.608 D**	NA	NA



60 0 60

SCALE IN FEET

LEGEND

- SOIL BORING LOCATION
- SOIL BORING/MONITORING WELL LOCATION
- SOIL BORING/MONITORING WELL/SOIL VAPOR POINT LOCATION
- SOIL BORING/SOIL VAPOR POINT LOCATION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE FORMER BUILDING FOOTPRINT
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)

Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs
VOCs		
Acetone	0.05	100
Methylene Chloride	0.05	100
SVOCs		
2-Methylphenol (o-Cresol)	0.33	100
3 & 4 Methylphenol (m&p Cresol)	0.33	100
Benzo(a)anthracene	1	1
Benzo(a)pyrene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	0.8	3.9
Chrysene	1	3.9
Dibenz(a,h)anthracene	0.33	0.33
Indeno(1,2,3-cd)pyrene	0.5	0.5

Exceedance Summary:

10 - Result exceeds Unrestricted Use SCOs

10 - Result exceeds Restricted Use Restricted-Residential SCOs

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. ALL LOCATIONS ARE APPROXIMATE
4. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (NYCRR) PART 375 UNRESTRICTED USE AND RESTRICTED USE RESTRICTED-RESIDENTIAL SOIL CLEANUP OBJECTIVES (SCO).
5. ALL CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
6. NA - NOT ANALYZED
7. RL - REPORTING LIMIT
8. < RL - NOT DETECTED

QUALIFIERS:
D - THE CONCENTRATION REPORTED IS A RESULT OF A DILUTED SAMPLE.
P - THE RELATIVE PERCENT DIFFERENCE (RPD) BETWEEN THE RESULTS FOR THE TWO COLUMNS EXCEEDS THE METHOD SPECIFIED CRITERIA.
B - THE ANALYTE WAS FOUND IN THE ASSOCIATED ANALYSIS BATCH BLANK.
J - THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
UJ - THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE RL; HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
U - THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
SOIL ANALYTICAL SUMMARY MAP (VOCs & SVOCs)

Project No. 170601702
Date 6/26/2024
Scale 1"=60'
Drawn By MG
Figure No. 3A

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Path: \\langan.com\data\NY\data7\170601701\Project Data\ArcGIS\APRX\170601701\170601701.aprx Date: 6/26/2024 User: Gsajbel Time: 5:09 PM

Location	SB19	SB19
Sample Name	SB19_2-3	SB19_8-9
Sample Date	2/22/2022	2/22/2022
Sample Depth	2-3	8-9
Pesticides		
4,4'-DDD	<0.00187 U	<0.00184 U
4,4'-DDE	<0.00187 U	<0.00184 U
4,4'-DDT	<0.00187 U	<0.00184 U
PCBs		
Total PCBs	<0.0189 U	<0.0187 U
Metals		
Arsenic	4.59 J	<1.7 UJ
Barium	295 J	174 J
Cadmium	**4.21 J**	1.03 J
Chromium, Trivalent	26.9	30
Copper	**645 J**	**88.6 J**
Lead	**749 J**	**125 J**
Manganese	290 J	293 J
Mercury	**0.274**	0.0899
Nickel	20.4 J	21.5 J
Silver	0.819 J	**2.09 J**
Zinc	**1,290 J**	**268 J**
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	**0.00114**	<0.000268 U
Perfluorooctanoic Acid (PFOA)	<0.000265 U	<0.000268 U

Location	SB17	SB17	SB17
Sample Name	SB17_1-2	SB17_3-4	SBDUP01_022122
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	3-4	3-4
Pesticides			
4,4'-DDD	<0.00205 U	<0.00169 U	<0.00184 U
4,4'-DDE	<0.00205 U	<0.00169 U	<0.00184 U
4,4'-DDT	<0.00205 U	<0.00169 U	<0.00184 U
PCBs			
Total PCBs	<0.0207 U	<0.0171 U	<0.0186 U
Metals			
Arsenic	9.45	6.4	10.9
Barium	**1,350**	**761**	**709**
Cadmium	**23.4**	**9.24**	**14.9**
Chromium, Trivalent	**115**	**54.9**	**58.7**
Copper	**874**	**238**	**325**
Lead	**2,610**	**796**	**1,410**
Manganese	878	527	423
Mercury	**0.932**	**0.506 J**	**1.27 J**
Nickel	**238 J**	**104 J**	**70.6 J**
Silver	**2.64**	**3.13**	**2.55**
Zinc	**4,420 D**	**1,010**	**1,260**
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.000295 U	<0.000247 U	**0.00103 J**
Perfluorooctanoic Acid (PFOA)	0.000536	0.000427	**0.000691**

Location	SB06	SB06
Sample Name	SB06_1-2	SB06_3-4
Sample Date	2/22/2022	2/22/2022
Sample Depth	1-2	3-4
Pesticides		
4,4'-DDD	<0.00183 U	<0.00168 U
4,4'-DDE	<0.00183 U	<0.00168 U
4,4'-DDT	<0.00183 U	<0.00168 U
PCBs		
Total PCBs	<0.0186 U	<0.0168 U
Metals		
Arsenic	7.41 J	<1.56 UJ
Barium	**556 J**	123 J
Cadmium	**2.72 J**	<0.311 UJ
Chromium, Trivalent	**36.5**	19.8
Copper	**791 J**	**255 J**
Lead	**270 J**	7 J
Manganese	1,180 J	272 J
Mercury	**0.593 J**	<0.0311 U
Nickel	25.6 J	<1.04 UJ
Silver	**2.11 J**	<0.519 UJ
Zinc	**638 J**	45.4 J
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	0.000441	<0.00025 U
Perfluorooctanoic Acid (PFOA)	<0.000275 U	<0.00025 U

Location	SB12	SB12
Sample Name	SB12_0-1	SB12_1.5-2.5
Sample Date	2/22/2022	2/22/2022
Sample Depth	0-1	1.5-2.5
Pesticides		
4,4'-DDD	<0.00178 U	<0.00165 U
4,4'-DDE	<0.00178 U	<0.00165 U
4,4'-DDT	<0.00178 U	<0.00165 U
PCBs		
Total PCBs	<0.0181 U	<0.0167 U
Metals		
Arsenic	3.21 J	<1.52 UJ
Barium	206 J	80 J
Cadmium	0.773 J	0.413 J
Chromium, Trivalent	**30.3**	25.4
Copper	**539 J**	**50.3 J**
Lead	**309 J**	8.88 J
Manganese	374 J	456 J
Mercury	**1.19**	**0.258**
Nickel	13.3 J	9.24 J
Silver	1.6 J	<0.507 UJ
Zinc	**252 J**	86 J
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	0.000687	0.000239
Perfluorooctanoic Acid (PFOA)	<0.000256 U	<0.000226 U

Location	SB08	SB08
Sample Name	SB08_1-2	SB08_2-3
Sample Date	2/22/2022	2/22/2022
Sample Depth	1-2	2-3
Pesticides		
4,4'-DDD	<0.00187 U	<0.00165 U
4,4'-DDE	<0.00187 U	<0.00165 U
4,4'-DDT	<0.00187 U	<0.00165 U
PCBs		
Total PCBs	<0.019 U	<0.0165 U
Metals		
Arsenic	<1.72 UJ	<1.53 UJ
Barium	274 J	331 J
Cadmium	1.04 J	0.309 J
Chromium, Trivalent	**37.2**	28.1
Copper	**212 J**	<2.04 UJ
Lead	**74.1 J**	0.6 J
Manganese	389 J	358 J
Mercury	**0.313**	0.0765
Nickel	19.3 J	28.5 J
Silver	**3.24 J**	**3.25 J**
Zinc	**286 J**	107 J
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	<0.000269 U	<0.000251 U
Perfluorooctanoic Acid (PFOA)	<0.000269 U	<0.000251 U

Location	SB18	SB18
Sample Name	SB18_0-1	SB18_5-6
Sample Date	2/22/2022	2/22/2022
Sample Depth	0-1	5-6
Pesticides		
4,4'-DDD	<0.00186 U	<0.00177 U
4,4'-DDE	**0.00713 D**	<0.00177 U
4,4'-DDT	<0.00186 U	<0.00177 U
PCBs		
Total PCBs	0.042	<0.0178 U
Metals		
Arsenic	**13.4 J**	<1.64 UJ
Barium	**863 J**	121 J
Cadmium	**17.6 J**	0.434 J
Chromium, Trivalent	**58.8**	22.4
Copper	**869 J**	21.6 J
Lead	**3,240 J**	4.91 J
Manganese	**2,220 J**	567 J
Mercury	**3.05**	<0.0327 U
Nickel	**96.4 J**	13.9 J
Silver	<0.571 UJ	**2.35 J**
Zinc	**3,340 J**	71.5 J
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	**0.00301**	<0.000269 U
Perfluorooctanoic Acid (PFOA)	<0.000278 U	<0.000269 U

Location	SB09	SB09
Sample Name	SB09_1-2	SB09_3-4
Sample Date	2/21/2022	2/21/2022
Sample Depth	1-2	3-4
Pesticides		
4,4'-DDD	<0.00163 U	<0.00164 U
4,4'-DDE	<0.00163 U	<0.00164 U
4,4'-DDT	<0.00163 U	<0.00164 U
PCBs		
Total PCBs	<0.0164 U	<0.0166 U
Metals		
Arsenic	<1.51 U	<1.52 U
Barium	**478**	**468**
Cadmium	0.511	0.439
Chromium, Trivalent	**36.5**	**41**
Copper	<2.02 U	3.84
Lead	1.99	3.17
Manganese	392	417
Mercury	<0.0303 U	<0.0304 U
Nickel	**42.3 J**	**44.1 J**
Silver	**4.87**	**3.12**
Zinc	**135**	**124**
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	<0.000234 U	<0.000234 U
Perfluorooctanoic Acid (PFOA)	<0.000234 U	<0.000234 U

Location	SB05	SB05	SB05
Sample Name	SB05_2-3	SB05_5-6	SBDUP02_022222
Sample Date	2/22/2022	2/22/2022	2/22/2022
Sample Depth	2-3	5-6	5-6
Pesticides			
4,4'-DDD	<0.00187 U	<0.00187 U	<0.00185 U
4,4'-DDE	<0.00187 U	<0.00187 U	<0.00185 U
4,4'-DDT	<0.00187 U	<0.00187 U	<0.00185 U
PCBs			
Total PCBs	<0.0188 U	<0.0186 U	<0.0189 U
Metals			
Arsenic	2.73 J	<1.72 UJ	<1.71 UJ
Barium	92.4 J	56.7 J	476 J
Cadmium	1.3 J	0.551 J	<0.343 UJ
Chromium, Trivalent	13.5	18.6	15.7
Copper	**496 J**	**79.3 J**	48.6 J
Lead	**235 J**	21.9 J	10.6 J
Manganese	195 J	416 J	381 J
Mercury	0.164	<0.0345 U	<0.0343 U
Nickel	5.76 J	3.99 J	19.1 J
Silver	<0.577 UJ	<0.575 UJ	<0.571 UJ
Zinc	**410 J**	**122 J**	**139 J**
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.00028 U	<0.000277 U	<0.000254 U
Perfluorooctanoic Acid (PFOA)	<0.00028 U	<0.000277 U	<0.000254 U

Location	SB01	SB01	SB01	SB01
Sample Name	SB01_0-2	SB01_PFAS_0-2	SB01_2-4	SB01_PFAS_2-4
Sample Date	4/20/2023	4/24/2023	4/20/2023	4/24/2023
Sample Depth	0-2	0-2	2-4	2-4
Pesticides				
4,4'-DDD	<0.00176 U	NA	<0.00168 U	NA
4,4'-DDE	<0.00176 U	NA	<0.00168 U	NA
4,4'-DDT	**0.0126 D**	NA	**0.0396 D**	NA
PCBs				
Total PCBs	0.0275	NA	0.094 J	NA
Metals				
Arsenic	10.5	NA	**14.7**	NA
Barium	161	NA	225	NA
Cadmium	**19.4**	NA	**37.1**	NA
Chromium, Trivalent	17.6	NA	24.6	NA
Copper	**295**	NA	**275**	NA
Lead	**441**	NA	**947**	NA
Manganese	213	NA	292	NA
Mercury	**0.412**	NA	0.166	NA
Nickel	**36 B**	NA	**54.9 B**	NA
Silver	<0.467 U	NA	<0.433 U	NA
Zinc	**368**	NA	**447**	NA
PFAS				
Perfluorooctanesulfonic Acid (PFOS)	NA	<0.000259 U	NA	<0.000256 U
Perfluorooctanoic Acid (PFOA)	NA	<0.000259 U	NA	<0.000256 U

Location	SB02	SB02	SB02
Sample Name	SB02_1-2	SB02_2-3	SB02_3-4
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	2-3	3-4
Pesticides			
4,4'-DDD	**0.014 J**	<0.00168 U	<0.00167 U
4,4'-DDE	<0.00179 UJ	<0.00168 U	<0.00167 U
4,4'-DDT	<0.00179 UJ	<0.00168 U	<0.00167 U
PCBs			
Total PCBs	**0.145 J**	<0.017 U	<0.0168 U
Metals			
Arsenic	<1.63 U	<1.58 U	<1.62 U
Barium	**3,680**	266	**402**
Cadmium	**77.2**	0.333	0.818
Chromium, Trivalent	**216**	**38.8**	**46.7**
Copper	**1,240**	**114**	2.84
Lead	**6,830**	**99.7**	0.863
Manganese	1,030	337	639
Mercury	**1.24**	0.174	**0.198**
Nickel	**137 J**	**38 J**	**68.1 J**
Silver	1.08	1.92	**3.42**
Zinc	**11,500 D**	**163**	**160**
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.000269 U	<0.000248 U	<0.000248 U
Perfluorooctanoic Acid (PFOA)	<0.000269 U	<0.000248 U	<0.000248 U

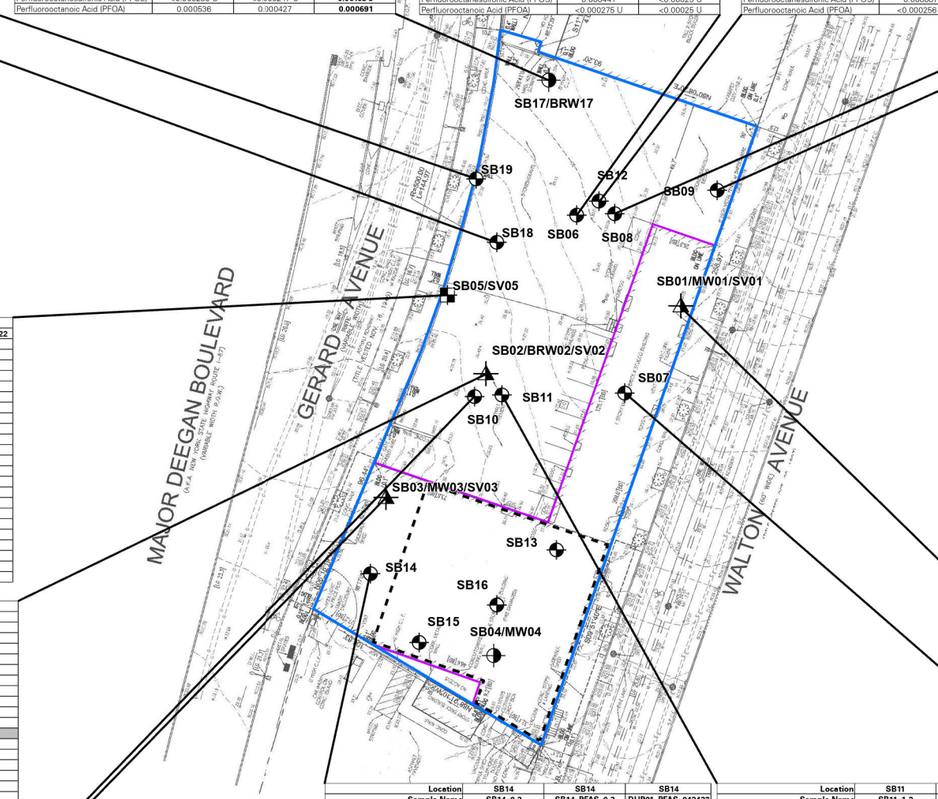
Location	SB14	SB14	SB14
Sample Name	SB14_0-2	SB14_PFAS_0-2	DUP01_PFAS_042423
Sample Date	4/20/2023	4/24/2023	4/24/2023
Sample Depth	0-2	0-2	0-2
Pesticides			
4,4'-DDD	<0.00189 U	NA	NA
4,4'-DDE	<0.00189 U	NA	NA
4,4'-DDT	<0.00189 U	NA	NA
PCBs			
Total PCBs	<0.0191 U	NA	NA
Metals			
Arsenic	**16.5**	NA	NA
Barium	92.7	NA	NA
Cadmium	<0.288 U	NA	NA
Chromium, Trivalent	**30.3**	NA	NA
Copper	**1,270**	NA	NA
Lead	**1,540**	NA	NA
Manganese	923	NA	NA
Mercury	**0.448**	NA	NA
Nickel	20.7 B	NA	NA
Silver	<0.484 U	NA	NA
Zinc	**436**	NA	NA
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	NA	**0.000973**	**0.0012**
Perfluorooctanoic Acid (PFOA)	NA	<0.000257 U	<0.000262 U

Location	SB11	SB11	SB11
Sample Name	SB11_1-2	SB11_2-3	SB11_3-4
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	2-3	3-4
Pesticides			
4,4'-DDD	<0.00173 U	<0.00166 U	<0.00165 U
4,4'-DDE	<0.00173 U	<0.00166 U	<0.00165 U
4,4'-DDT	<0.00173 U	<0.00166 U	<0.00165 U
PCBs			
Total PCBs	**0.109 J**	<0.0167 U	<0.0166 U
Metals			
Arsenic	<1.61 U	<1.52 U	<1.61 U
Barium	**3,070**	319	273
Cadmium	**30.9**	0.445	<0.303 U
Chromium, Trivalent	**72.7**	**40.3**	27.4
Copper	**980**	3.36	28.2
Lead	**3,220**	<0.506 U	1
Manganese	929	467	371
Mercury	**0.63**	0.0702	<0.0303 U
Nickel	**82.3 J**	**50.3 J**	**42.5 J**
Silver	<0.538 U	**2.53**	0.944
Zinc	**5,450 D**	**121**	978
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.000265 U	<0.000239 U	<0.000247 U
Perfluorooctanoic Acid (PFOA)	<0.000265 U	<0.000239 U	<0.000247 U

Location	SB07	SB07	SB07
Sample Name	SB07_0-2	SB07_2-4	SBDUP03_042423
Sample Date	4/24/2023	4/24/2023	4/24/2023
Sample Depth	0-2	2-4	2-4
Pesticides			
4,4'-DDD	<0.00186 U	<0.0018 U	<0.00178 U
4,4'-DDE	<0.00186 U	<0.0018 U	<0.00178 U
4,4'-DDT	<0.00186 U	0.00249 D	0.00272 D
PCBs			
Total PCBs	<0.0188 U	<0.0181 U	<0.0179 U
Metals			
Arsenic	4.46	**25.9 J**	11.9 J
Barium	110	212	185
Cadmium	0.301	**779 J**	**23.1 J**
Chromium, Trivalent	10.1	25	21.8
Copper	43.8 J	**200**	**147**
Lead	**63.3 J**	**306**	**225**
Manganese	115	1,390 J	460 J
Mercury	0.171	**0.213 J**	**0.376 J**
Nickel	11.6	**76 J**	**32.2 J**
Silver	<0.479 UJ	<0.459 U	<0.454 U
Zinc	79.1	**958**	**588**
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	<0.000283 U	<0.000251 U	<0.000256 U
Perfluorooctanoic Acid (PFOA)	<0.000283 U	<0.000251 U	<0.000256 U

Location	SB10	SB10	SB10
Sample Name	SB10_1-2	SB10_2-3	SB10_3-4
Sample Date	2/21/2022	2/21/2022	2/21/2022
Sample Depth	1-2	2-3	3-4
Pesticides			
4,4'-DDD	**0.0194 DP**	<0.00173 U	<0.00164 U
4,4'-DDE	<0.0018 U	<0.00173 U	<0.00164 U
4,4'-DDT	<0.0018 U	<0.00173 U	<0.00164 U
PCBs			
Total PCBs	**0.128 J**	<0.0175 U	<0.0165 U
Metals			
Arsenic	4.1	<1.59 U	<1.63 U
Barium	**2,780**	337	345
Cadmium	**98.2**	1.32	0.782
Chromium, Trivalent	**123**	**34**	**48**
Copper	**1,180**	**780**	8.02
Lead	**9,210**	**228**	8.87
Manganese	1,140	572	571
Mercury	**0.819**	0.146	0.0787
Nickel	**139 J**	**58.5 J**	**63.9 J**
Silver	<0.558 U	<0.532 U	0.868
Zinc	**11,900 D**	**755**	**144**
PFAS			
Perfluorooctanesulfonic Acid (PFOS)	0.000782 J	<0.000246 U	<0.000243 U
Perfluorooctanoic Acid (PFOA)	<0.000267 U	<0.000246 U	<0.000243 U

Location	SB03	SB03
Sample Name	SB03_0-2	SB03_PFAS
Sample Date	4/20/2023	4/24/2023
Sample Depth	0-2	0-2
Pesticides		
4,4'-DDD	<0.00181 U	NA
4,4'-DDE	<0.00181 U	NA
4,4'-DDT	0.00296 D	NA
PCBs		
Total PCBs	<0.0183 U	NA
Metals		
Arsenic	10.1	NA
Barium	180	NA
Cadmium	1.11	NA
Chromium, Trivalent	17.3	NA
Copper	**245**	NA
Lead	**901**	NA
Manganese	285	NA
Mercury	**0.286**	NA
Nickel	25.2 B	NA
Silver	<0.462 U	NA
Zinc	**350**	NA
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	NA	<0.00028 U
Perfluorooctanoic Acid (PFOA)	NA	<0.00028 U



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SCALE IN FEET

LEGEND

- SOIL BORING LOCATION
- SOIL BORING/MONITORING WELL LOCATION
- SOIL BORING/MONITORING WELL/SOIL VAPOR POINT LOCATION
- SOIL BORING/SOIL VAPOR POINT LOCATION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE FORMER BUILDING FOOTPRINT
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)

Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs
Pesticides		
4,4'-DDD	0.0033	13
4,4'-DDE	0.0033	8.9
4,4'-DDT	0.0033	7.9
PCBs		
Total PCBs	0.1	1
Metals		
Arsenic	13	16
Barium	350	400
Cadmium	2.5	4.3
Chromium, Trivalent	30	180
Copper	50	270
Lead	63	400
Manganese	1600	2000
Mercury	0.18	0.81
Nickel	30	310
Silver	2	180
Zinc	109	10000
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	0.00088	0.044
Perfluorooctanoic Acid (PFOA)	0.00066	0.033

Exceedance Summary:

10 - Result exceeds Unrestricted Use SCOs/GVs

10 - Result exceeds Restricted Use Restricted-Residential SCOs/GVs

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. ALL LOCATIONS ARE APPROXIMATE
4. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (NYCRR) PART 375 UNRESTRICTED USE AND RESTRICTED USE RESTRICTED-RESIDENTIAL SOIL CLEANUP OBJECTIVES (SCO).
5. ALL CONCENTRATIONS ARE REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)
6. PERFLUOROOCTANESULFONIC ACID (PFOS) AND PERFLUOROOCTANOIC ACID (PFOA) CONCENTRATIONS ARE COMPARED TO THE UNRESTRICTED USE (UU) AND RESTRICTED-RESIDENTIAL (RRU) GUIDANCE VALUES (GV) PROVIDED IN THE NYSDEC GUIDANCE DOCUMENT "SAMPLING, ANALYSIS AND ASSESSMENT OF PFAS UNDER NYSDEC'S PART 375 REMEDIAL PROGRAMS", DATED APRIL 2023.
7. NA - NOT ANALYZED
8. RL - REPORTING LIMIT
9. < RL - NOT DETECTED

QUALIFIERS:
D - THE CONCENTRATION REPORTED IS A RESULT OF A DILUTED SAMPLE.
P - THE RELATIVE PERCENT DIFFERENCE (RPD) BETWEEN THE RESULTS FOR THE TWO COLUMNS EXCEEDS THE METHOD SPECIFIED CRITERIA.
B - THE ANALYTE WAS FOUND IN THE ASSOCIATED ANALYSIS BATCH BLANK.
J - THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
UJ - THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE RL; HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
U - THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
SOIL ANALYTICAL SUMMARY MAP (PESTICIDES, METALS, AND PFAS)

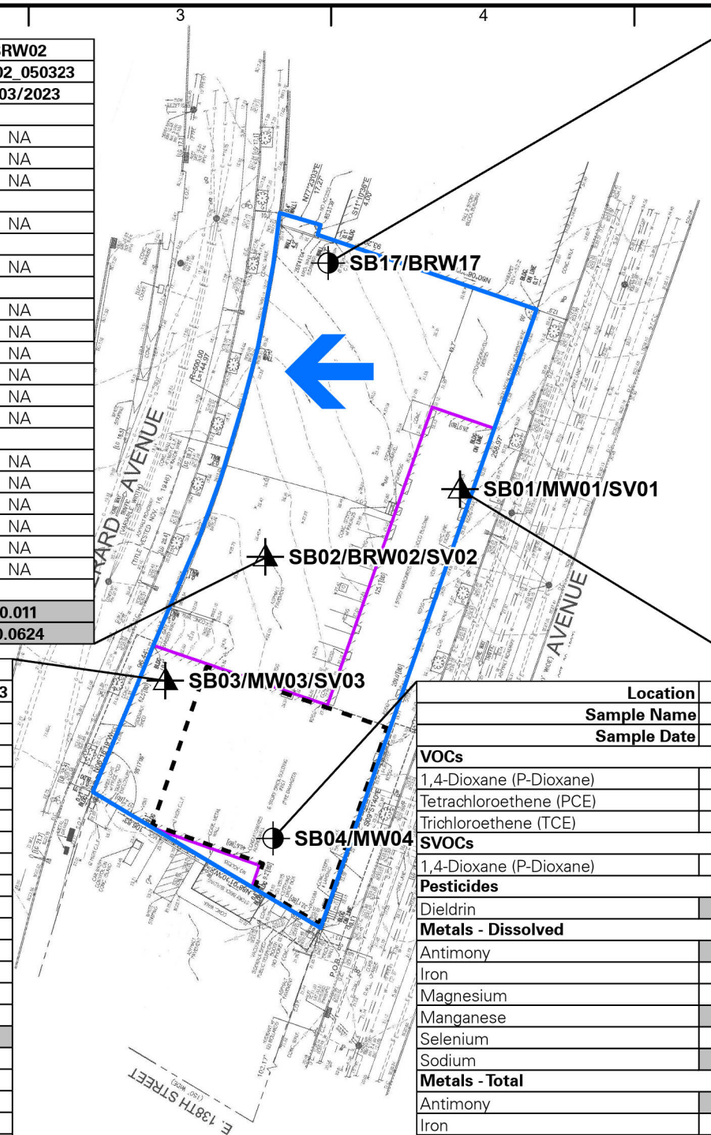
Project No. 170601702
Date 6/26/2024
Scale 1"=60'
Drawn By MG
Figure No. 3B

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Location	BRW02	BRW02
Sample Name	BRW02_030322	BRW02_050323
Sample Date	03/03/2022	05/03/2023
VOCs		
1,4-Dioxane (P-Dioxane)	<80 U	NA
Tetrachloroethene (PCE)	0.8	NA
Trichloroethene (TCE)	<0.5 U	NA
SVOCs		
1,4-Dioxane (P-Dioxane)	<0.3 U	NA
Pesticides		
Dieldrin	<0.00205 U	NA
Metals - Dissolved		
Antimony	<1.11 U	NA
Iron	<278 U	NA
Magnesium	19,300	NA
Manganese	12.2	NA
Selenium	8.3 J	NA
Sodium	**182,000**	NA
Metals - Totals		
Antimony	<1.11 U	NA
Iron	**3,460**	NA
Magnesium	18,900	NA
Manganese	68.3 J	NA
Selenium	**12.3**	NA
Sodium	**179,000**	NA
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	NA	**0.011**
Perfluorooctanoic Acid (PFOA)	NA	**0.0624**

Location	MW03	MW03
Sample Name	MW03_050323	GWDUP02_050323
Sample Date	05/03/2023	05/03/2023
VOCs		
1,4-Dioxane (P-Dioxane)	<80 U	<80 U
Tetrachloroethene (PCE)	0.3 J	0.31 J
Trichloroethene (TCE)	<0.5 U	<0.5 U
SVOCs		
1,4-Dioxane (P-Dioxane)	<0.3 U	<0.3 U
Pesticides		
Dieldrin	<0.00216 U	<0.00216 U
Metals - Dissolved		
Antimony	2.15	2.11
Iron	<278 U	<278 U
Magnesium	15,100	16,500
Manganese	<5.56 U	<5.56 U
Selenium	3.03	3.52
Sodium	**72,900**	**70,300**
Metals - Total		
Antimony	1.87	1.95
Iron	<278 U	<278 U
Magnesium	17,400	17,200
Manganese	<5.56 U	<5.56 U
Selenium	2.66 J	2.72
Sodium	**70,300**	**70,900**
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	**0.0119 J**	**0.0159**
Perfluorooctanoic Acid (PFOA)	**0.0239**	**0.0232**



Location	BRW17	BRW17
Sample Name	BRW17_030322	GWDUP01_030322
Sample Date	03/03/2022	03/03/2022
VOCs		
1,4-Dioxane (P-Dioxane)	<80 U	<80 U
Tetrachloroethene (PCE)	**85.3**	**95.9**
Trichloroethene (TCE)	**14.3**	**16.4**
SVOCs		
1,4-Dioxane (P-Dioxane)	**1.06 J**	**1.55 J**
Pesticides		
Dieldrin	<0.00211 U	<0.00205 U
Metals - Dissolved		
Antimony	<1.11 U	<1.11 U
Iron	<278 U	<278 U
Magnesium	**38,200**	**46,500**
Manganese	67.3	57.3
Selenium	**12.8 J**	**11.6 J**
Sodium	**70,600 J**	**96,500 J**
Metals - Total		
Antimony	<1.11 U	<1.11 U
Iron	**1,840 J**	**4,160 J**
Magnesium	**41,100**	**48,900**
Manganese	95 J	165 J
Selenium	**13.4 J**	9.04 J
Sodium	**81,000 J**	**110,000 J**
PFAS		
Perfluorooctanesulfonic Acid (PFOS)	**0.0292**	**0.0292**
Perfluorooctanoic Acid (PFOA)	**0.0548**	**0.0613**

Location	MW04
Sample Name	MW04_050323
Sample Date	05/03/2023
VOCs	
1,4-Dioxane (P-Dioxane)	<80 U
Tetrachloroethene (PCE)	<0.5 U
Trichloroethene (TCE)	<0.5 U
SVOCs	
1,4-Dioxane (P-Dioxane)	<0.3 U
Pesticides	
Dieldrin	**0.0064**
Metals - Dissolved	
Antimony	**3.84**
Iron	<278 U
Magnesium	34,700
Manganese	**338**
Selenium	4.59
Sodium	**143,000**
Metals - Total	
Antimony	**3.66**
Iron	<278 U
Magnesium	**35,800**
Manganese	**339**
Selenium	7.38
Sodium	**143,000**
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	**0.0503**
Perfluorooctanoic Acid (PFOA)	**0.153**

Location	MW01
Sample Name	MW01_050323
Sample Date	05/03/2023
VOCs	
1,4-Dioxane (P-Dioxane)	<80 U
Tetrachloroethene (PCE)	<0.5 U
Trichloroethene (TCE)	<0.5 U
SVOCs	
1,4-Dioxane (P-Dioxane)	<0.3 U
Pesticides	
Dieldrin	<0.00205 UJ
Metals - Dissolved	
Antimony	2.34
Iron	<278 U
Magnesium	9,230
Manganese	17.2
Selenium	3.43
Sodium	**121,000**
Metals - Total	
Antimony	2.06
Iron	<278 U
Magnesium	9,630
Manganese	26
Selenium	<1.11 U
Sodium	**120,000**
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	**0.0133**
Perfluorooctanoic Acid (PFOA)	**0.00949**

LEGEND

- SOIL BORING/MONITORING WELL LOCATION
- SOIL BORING/MONITORING WELL/SOIL VAPOR POINT LOCATION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE FORMER BUILDING FOOTPRINT
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)
- INFERRED GROUNDWATER FLOW DIRECTION

Analyte	NYSDEC SGVs
VOCs	
1,4-Dioxane (P-Dioxane)	0.35
Tetrachloroethene (PCE)	5
Trichloroethene (TCE)	5
SVOCs	
1,4-Dioxane (P-Dioxane)	0.35
Pesticides	
Dieldrin	0.004
Metals - Dissolved	
Antimony	3
Iron	300
Magnesium	35000
Manganese	300
Selenium	10
Sodium	20000
Metals - Total	
Antimony	3
Iron	300
Magnesium	35000
Manganese	300
Selenium	10
Sodium	20000
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	0.0027
Perfluorooctanoic Acid (PFOA)	0.0067

Exceedance Summary:

10 - Result exceeds NYSDEC SGVs

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. ALL LOCATIONS ARE APPROXIMATE
4. GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 CODES, RULES, AND REGULATIONS (NYCRR) PART 703.5 AND THE NYSDEC TECHNICAL AND OPERATION GUIDANCE SERIES (TOGS) 1.1.1 AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES FOR CLASS GA WATER AND PUBLISHED ADDENDA (HEREIN COLLECTIVELY REFERENCED AS "NYSDEC SGVS").
5. ALL CONCENTRATIONS ARE REPORTED IN MICROGRAMS PER LITER (ug/L)
6. PFOA AND PFOS CONCENTRATIONS IN GROUNDWATER WERE COMPARED TO THE NYSDEC APRIL 2023 AMBIENT WATER QUALITY GUIDANCE VALUES AWQGV) FOR PFOA AND PFOS.
7. NA - NOT ANALYZED
8. RL - REPORTING LIMIT
9. < RL - NOT DETECTED

QUALIFIERS:
B - THE ANALYTE WAS FOUND IN THE ASSOCIATED ANALYSIS BATCH BLANK.
R - THE SAMPLE RESULTS ARE UNUSABLE DUE TO THE QUALITY OF THE DATA GENERATED BECAUSE CERTAIN CRITERIA WERE NOT MET. THE ANALYTE MAY OR MAY NOT BE PRESENT IN THE SAMPLE.
J - THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
UJ - THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE RL; HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
U - THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.
NJ - THE ANALYSIS INDICATES THE PRESENCE OF AN ANALYTE THAT HAS BEEN "TENTATIVELY IDENTIFIED' AND THE ASSOCIATED NUMERICAL VALUE REPRESENTS ITS APPROXIMATE CONCENTRATION.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

60 0 60
SCALE IN FEET

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261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
GROUNDWATER ANALYTICAL SUMMARY MAP

Project No. 170601702
Date 6/26/2024
Scale 1"=60'
Drawn By MG
Figure No. 4

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Location	SV02
Sample Name	SV02_022322
Sample Date	2/23/2022
Sample Depth	4
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<0.868 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.22 U
1,2,4-Trimethylbenzene	10.9 D
1,3,5-Trimethylbenzene (Mesitylene)	11.9 D
1,3-Butadiene	9.71 D
2-Hexanone (MBK)	<1.3 U
4-Ethyltoluene	12 D
Acetone	34.4 D
Benzene	23 D
Carbon Disulfide	6.34 D
Carbon Tetrachloride	<0.25 U
Chloroform	16.5 D
Chloromethane	<0.328 U
Cyclohexane	23.2 D
Dichlorodifluoromethane	2.28 D
Ethyl Acetate	<1.15 U
Ethylbenzene	9.04 D
Isopropanol	3.83 J
M,P-Xylene	33.3 D
Methyl Ethyl Ketone (2-Butanone)	3.24 D
Methyl Methacrylate	<0.651 U
Methylene Chloride	4.64 D
n-Heptane	17.5 D
n-Hexane	5.55 D
o-Xylene (1,2-Dimethylbenzene)	26.2 D
Propylene	50 D
Styrene	<0.677 U
Tetrachloroethene (PCE)	7.55 D
Tetrahydrofuran	<0.938 U
Toluene	24 D
Trichloroethene (TCE)	<0.214 U
Trichlorofluoromethane	1.25 D

Location	SV05
Sample Name	SV05_022322
Sample Date	2/23/2022
Sample Depth	4
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<0.912 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.28 U
1,2,4-Trimethylbenzene	2.22 D
1,3,5-Trimethylbenzene (Mesitylene)	0.822 D
1,3-Butadiene	3.26 D
2-Hexanone (MBK)	<1.37 U
4-Ethyltoluene	2.88 D
Acetone	36.5 D
Benzene	3.04 D
Carbon Disulfide	4.43 D
Carbon Tetrachloride	<0.263 U
Chloroform	<0.816 U
Chloromethane	<0.345 U
Cyclohexane	3.51 D
Dichlorodifluoromethane	2.07 D
Ethyl Acetate	<1.2 U
Ethylbenzene	2.11 D
Isopropanol	2.67 J
M,P-Xylene	7.77 D
Methyl Ethyl Ketone (2-Butanone)	2.02 D
Methyl Methacrylate	<0.685 U
Methylene Chloride	2.5 D
n-Heptane	17.5 D
n-Hexane	18.9 D
o-Xylene (1,2-Dimethylbenzene)	2.25 D
Propylene	38.9 D
Styrene	<0.712 U
Tetrachloroethene (PCE)	7.6 D
Tetrahydrofuran	<0.986 U
Toluene	3.53 D
Trichloroethene (TCE)	<0.225 U
Trichlorofluoromethane	<0.939 U

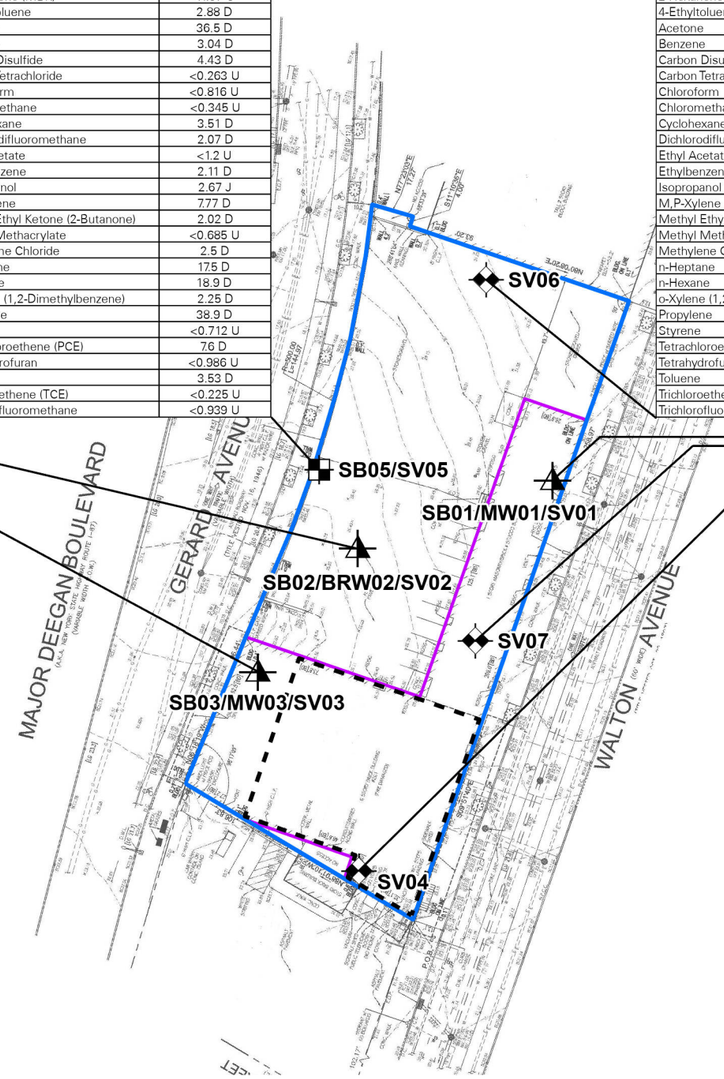
Location	SV06	SV06
Sample Name	SV06_022322	SODUP01_022322
Sample Date	2/23/2022	2/23/2022
Sample Depth	4	4
Sample Type	SV	SV
VOCs		
1,1,1-Trichloroethane	<0.696 U	<0.847 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.26 U	<1.19 U
1,2,4-Trimethylbenzene	2.1 D	2.6 D
1,3,5-Trimethylbenzene (Mesitylene)	<0.807 UJ	1.68 J
1,3-Butadiene	<1.09 U	1.1 D
2-Hexanone (MBK)	<1.35 U	<1.27 U
4-Ethyltoluene	2.58 J	4.35 J
Acetone	20.3 D	24.7 D
Benzene	3.72 J	2.68 J
Carbon Disulfide	2.71 J	1.55 J
Carbon Tetrachloride	<0.258 U	0.293 D
Chloroform	<0.802 U	<0.758 U
Chloromethane	<0.339 U	0.641 D
Cyclohexane	1.36 D	1.12 D
Dichlorodifluoromethane	2.44 D	2.46 D
Ethyl Acetate	<1.18 U	1.18 D
Ethylbenzene	2.21 J	7.15 J
Isopropanol	2.34 J	45.1 J
M,P-Xylene	7.84 J	24.6 J
Methyl Ethyl Ketone (2-Butanone)	1.26 J	2.24 J
Methyl Methacrylate	<0.672 U	<0.636 U
Methylene Chloride	3.37 J	8.25 J
n-Heptane	2.83 J	4.52 J
n-Hexane	6.6 D	5.91 D
o-Xylene (1,2-Dimethylbenzene)	2.42 J	8.23 J
Propylene	<0.283 U	<0.267 U
Styrene	<0.699 U	0.794 D
Tetrachloroethene (PCE)	1.23 D	1.79 D
Tetrahydrofuran	<0.969 U	<0.916 U
Toluene	5.75 J	14 J
Trichloroethene (TCE)	0.255 D	<0.209 U
Trichlorofluoromethane	1.11 D	1.22 D

Location	SV01
Sample Name	SV01_042123
Sample Date	4/21/2023
Sample Depth	2.5
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<0.929 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.3 U
1,2,4-Trimethylbenzene	3.6 D
1,3,5-Trimethylbenzene (Mesitylene)	0.837 D
1,3-Butadiene	<1.13 U
2-Hexanone (MBK)	3.63 D
4-Ethyltoluene	2.01 D
Acetone	33 J
Benzene	0.924 D
Carbon Disulfide	0.954 D
Carbon Tetrachloride	0.535 D
Chloroform	1.66 D
Chloromethane	<0.351 U
Cyclohexane	2.87 D
Dichlorodifluoromethane	2.78 D
Ethyl Acetate	<1.23 U
Ethylbenzene	3.77 D
Isopropanol	1.42 J
M,P-Xylene	11.5 D
Methyl Ethyl Ketone (2-Butanone)	5.27 D
Methyl Methacrylate	<0.697 U
Methylene Chloride	<1.18 U
n-Heptane	1.19 D
n-Hexane	1.62 D
o-Xylene (1,2-Dimethylbenzene)	4.36 D
Propylene	<0.293 U
Styrene	<0.725 U
Tetrachloroethene (PCE)	10.7 D
Tetrahydrofuran	4.77 D
Toluene	3.98 D
Trichloroethene (TCE)	<0.229 U
Trichlorofluoromethane	1.53 D

Location	SV03
Sample Name	SV03_042123
Sample Date	4/21/2023
Sample Depth	3.5
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	1.84 D
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.23 U
1,2,4-Trimethylbenzene	3.8 D
1,3,5-Trimethylbenzene (Mesitylene)	1.19 D
1,3-Butadiene	<1.07 U
2-Hexanone (MBK)	6.13 D
4-Ethyltoluene	2.14 D
Acetone	179 J
Benzene	1.18 D
Carbon Disulfide	1.25 D
Carbon Tetrachloride	0.304 D
Chloroform	2.67 D
Chloromethane	<0.332 U
Cyclohexane	0.887 D
Dichlorodifluoromethane	2.63 D
Ethyl Acetate	<1.16 U
Ethylbenzene	8.25 D
Isopropanol	1.7 J
M,P-Xylene	35 D
Methyl Ethyl Ketone (2-Butanone)	16.9 D
Methyl Methacrylate	<0.659 U
Methylene Chloride	<1.12 U
n-Heptane	4.42 D
n-Hexane	7.49 D
o-Xylene (1,2-Dimethylbenzene)	11.6 D
Propylene	<0.277 U
Styrene	<0.686 U
Tetrachloroethene (PCE)	4.48 D
Tetrahydrofuran	6.22 D
Toluene	4.49 D
Trichloroethene (TCE)	<0.216 U
Trichlorofluoromethane	1.54 D

Location	SV04
Sample Name	SV04_042123
Sample Date	4/21/2023
Sample Depth	0.25
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	<0.936 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.31 U
1,2,4-Trimethylbenzene	4.72 D
1,3,5-Trimethylbenzene (Mesitylene)	2.7 D
1,3-Butadiene	<1.14 U
2-Hexanone (MBK)	<1.41 U
4-Ethyltoluene	6.66 D
Acetone	16.3 J
Benzene	1.15 D
Carbon Disulfide	<0.534 U
Carbon Tetrachloride	0.432 D
Chloroform	<0.837 U
Chloromethane	1.06 D
Cyclohexane	<0.59 U
Dichlorodifluoromethane	2.54 D
Ethyl Acetate	<1.24 U
Ethylbenzene	2.38 D
Isopropanol	8.56 J
M,P-Xylene	10.6 D
Methyl Ethyl Ketone (2-Butanone)	2.98 D
Methyl Methacrylate	<0.702 U
Methylene Chloride	<1.19 U
n-Heptane	<0.703 U
n-Hexane	1.75 D
o-Xylene (1,2-Dimethylbenzene)	3.87 D
Propylene	<0.295 U
Styrene	<0.731 U
Tetrachloroethene (PCE)	<1.16 U
Tetrahydrofuran	2.17 D
Toluene	4.59 D
Trichloroethene (TCE)	<0.23 U
Trichlorofluoromethane	1.54 D

Location	SV07
Sample Name	SV07_042123
Sample Date	4/21/2023
Sample Depth	0.25
Sample Type	SV
VOCs	
1,1,1-Trichloroethane	0.939 D
1,1,2-Trichloro-1,2,2-Trifluoroethane	<1.2 U
1,2,4-Trimethylbenzene	2.69 D
1,3,5-Trimethylbenzene (Mesitylene)	0.769 D
1,3-Butadiene	<1.04 U
2-Hexanone (MBK)	<1.28 U
4-Ethyltoluene	1.46 D
Acetone	15.2 D
Benzene	<0.5 U
Carbon Disulfide	5.6 D
Carbon Tetrachloride	0.295 D
Chloroform	<0.764 U
Chloromethane	<0.323 U
Cyclohexane	2.85 D
Dichlorodifluoromethane	2.71 D
Ethyl Acetate	<1.13 U
Ethylbenzene	0.747 D
Isopropanol	1.27 D
M,P-Xylene	2.72 D
Methyl Ethyl Ketone (2-Butanone)	4.2 D
Methyl Methacrylate	<0.64 U
Methylene Chloride	<1.09 U
n-Heptane	1.09 D
n-Hexane	4.02 D
o-Xylene (1,2-Dimethylbenzene)	1.09 D
Propylene	<0.269 U
Styrene	<0.666 U
Tetrachloroethene (PCE)	7.21 D
Tetrahydrofuran	3.18 D
Toluene	2.89 D
Trichloroethene (TCE)	<0.21 U
Trichlorofluoromethane	1.49 D



LEGEND

- SOIL BORING/MONITORING WELL/SOIL VAPOR POINT LOCATION
- SOIL BORING/SOIL VAPOR POINT LOCATION
- SOIL VAPOR POINT LOCATION
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BUILDING FOOTPRINT
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. ALL LOCATIONS ARE APPROXIMATE
4. FORMER CELLAR SLAB IS APPROXIMATELY 12 FEET BGS (BELOW GRADE SURFACE).
5. ALL CONCENTRATIONS ARE REPORTED IN (ug/m^3)
6. NA - NOT ANALYZED
7. RL - REPORTING LIMIT
8. < RL - NOT DETECTED
9. NS - NOT STARTED

QUALIFIERS:
D - THE CONCENTRATION REPORTED IS A RESULT OF A DILUTED SAMPLE.
B - THE ANALYTE WAS FOUND IN THE ASSOCIATED ANALYSIS BATCH BLANK.
J - THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
UJ - THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE RL; HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
U - THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.

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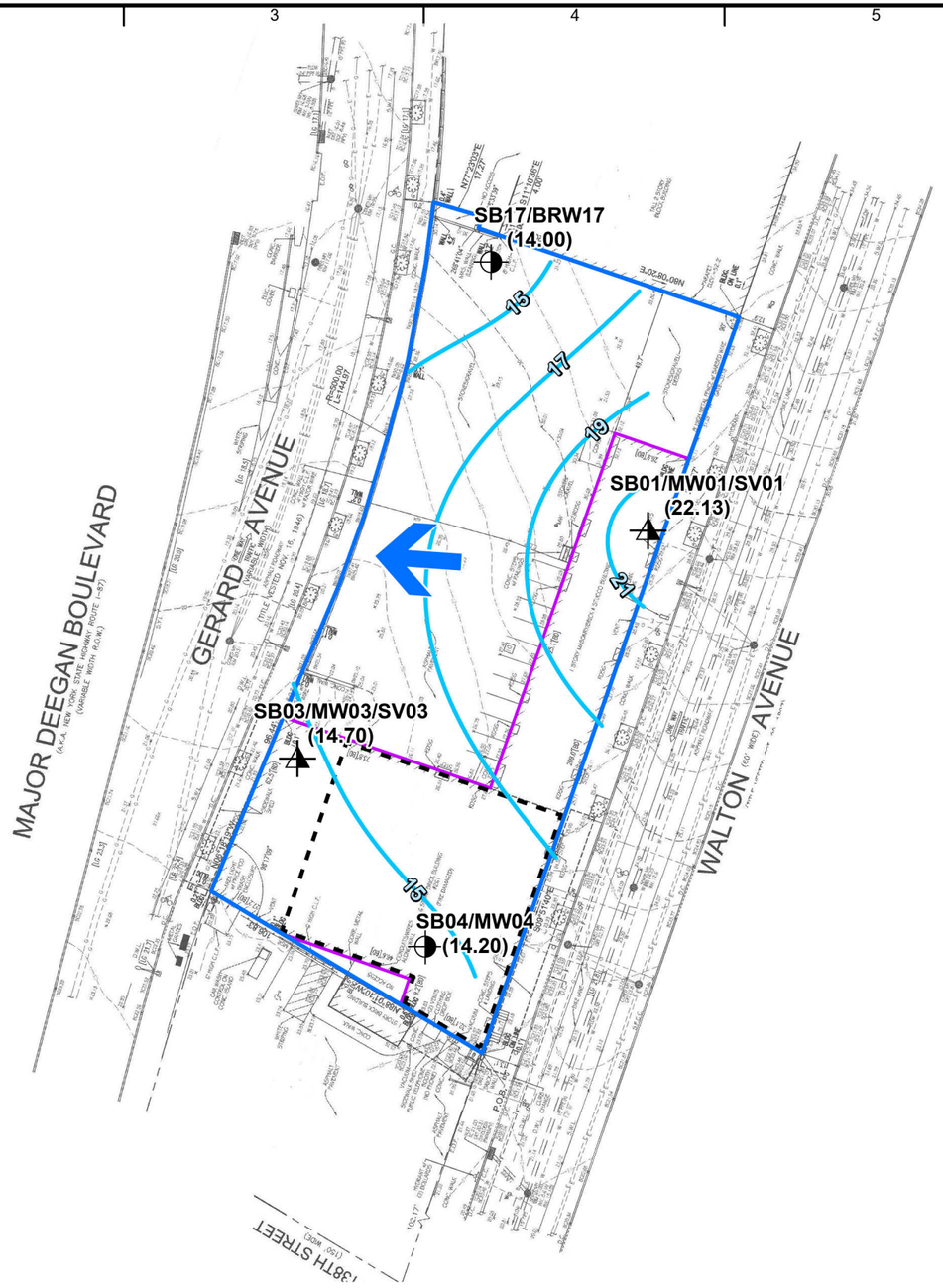
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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
SOIL VAPOR ANALYTICAL SUMMARY MAP

Project No. 170601702
Date 6/26/2024
Scale 1"=60'
Drawn By MG
Figure No. 5

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LEGEND

- SOIL BORING/MONITORING WELL LOCATION
- SOIL BORING/MONITORING WELL/ SOIL VAPOR POINT LOCATION
- GROUNDWATER CONTOURS
- APPROXIMATE SITE BOUNDARY
- APPROXIMATE FORMER BUILDING FOOTPRINT
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)
- **(22.13)** GROUNDWATER ELEVATION
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. BGS = BELOW GRADE SURFACE
4. ELEVATIONS SHOWN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88)
5. DEPTH TO WATER READINGS WERE COLLECTED ON 3/3/2022 AND 5/3/2023.
6. ALL LOCATIONS ARE APPROXIMATE

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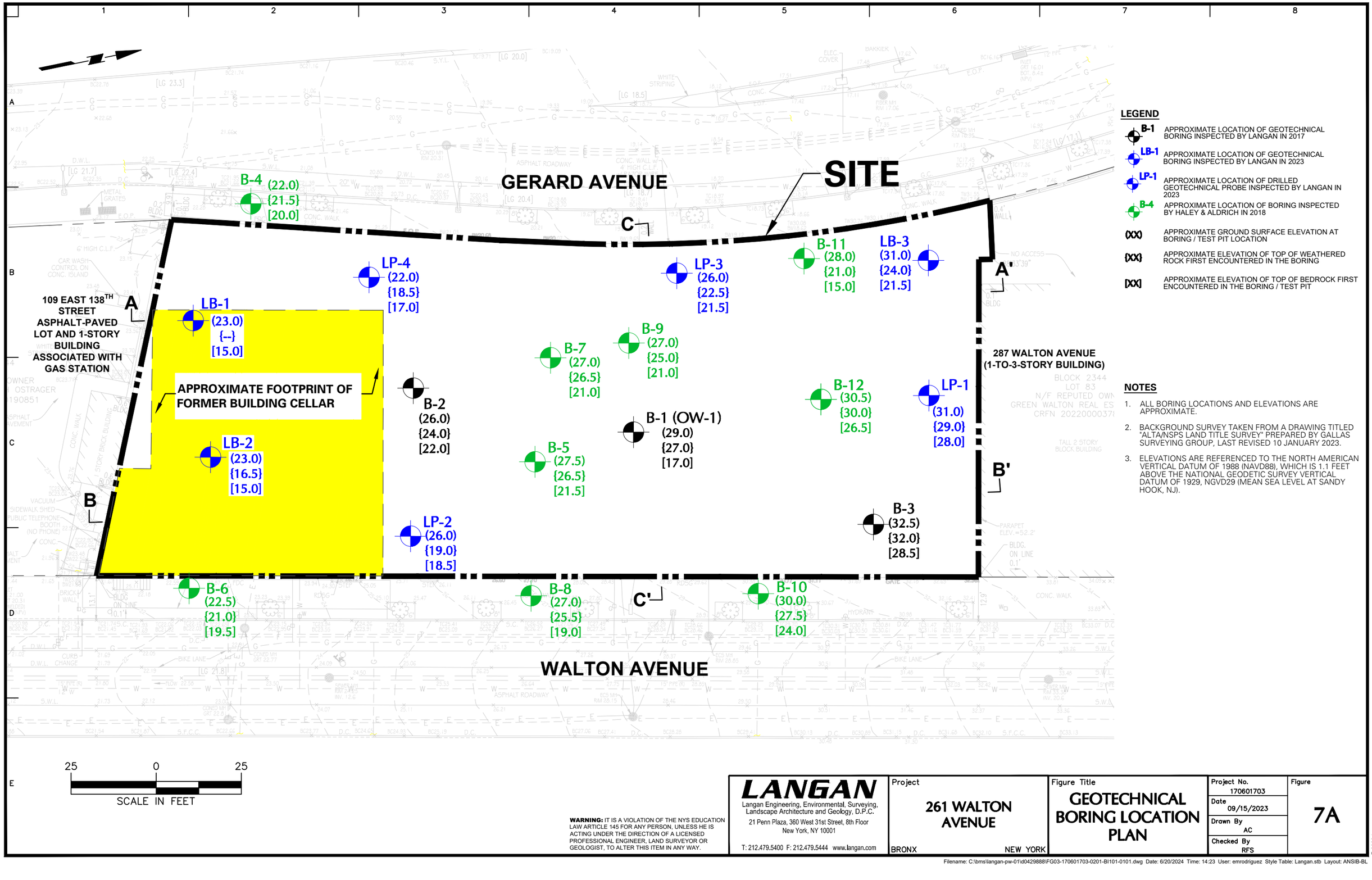
Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
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Figure Title
GROUNDWATER ELEVATION CONTOUR MAP

Project No. 170601702	Figure No. 6
Date 6/26/2024	
Scale 1"=50'	
Drawn By MG	

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LEGEND

- B-1 — APPROXIMATE LOCATION OF GEOTECHNICAL BORING INSPECTED BY LANGAN IN 2017
- LB-1 — APPROXIMATE LOCATION OF GEOTECHNICAL BORING INSPECTED BY LANGAN IN 2023
- LP-1 — APPROXIMATE LOCATION OF DRILLED GEOTECHNICAL PROBE INSPECTED BY LANGAN IN 2023
- B-4 — APPROXIMATE LOCATION OF BORING INSPECTED BY HALEY & ALDRICH IN 2018
- (XX) — APPROXIMATE GROUND SURFACE ELEVATION AT BORING / TEST PIT LOCATION
- {XX} — APPROXIMATE ELEVATION OF TOP OF WEATHERED ROCK FIRST ENCOUNTERED IN THE BORING
- [XX] — APPROXIMATE ELEVATION OF TOP OF BEDROCK FIRST ENCOUNTERED IN THE BORING / TEST PIT

NOTES

1. ALL BORING LOCATIONS AND ELEVATIONS ARE APPROXIMATE.
2. BACKGROUND SURVEY TAKEN FROM A DRAWING TITLED "ALTA/NSPS LAND TITLE SURVEY" PREPARED BY GALLAS SURVEYING GROUP, LAST REVISED 10 JANUARY 2023.
3. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH IS 1.1 FEET ABOVE THE NATIONAL GEODETIC SURVEY VERTICAL DATUM OF 1929, NGVD29 (MEAN SEA LEVEL AT SANDY HOOK, NJ).

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Project	261 WALTON AVENUE
	BRONX NEW YORK
Figure Title	GEOTECHNICAL BORING LOCATION PLAN
Project No.	170601703
Date	09/15/2023
Drawn By	AC
Checked By	RFS
Figure	7A

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Filename: C:\bms\langan-pw-01\d0429888\FG03-170601703-0201-BI101-0101.dwg Date: 6/20/2024 Time: 14:23 User: emrodriguez Style Table: Langan.stb Layout: ANSIB-BL

SOUTH

109 EAST 138TH STREET

PL

SITE

PL

NORTH

287 WALTON AVENUE

LB–1 (el 17)

LP–4 (el 22)

B–7 (el 27)

B–9 (el 27)

LP–3 (el 26)

B–11 (el 28)

LB–3 (el 31)

EL., FT (NAVD88)

40

30

20

10

0

–10

FILL

GNEISS

FILL

WEATHERED ROCK

BEDROCK

EXCAVATION DEPTH AT EL. 12

ASPHALT

FILL

WEATHERED ROCK

GNEISS

ASPHALT

FILL

WEATHERED ROCK

SILT

SCHIST

GNEISS

EXCAVATION DEPTH AT EL. 17

FILL

DECOMPOSED ROCK

GNEISS

ASPHALT

CLAYEY SAND

SAND WITH SILT

WEATHERED ROCK

SCHIST

GNEISS

FILL

DECOMPOSED ROCK

GNEISS

Legend

- ASPHALT
- FILL
- SILT
- GRAVEL WITH SILT
- GRAVEL WITH SAND
- CLAYEY SAND
- SAND WITH SILT
- SCHIST
- GNEISS
- WEATHERED/ DECOMPOSED ROCK
- BEDROCK

SUBSURFACE PROFILE A-A

VERTICAL SCALE: 1" = 8'

HORIZONTAL SCALE: NOT TO SCALE

8 0 4 8

VERTICAL SCALE: 1" = 8'

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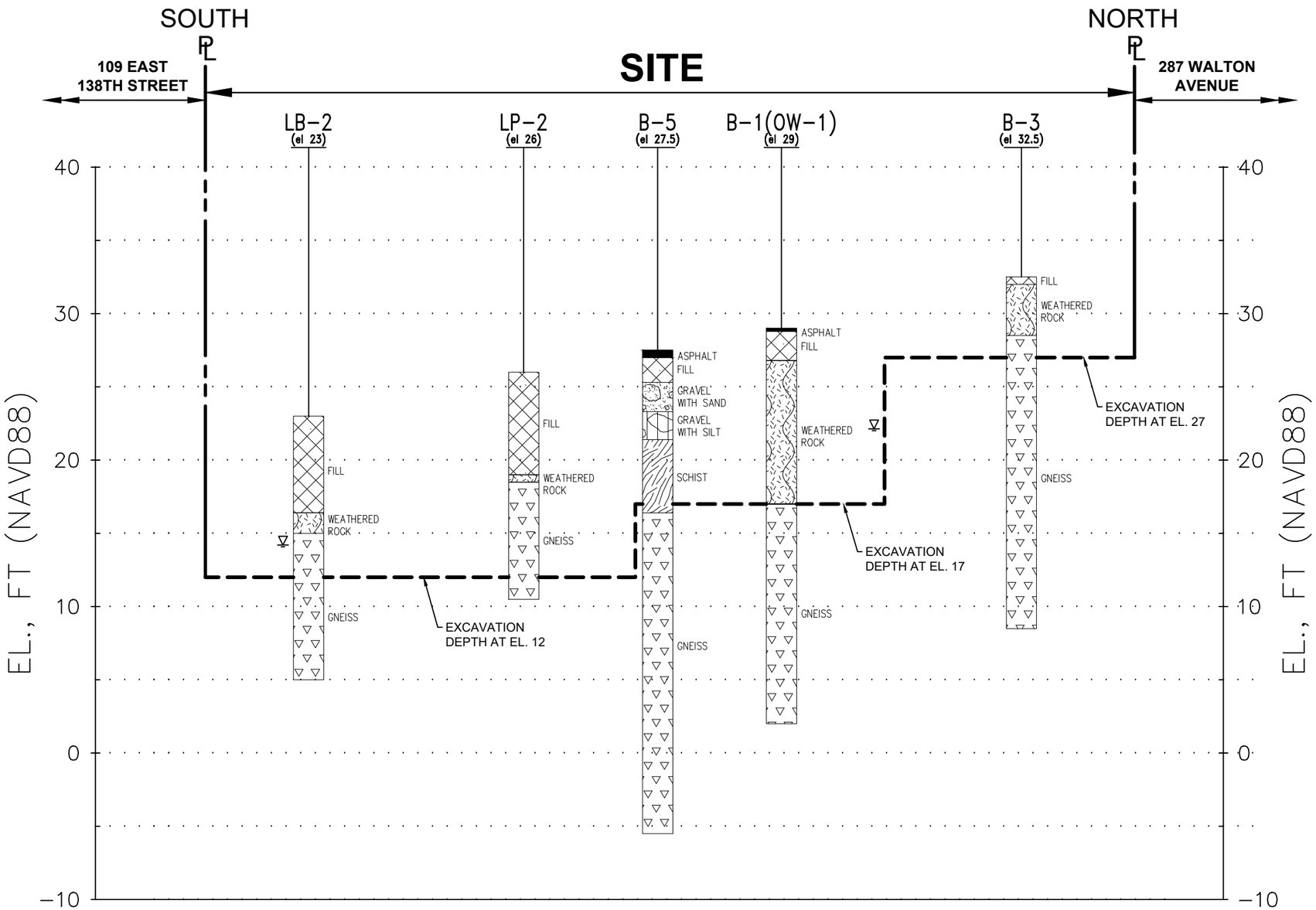
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Project	261 WALTON AVENUE
	BRONX NEW YORK
Figure Title	SUBSURFACE PROFILE A-A
Project No.	170601702
Date	04/24/2024
Drawn By	AC
Checked By	SK
Figure	7B

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Legend

- ASPHALT
- FILL
- SILT
- GRAVEL WITH SILT
- GRAVEL WITH SAND
- CLAYEY SAND
- SAND WITH SILT
- SCHIST
- GNEISS
- WEATHERED/ DECOMPOSED ROCK
- BEDROCK

SUBSURFACE PROFILE B-B

VERTICAL SCALE: 1" = 8'
HORIZONTAL SCALE: NOT TO SCALE

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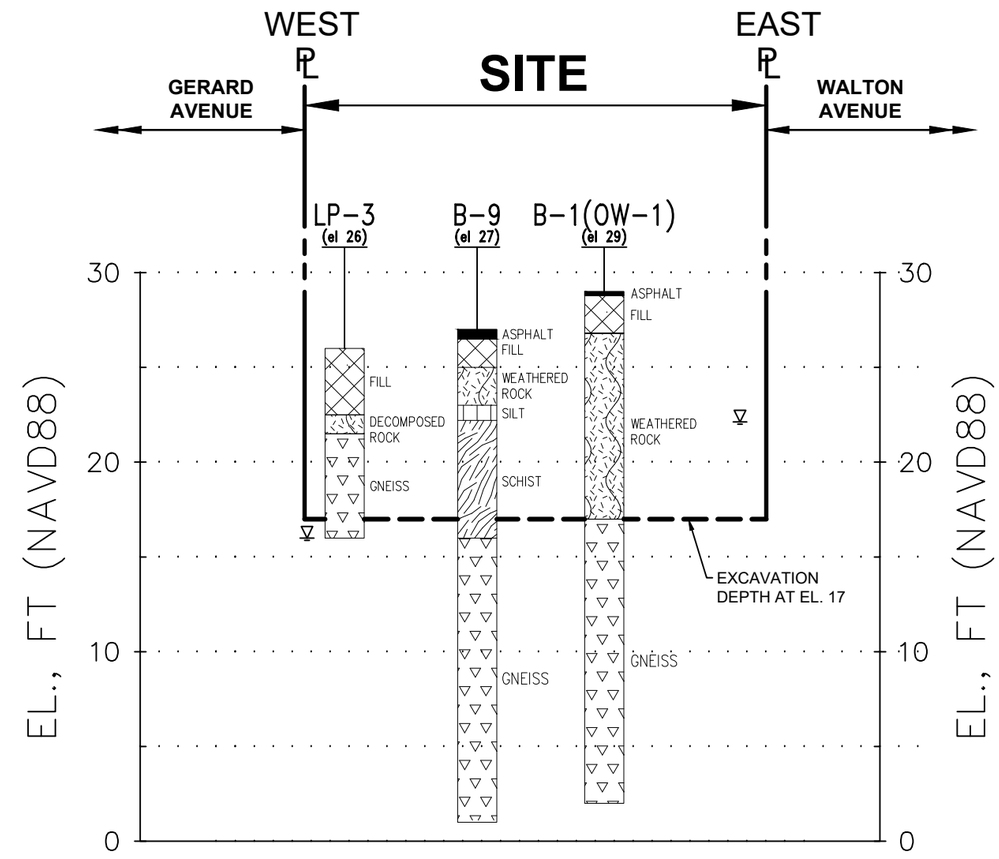
8 0 4 8
VERTICAL SCALE: 1" = 8'

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Project	261 WALTON AVENUE BRONX NEW YORK
Figure Title	SUBSURFACE PROFILE B-B
Project No.	170601702
Date	04/24/2024
Drawn By	AC
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Figure	7C

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SUBSURFACE PROFILE C-C

VERTICAL SCALE: 1" = 8'
HORIZONTAL SCALE: NOT TO SCALE

Legend

- ASPHALT
- FILL
- SILT
- GRAVEL WITH SILT
- GRAVEL WITH SAND
- CLAYEY SAND
- SAND WITH SILT
- SCHIST
- GNEISS
- WEATHERED/ DECOMPOSED ROCK
- BEDROCK

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8 0 4 8
VERTICAL SCALE: 1" = 8'

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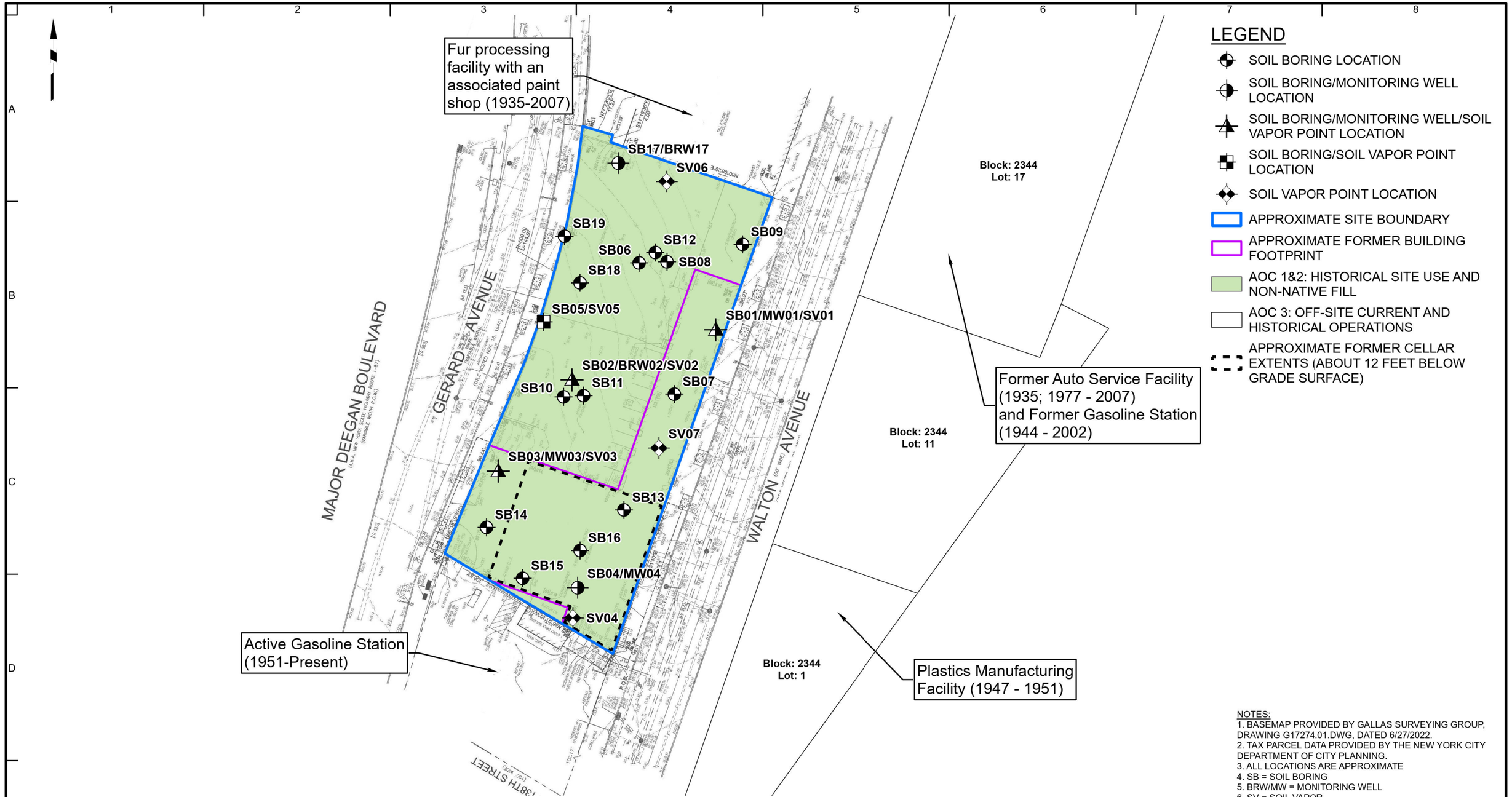
Figure Title: SUBSURFACE PROFILE C-C

Project No. 170601702
Date 04/24/2024
Drawn By AC
Checked By SK

Figure 7D

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2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. ALL LOCATIONS ARE APPROXIMATE
4. SB = SOIL BORING
5. BRW/MW = MONITORING WELL
6. SV = SOIL VAPOR
7. AOC = AREA OF CONCERN

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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
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Figure Title
SAMPLE LOCATION AND AREA OF CONCERN MAP

Project No.	170601702
Date	6/26/2024
Scale	1"=50'
Drawn By	MG
Figure No.	8

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LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EXCAVATION TO 1 FOOT BGS
- APPROXIMATE EXCAVATION TO 3 TO 6 FEET BGS
- APPROXIMATE EXCAVATION TO 3 TO 5 FEET BGS
- APPROXIMATE EXCAVATION TO 6 TO 9 FEET BGS
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. BGS - BELOW GRADE SURFACE

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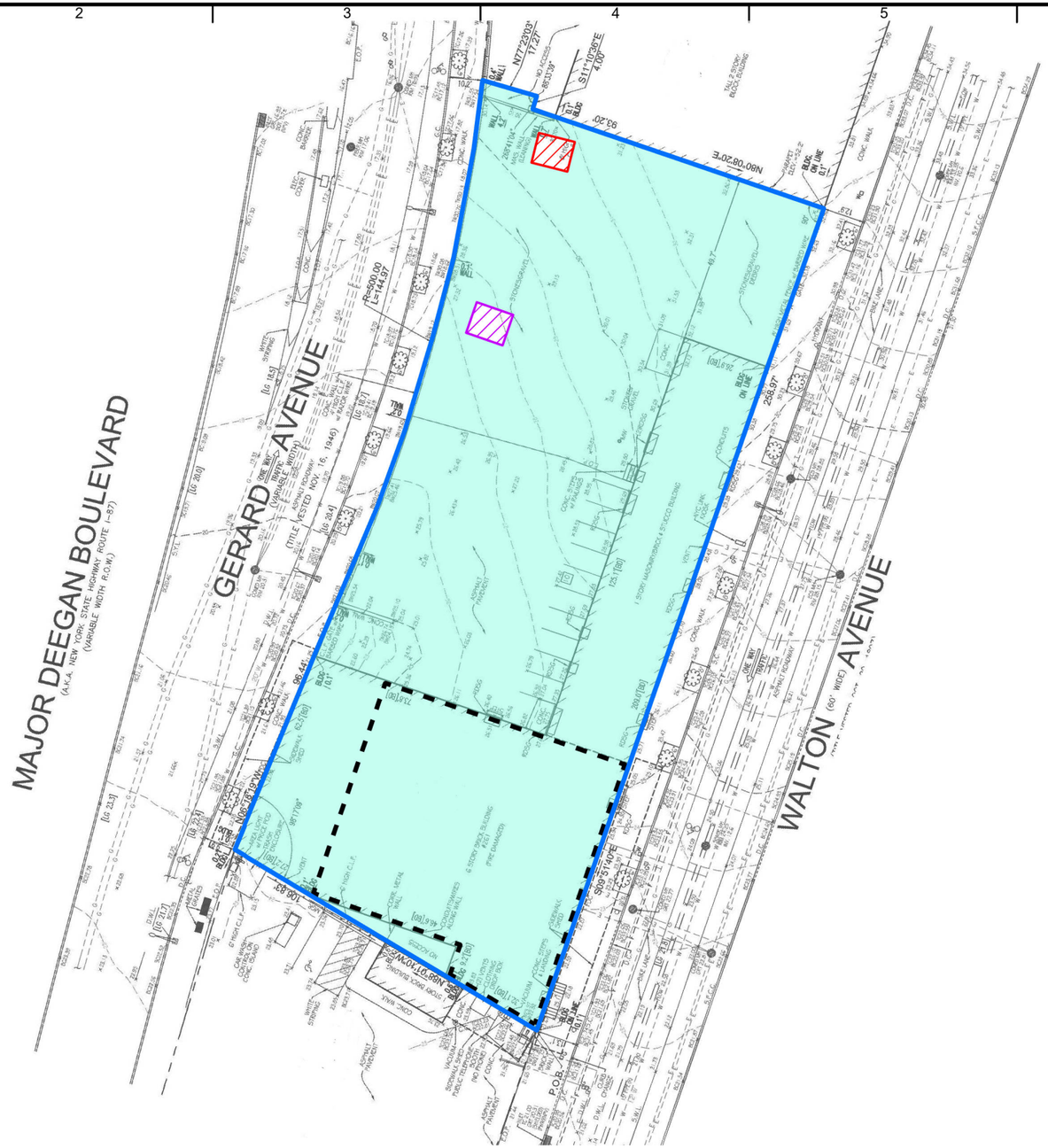
Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
ALTERNATIVE I - TRACK 1 CLEANUP PLAN

Project No.	Figure No.
170601702	9
Date: 6/26/2024	
Scale: 1"=40'	
Drawn By: MG	

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LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EXCAVATION TO 2 FEET BGS
- APPROXIMATE HOT SPOT EXCAVATION TO 4 FEET BGS
- APPROXIMATE HOT SPOT EXCAVATION TO 5 FEET BGS
- APPROXIMATE FORMER CELLAR EXTENTS (ABOUT 12 FEET BELOW GRADE SURFACE)

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. BGS - BELOW GRADE SURFACE

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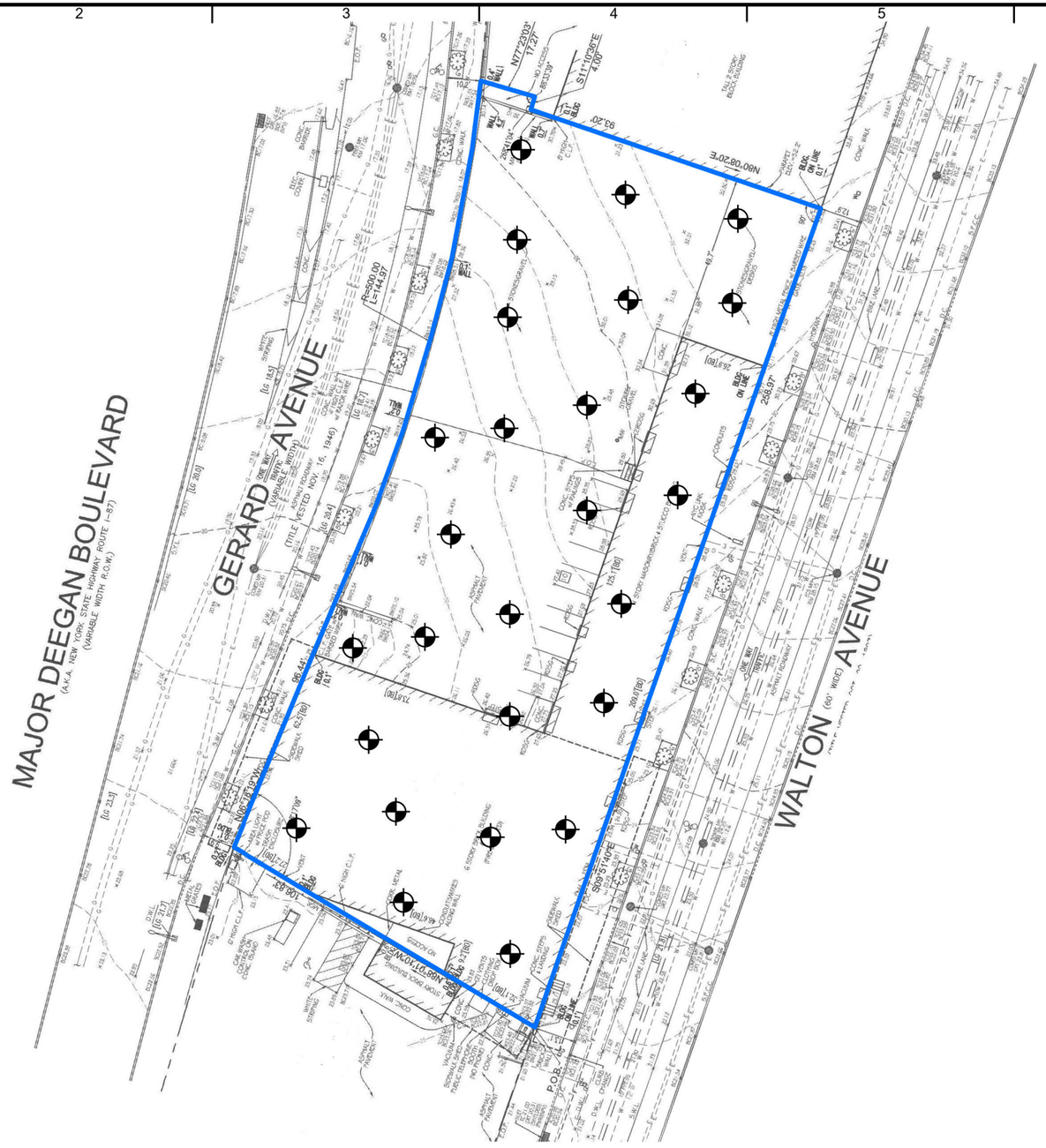
Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
ALTERNATIVE II - TRACK 4 CLEANUP PLAN

Project No.	Figure No.
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Date: 6/26/2024	
Scale: 1"=40'	
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LEGEND

- APPROXIMATE CONFIRMATION SAMPLE LOCATION
- APPROXIMATE SITE BOUNDARY

NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.

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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

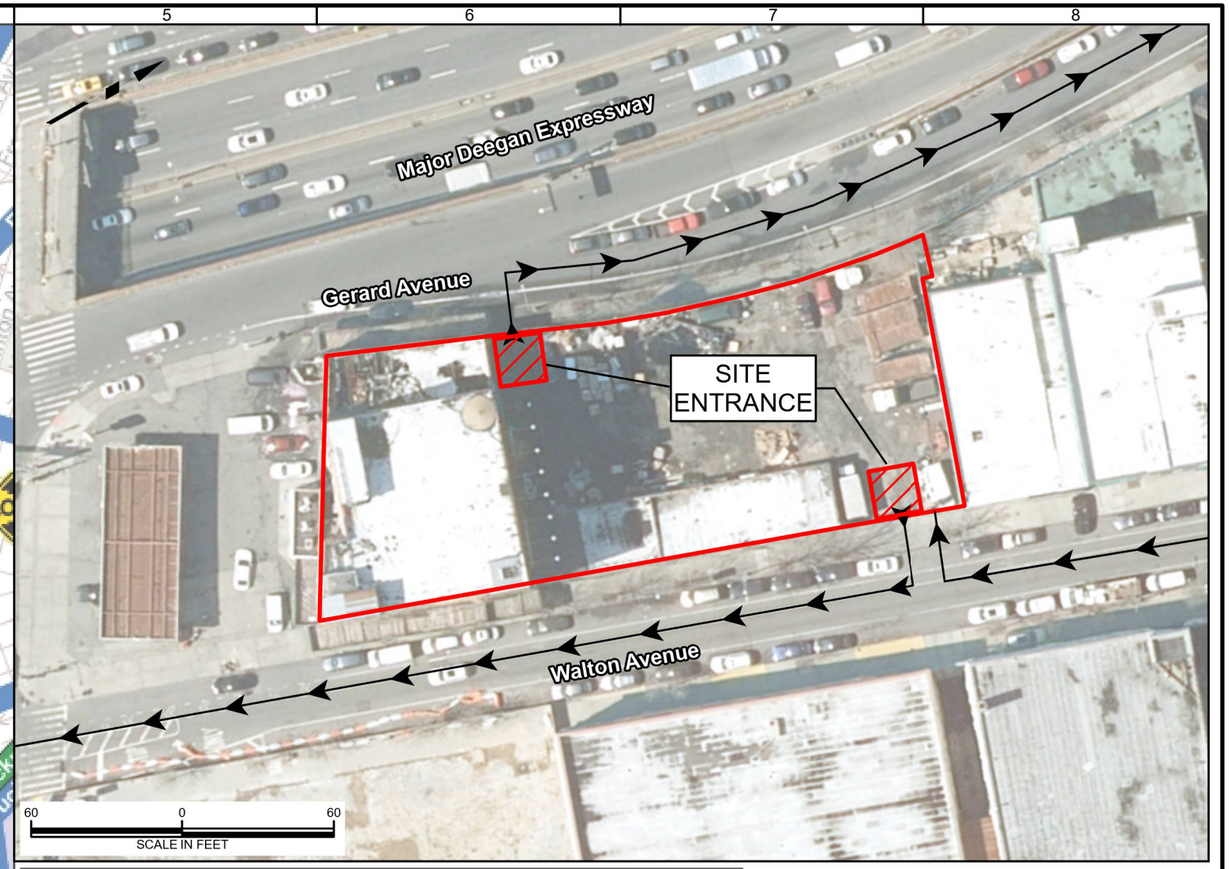
Figure Title
PROPOSED CONFIRMATION AND DOCUMENTATION SAMPLE LOCATION PLAN

Project No.	Figure No.
170601702	11
Date: 6/17/2024	
Scale: 1"=40'	
Drawn By: MG	

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Path: \\langan.com\data\NY\data7\170601701\Project Data\ArcGIS\APRX\170601701\170601701.aprx Date: 6/17/2024 User: Gsajbel Time: 11:49 AM





Legend

Truck Routes

- **Local Truck Route**
  Trucks with an origin or destination for the purpose of delivery, loading or servicing within the respective Borough, shall only operate on designated local routes, except that an operator may operate on a non-designated street for the purpose of arriving at their destination. This shall be accomplished by leaving a designated truck route at the intersection that is nearest to their destination, proceeding by the most direct route, and then returning to the nearest designated truck route by the most direct route. If the operator has additional destinations in the same general area, they may proceed by the most direct route to their next destination without returning to a designated truck route, provided that the operator's next destination does not require that they cross a designated truck route.
- **Through Truck Route**
  Trucks having neither an origin nor a destination within the respective Borough shall restrict the operation of such vehicles to those street segments designated as Through Truck Routes.
- **Through Truck Route on Expressway**
- **53 FT Trailer Exception**
- **Connecting Road Outside NYC**

Restricted Routes

- **No Commercial Vehicles**

Hazards

- Alert: see additional information
- Low Vertical Clearance (14 feet and under)

Navigation / Landmarks

- Highway Exit
- Major Highway
- Industrial Business Zone
- Parks and Open Spaces
- Limited Truck Zone

LEGEND

- APPROXIMATE SITE BOUNDARY
- TRUCK ROUTE TO AND FROM SITE

NOTES:
1. BASEMAP TAKEN FROM THE 2022 NEW YORK CITY DEPARTMENT OF TRANSPORTATION "NEW YORK CITY TRUCK ROUTE MAP."
2. SITE ENTRANCE LOCATION MAY CHANGE BASED ON CONSTRUCTION LOGISTICS.
3. WORLD AERIAL IMAGERY BASEMAP IS PROVIDED THROUGH LANGAN'S ESRI ARCGIS SOFTWARE LICENSING AND ARCGIS ONLINE.

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
TRUCK ROUTE MAP

Project No.	170601702
Date	6/17/2024
Scale	1"=2,000'
Drawn By	MG
Figure No.	12

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TABLES

Table 1
Remedial Action Work Plan
Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs)

261 Walton Avenue
Bronx, New York
NYSDEC BCP Site No.: C203135
Langan Project No.: 170601701

VOCs (mg/kg)	UU SCO
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethylene	0.33
1,2,4-Trimethylbenzene	3.6
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,3,5-Trimethylbenzene	8.4
1,3-Dichlorobenzene	2.4
1,4-Dichlorobenzene	1.8
1,4-Dioxane	0.1
2-Butanone	0.12
Acetone	0.05
Benzene	0.06
Carbon tetrachloride	0.76
Chlorobenzene	1.1
Chloroform	0.37
cis-1,2-Dichloroethylene	0.25
Ethyl Benzene	1
Methyl tert-butyl ether (MTBE)	0.93
Methylene chloride	0.05
n-Butylbenzene	12
n-Propylbenzene	3.9
sec-Butylbenzene	11
tert-Butylbenzene	5.9
Tetrachloroethylene	1.3
Toluene	0.7
trans-1,2-Dichloroethylene	0.19
Trichloroethylene	0.47
Vinyl Chloride	0.02
Xylenes, Total	0.26

Metals (mg/kg)	UU SCO
Arsenic	13
Barium	350
Beryllium	7.2
Cadmium	2.5
Chromium, hexavalent	1
Chromium, trivalent	30
Copper	50
Cyanide	27
Lead	63
Manganese	1,600
Mercury	0.18
Nickel	30
Selenium	3.9
Silver	2
Zinc	109

SVOCs (mg/kg)	UU SCO
Acenaphthene	20
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(g,h,i)perylene	100
Benzo(k)fluoranthene	0.8
Chrysene	1
Dibenzo(a,h)anthracene	0.33
Fluoranthene	100
Fluorene	30
Indeno(1,2,3-cd)pyrene	0.5
m-Cresol	0.33
Naphthalene	12
o-Cresol	0.33
p-Cresol	0.33
Pentachlorophenol	0.8
Phenanthrene	100
Phenol	0.33
Pyrene	100

PCBs/Pesticides (mg/kg)	UU SCO
2,4,5-TP Acid (Silvex)	3.8
4,4'-DDE	0.0033
4,4'-DDT	0.0033
4,4'-DDD	0.0033
Aldrin	0.005
alpha-BHC	0.02
beta-BHC	0.036
Chlordane (alpha)	0.094
delta-BHC	0.04
Dibenzofuran	7
Dieldrin	0.005
Endosulfan I	2.4
Endosulfan II	2.4
Endosulfan sulfate	2.4
Endrin	0.014
Heptachlor	0.042
Lindane	0.1
Polychlorinated biphenyls	0.1

Table 1
Remedial Action Work Plan
Track 1 Unrestricted Use Soil Cleanup Objectives (SCOs)

261 Walton Avenue
Bronx, New York
NYSDEC BCP Site No.: C203135
Langan Project No.: 170601701

Perfluorooctanoic acids (mg/kg)		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	763051-92-9	NS
1h,1h,2h,2h-Perfluorohexanesulfonic Acid (4:2)	757124-72-4	NS
3:3 FTCA	356-02-5	NS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	NS
5:3 FTCA	914637-49-3	NS
7:3 FTCA	812-70-4	NS
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid	756426-58-1	NS
N-ethyl perfluorooctane- sulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS
N-ethylperfluorooctane sulfonamide	4151-50-2	NS
N-ethylperfluorooctane sulfonamidoe	1691-99-2	NS
N-methyl perfluorooctane- sulfonamidoacetic Acid (NMeFOSAA)	2355-31-9	NS
N-methylperfluorooctane sulfonamide	31506-32-8	NS
N-methylperfluorooctanesulfonamidol	24448-09-7	NS
Nonafluoro-3,6-dioxaheptanoic acid	151772-58-6	NS
Perfluoro(2-ethoxyethane)sulfonic acid	113507-82-7	NS
Perfluoro-3-methoxypropanoic acid	377-73-1	NS
Perfluoro-4-methoxybutanoic acid	863090-89-5	NS
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS
Perfluorobutanoic acid (PFBA)	375-22-4	NS
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS
Perfluorodecanoic Acid (PFDA)	335-76-2	NS
Perfluorododecanesulfonic Acid (PFDOS)	79780-39-5	NS
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS
Perfluorononanoic Acid (PFNA)	375-95-1	NS
Perfluorooctanesulfonamide (FOSA)	754-91-6	NS
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.00066
Perfluorooctanoic Acid (PFOA)	335-67-1	0.00088
Perfluoropentanesulfonic Acid	2706-91-4	NS
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NS
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS
Sodium 1H,1H,2H,2H-Perfluorodecane Sulfonate (8:2) (8:2FTS)	39108-34-4	NS
Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2) (6:2FTS)	27619-97-2	NS
Tetrafluoro-2- (heptafluoropropoxy) propanoic Acid	13252-13-6	NS

Notes:
1. The above criteria are the Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (UU SCO) (i.e., the Track 1 soil cleanup objectives) and the New York State Department of Environmental Conservation (NYSDEC) Part 375 Remedial Programs Guidelines for Sampling and Analysis of Per- and Polyfluoroalkyl Substances (PFAS) Unrestricted Use, Restricted Use Restricted-Residential, and Protection of Groundwater Guidance Values (April 2023).
2. SVOC: semivolatile organic compound
3. VOC: volatile organic compound
4. PCBs: polychlorinated biphenyls
5. mg/kg: milligram per kilogram

Table 2
Remedial Action Work Plan
Track 4 Restricted Use Restricted Residential Soil Cleanup Objectives (SCOs)

261 Walton Avenue
Bronx, New York
NYSDEC BCP Site No.: C203135
Langan Project No.: 170601701

Analyte	CAS Number	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs
Volatile Organic Compounds (mg/kg)		
1,1,1-Trichloroethane	71-55-6	100
1,1-Dichloroethane	75-34-3	26
1,1-Dichloroethene	75-35-4	100
1,2,4-Trimethylbenzene	95-63-6	52
1,2-Dichlorobenzene	95-50-1	100
1,2-Dichloroethane	107-06-2	3.1
1,3,5-Trimethylbenzene (Mesitylene)	108-67-8	52
1,3-Dichlorobenzene	541-73-1	49
1,4-Dichlorobenzene	106-46-7	13
1,4-Dioxane (P-Dioxane)	123-91-1	13
Acetone	67-64-1	100
Benzene	71-43-2	4.8
Carbon Tetrachloride	56-23-5	2.4
Chlorobenzene	108-90-7	100
Chloroform	67-66-3	49
Cis-1,2-Dichloroethene	156-59-2	100
Ethylbenzene	100-41-4	41
M,P-Xylene	179601-23-1	NS
Methyl Ethyl Ketone (2-Butanone)	78-93-3	100
Methylene Chloride	75-09-2	100
Naphthalene	91-20-3	100
n-Butylbenzene	104-51-8	100
n-Propylbenzene	103-65-1	100
o-Xylene (1,2-Dimethylbenzene)	95-47-6	NS
Sec-Butylbenzene	135-98-8	100
T-Butylbenzene	98-06-6	100
Tert-Butyl Methyl Ether	1634-04-4	100
Tetrachloroethene (PCE)	127-18-4	19
Toluene	108-88-3	100
Total Xylenes	1330-20-7	100
Trans-1,2-Dichloroethene	156-60-5	100
Trichloroethene (TCE)	79-01-6	21
Vinyl Chloride	75-01-4	0.9
Semi-Volatile Organic Compounds (mg/kg)		
1,4-Dioxane (P-Dioxane)	123-91-1	13
2-Methylphenol (o-Cresol)	95-48-7	100
3 & 4 Methylphenol (m&p Cresol)	65794-96-9	100
Acenaphthene	83-32-9	100
Acenaphthylene	208-96-8	100
Anthracene	120-12-7	100
Benzo(a)anthracene	56-55-3	1
Benzo(a)pyrene	50-32-8	1
Benzo(b)fluoranthene	205-99-2	1
Benzo(g,h,i)Perylene	191-24-2	100
Benzo(k)fluoranthene	207-08-9	3.9
Chrysene	218-01-9	3.9
Dibenz(a,h)anthracene	53-70-3	0.33
Dibenzofuran	132-64-9	59
Fluoranthene	206-44-0	100
Fluorene	86-73-7	100
Hexachlorobenzene	118-74-1	1.2
Indeno(1,2,3-cd)pyrene	193-39-5	0.5
Naphthalene	91-20-3	100
Pentachlorophenol	87-86-5	6.7
Phenanthrene	85-01-8	100
Phenol	108-95-2	100
Pyrene	129-00-0	100

Table 2
Remedial Action Work Plan
Track 4 Restricted Use Restricted Residential Soil Cleanup Objectives (SCOs)

261 Walton Avenue
Bronx, New York
NYSDEC BCP Site No.: C203135
Langan Project No.: 170601701

Pesticides (mg/kg)		
4,4'-DDD	72-54-8	13
4,4'-DDE	72-55-9	8.9
4,4'-DDT	50-29-3	7.9
Aldrin	309-00-2	0.097
Alpha BHC (Alpha Hexachlorocyclohexane)	319-84-6	0.48
Alpha Chlordane	5103-71-9	4.2
Alpha Endosulfan	959-98-8	24
Beta Bhc (Beta Hexachlorocyclohexane)	319-85-7	0.36
Beta Endosulfan	33213-65-9	24
Delta Bhc (Delta Hexachlorocyclohexane)	319-86-8	100
Dieldrin	60-57-1	0.2
Endosulfan Sulfate	1031-07-8	24
Endrin	72-20-8	11
Gamma Bhc (Lindane)	58-89-9	1.3
Heptachlor	76-44-8	2.1
Herbicides (mg/kg)		
Silvex (2,4,5-Tp)	93-72-1	100
Polychlorinated Biphenyl		
PCB-1016 (Aroclor 1016)	12674-11-2	NS
PCB-1221 (Aroclor 1221)	11104-28-2	NS
PCB-1232 (Aroclor 1232)	11141-16-5	NS
PCB-1242 (Aroclor 1242)	53469-21-9	NS
PCB-1248 (Aroclor 1248)	12672-29-6	NS
PCB-1254 (Aroclor 1254)	11097-69-1	NS
PCB-1260 (Aroclor 1260)	11096-82-5	NS
Total PCBs	1336-36-3	1
Metals (mg/kg)		
Arsenic	7440-38-2	16
Barium	7440-39-3	400
Beryllium	7440-41-7	72
Cadmium	7440-43-9	4.3
Chromium, Hexavalent	18540-29-9	110
Chromium, Total	7440-47-3	NS
Chromium, Trivalent	16065-83-1	180
Copper	7440-50-8	270
Cyanide	57-12-5	27
Lead	7439-92-1	400
Manganese	7439-96-5	2000
Mercury	7439-97-6	0.81
Nickel	7440-02-0	310
Selenium	7782-49-2	180
Silver	7440-22-4	180
Zinc	7440-66-6	10000
General Chemistry		
Cyanide (mg/kg)	57-12-5	27
Solids, Percent (%)	SOLID	NS

Table 2
Remedial Action Work Plan
Track 4 Restricted Use Restricted Residential Soil Cleanup Objectives (SCOs)

261 Walton Avenue
Bronx, New York
NYSDEC BCP Site No.: C203135
Langan Project No.: 170601701

Perfluorooctanoic acids (mg/kg)		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	763051-92-9	NS
1h,1h,2h,2h-Perfluorohexanesulfonic Acid (4:2)	757124-72-4	NS
3:3 FTCA	356-02-5	NS
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	919005-14-4	NS
5:3 FTCA	914637-49-3	NS
7:3 FTCA	812-70-4	NS
9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid	756426-58-1	NS
N-ethyl perfluorooctane- sulfonamidoacetic Acid (NEtFOSAA)	2991-50-6	NS
N-ethylperfluorooctane sulfonamide	4151-50-2	NS
N-ethylperfluorooctane sulfonamidoe	1691-99-2	NS
N-methyl perfluorooctane- sulfonamidoacetic Acid (NMeFOS/	2355-31-9	NS
N-methylperfluorooctane sulfonamide	31506-32-8	NS
N-methylperfluorooctanesulfonamidol	24448-09-7	NS
Nonafluoro-3,6-dioxaheptanoic acid	151772-58-6	NS
Perfluoro(2-ethoxyethane)sulfonic acid	113507-82-7	NS
Perfluoro-3-methoxypropanoic acid	377-73-1	NS
Perfluoro-4-methoxybutanoic acid	863090-89-5	NS
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	NS
Perfluorobutanoic acid (PFBA)	375-22-4	NS
Perfluorodecanesulfonic Acid (PFDS)	335-77-3	NS
Perfluorodecanoic Acid (PFDA)	335-76-2	NS
Perfluorododecanesulfonic Acid (PFDOS)	79780-39-5	NS
Perfluorododecanoic Acid (PFDoA)	307-55-1	NS
Perfluoroheptanesulfonic Acid (PFHpS)	375-92-8	NS
Perfluoroheptanoic acid (PFHpA)	375-85-9	NS
Perfluorohexanesulfonic Acid (PFHxS)	355-46-4	NS
Perfluorohexanoic Acid (PFHxA)	307-24-4	NS
Perfluorononanesulfonic Acid (PFNS)	68259-12-1	NS
Perfluorononanoic Acid (PFNA)	375-95-1	NS
Perfluorooctanesulfonamide (FOSA)	754-91-6	NS
Perfluorooctanesulfonic Acid (PFOS)	1763-23-1	0.044
Perfluorooctanoic Acid (PFOA)	335-67-1	0.033
Perfluoropentanesulfonic Acid	2706-91-4	NS
Perfluoropentanoic Acid (PFPeA)	2706-90-3	NS
Perfluorotetradecanoic Acid (PFTA)	376-06-7	NS
Perfluorotridecanoic Acid (PFTrDA)	72629-94-8	NS
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	NS
Sodium 1H,1H,2H,2H-Perfluorodecane Sulfonate (8:2) (8:2FTS	39108-34-4	NS
Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2) (6:2FTS	27619-97-2	NS
Tetrafluoro-2- (heptafluoropropoxy) propanoic Acid	13252-13-6	NS

Notes:

1. The above criteria are the Title 6 of the New York Codes, Rules and Regulations (6 NYCRR) Part 375 Restricted Use Restricted-Residential Soil Cleanup Objectives (RRU SCO) (i.e., the Track 4 soil cleanup objectives) and the New York State Department of Environmental Conservation (NYSDEC) Part 375 Remedial Programs Guidelines for Sampling and Analysis of Per- and Polyfluoroalkyl Substances (PFAS) Restricted Use Restricted-Residential Guidance Values (April 2023).

2. mg/kg: milligram per kilogram
3. NS: No Standard

Table 3
Remedial Action Work Plan
Alternative I Remedial Cost Estimate (Track 1)

261 Walton Avenue
Bronx, NY
BCP Site No.: C203135
Langan Project No.: 170601701

Item No.	Description of Environmental Item	Quantity		Unit Price		Estimated Cost
REMEDIAL ACTION CONTRACTOR FEES						
1	Remediation Facilities, Equipment, Mobilization, Demobilization, Permits, and Site Maintenance- Remediation and decontamination facilities include trailer, truck cleaning facilities, etc.	--		Allowance		$70,000
2	Demolition - Demolition and removal of existing buildings and concrete surface cover	--		Allowance		$50,000
3	Excavation and On-site Handling of Fill Material and Soil - Excavation of fill and soil material containing concentrations exceeding Unrestricted Use Soil Cleanup Objectives	3,835	CY	$25	per CY	$100,000
4	Transport and Disposal of Historic Fill Material - Transport vehicles and disposal of fill and soil exceeding Unrestricted Use Soil Cleanup Objectives at a permitted facility	5,725	Tons	$45	per Ton	$260,000
5	Transport and Disposal of Metals-Impacted Soil - Transport vehicles and disposal of hazardous lead impacted material at a permitted facility	28	Tons	$250	per Ton	$7,000
6	Backfill - Import and placement of clean fill material to bring site to development grade. An additional 15% of material is included to account for compaction.	87	CY	$40	CY	$4,000
7	Dust, Odor and Vapor Control - Includes odor, dust, and organic vapor control during remediation of the site. Assumes control measures will include, but not be limited to application of odor suppressant, foam or water.	10	Months	$20,000	per Month	$200,000
8	Excavation Support - Support of excavation (SOE) installation along the perimeter of the site and remedial excavation	4,478	SF	$85	SF	$390,000
9	Dewatering - DEP Permit, operating engineer, treatment equipment mobilization, installation, demobilization, and disposal	--		Allowance		$1,050,000
					ESTIMATED CONTRACTOR FEES SUBTOTAL	**$1,081,000**
ENGINEERING FEES						
1	Confirmation Sampling - To confirm contaminated soil is removed (assumes analysis for VOCs, SVOCs, PCBs, pesticides, metals, 1,4-dioxane and PFAS for each sample), plus QC/QC samples.	31	Samples	$1,331	per Sample	$50,000
2	Community Air Monitoring - This cost includes equipment rental fees associated with implementation of CAMP, which will be performed during excavation, backfill, and concrete slab restoration.	10	Months	$3,000	per Month	$30,000
3	Agency Coordination - Coordination with NYSDEC as required	--		Allowance		$20,000
4	BCP Engineering Services - Work Plans, Remedial Investigation, Remedial Design, Remedial Oversight, Closure Reporting	--		Allowance		$400,000
					ENGINEERING FEES SUBTOTAL	**$500,000**
					Remediation Contingency (10% of Contractor Fee Subtotal)	**$109,000**
					Total Estimated Cost	**$1,690,000**
					ESTIMATED REMEDIATION COST - ALTERNATIVE I	**$1.7 MM**

General Assumptions and Conditions:

1. Excavation depths were calculated using Remedial Investigation (RI) soil sample results, field observations, and observed fill depths.

2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Utilizing this cost estimate information beyond the stated purpose is not recommended. Langan is not licensed to provide financial or legal consulting services; as such, this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.

3. A 10 month period is assumed for remediation and soil handling.

4. VOC = volatile organic compound; SVOC = semivolatile organic compound; PCBs = polychlorinated biphenyls; PFAS = per-and polyfluoroalkyl substances

Contractor Cost Assumptions:

RAWP Item No.3 - Labor provided by excavation, handling, and disposal contractor provided above; this line item estimate reflects material, freight, and equipment costs.

RAWP Item No. 6 - The quantity incidental backfilling required for installation of SOE, etc.Backfill placement and compaction assumes soil handling and management costs for the New York City area. Backfill assumes that the site will have to be structurally backfilled to development depth with material that contains no concentrations of contaminants above Track 1 Unrestricted Use Soil Cleanup Objectives (6NYCRR-Part 375-6.8(a)) within the slab-on-grade part of the development. The quantity of soil has been increased by 15% to account for compaction.

Engineering Cost Assumptions:

Engineering Item No. 1 - The cost assumes collection of 31 samples plus quality assurance/quality control samples for analysis of Part 375 parameters. Costs include subcontracted laboratory analysis by a NYSDOH ELAP-certified laboratory.

Engineering Item No. 2 - The assumed duration of the community air monitoring program (CAMP) is 10 months during remediation. CAMP costs include full-time equipment rental to facilitate perimeter dust and VOC monitoring.

Table 4
Remedial Action Work Plan
Alternative II Remedial Cost Estimate (Track 4)

261 Walton Avenue
Bronx, NY
BCP Site No.: C203135
Langan Project No.: 170601701

Item No.	Description of Environmental Item	Quantity		Unit Price		Estimated Cost
REMEDIAL ACTION CONTRACTOR FEES						
1	Remediation Facilities, Equipment, Mobilization, Demobilization, Permits, and Site Maintenance- Remediation and decontamination facilities include trailer, truck cleaning facilities, etc.	--		Allowance		$70,000
2	Demolition - Demolition and removal of existing buildings and concrete surface cover	--		Allowance		$50,000
3	Excavation and On-site Handling of Fill Material and Soil- Excavation of fill and soil material containing concentrations exceeding Restricted Use-Retstricted Residential Soil Cleanup Objectives	1,875	CY	$25	per CY	$50,000
4	Transport and Disposal of Historic Fill Material - Transport vehicles and disposal of fill and soil exceeding Unrestricted Use Soil Cleanup Objectives at a permitted facility	2,785	Tons	$45	per Ton	$130,000
6	Transport and Disposal of Metals-Impacted Soil - Transport vehicles and disposal of metals-impacted material at a permitted facility	28	Tons	$250	per Ton	$10,000
7	Backfill - Import and placement of clean fill material to bring site to development grade. An additional 15% of material is included to account for compaction.	23	CY	$40	CY	$1,000
8	Dust, Odor and Vapor Control - Includes odor, dust, and organic vapor control during remediation of the site. Assumes control measures will include, but not be limited to application of odor suppressant, foam or water.	6	Months	10,000	per Month	$40,000
9	Excavation Support - Support of excavation (SOE) installation along the perimeter of the site	2,250	SF	$100	SF	$230,000
10	Dewatering - DEP Permit, operating engineer, treatment equipment mobilization, installation, demobilization, and disposal	--		Allowance		$660,000
					ESTIMATED CONTRACTOR FEES SUBTOTAL	**$581,000**
ENGINEERING FEES						
1	Confirmation and Documentation Sampling- To document soil conditions at the base of the excavation (assumes analysis for VOCs, SVOCs, PCBs, pesticides, metals, 1,4-dioxane and PFAS for each sample), plus QC/QC samples.	31	Samples	$1,331	per Sample	$50,000
2	Endpoint Sampling - To confirm contaminated soil is removed (assumes analysis for Total and TCLP Metals for each sample)	10	Samples	$247	per Sample	$2,473
3	Community Air Monitoring - This cost includes equipment rental fees associated with implementation of CAMP, which will be performed during excavation, backfill, and concrete slab restoration.	6	Months	$3,000	per Month	$18,000
5	Agency Coordination - Coordination with NYSDEC as required	--		Allowance		$20,000
6	BCP Engineering Services - Work Plans, Remedial Investigation, Remedial Design, Remedial Oversight, Closure Reporting	--		Allowance		$350,000
					ENGINEERING FEES SUBTOTAL	**$441,000**
					Remediation Contingency (10% of Contractor Fee Subtotal)	**$59,000**
					Total Estimated Cost	**$1,081,000**
					ESTIMATED REMEDIATION COST - ALTERNATIVE II	**$1.1 MM**

General Assumptions and Conditions:

1. Excavation depths were calculated using Remedial Investigation (RI) soil sample results, field observations, and observed fill depths.
2. This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Utilizing this cost estimate information beyond the stated purpose is not recommended. Langan is not licensed to provide financial or legal consulting services; as such, this cost estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.
3. A 6 month period is assumed for remediation and soil handling.
4. VOC = volatile organic compound; SVOC = semivolatile organic compound; PCBs = polychlorinated biphenyls; PFAS = per-and polyfluoroalkyl substances

Contractor Cost Assumptions:

RAWP Item No.3 - Labor provided by excavation, handling, and disposal contractor provided above; this line item estimate reflects material, freight, and equipment costs.

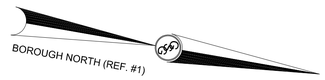
RAWP Item No. 6 - The quantity assumes removal of two delineated hazardous-lead hotspots observed during the 2022/2023 RI. Backfill placement and compaction assumes soil handling and management costs for the New York City area. Backfill assumes that the site will have to be structurally backfilled to sub-grade with material that contains no concentrations of contaminants above Track 4 Restricted Use-Restricted Residential Soil Cleanup Objectives (6NYCRR-Part 375-6.8(a)) within the slab-on-grade part of the development. The quantity of soil has been increased by 15% to account for compaction.

Engineering Cost Assumptions:

Engineering Item No. 1 - The cost assumes collection of 23 samples plus quality assurance/quality control samples for analysis of Part 375 parameters and collection of 8 endpoint samples. Costs include subcontracted laboratory analysis by a NYSDOH ELAP-certified laboratory.

Engineering Item No. 3 - The assumed duration of the community air monitoring program (CAMP) is 6 months during remediation. CAMP costs include full-time equipment rental to facilitate perimeter dust and VOC monitoring.

APPENDIX A
Site Survey



NOTES:

1. PROPERTY KNOWN AND DESIGNATED AS LOT 60, BLOCK 2344 AS SHOWN ON THE NEW YORK CITY DIGITAL TAX MAP WITH AN EFFECTIVE DATE OF 11-30-2015.
2. AREA = 25,182 S.F. OR 0.5781 AC.
3. LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. LOCATIONS AND SIZES ARE BASED ON PRIOR UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. AVAILABLE ASBUILT PLANS AND UTILITY MARKOUT DOES NOT ENSURE MAPPING OF ALL UNDERGROUND UTILITIES AND STRUCTURES. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE AND TYPE BY THE PROPER UTILITY COMPANIES.
4. **THIS SURVEY WAS PREPARED WITH BENEFIT OF A TITLE COMMITMENT REPORT PREPARED BY BELL ROW TITLE AGENCY AS AGENT FOR STEWART TITLE INSURANCE COMPANY, TITLE NO. 200123, HAVING AN EFFECTIVE DATE OF 03-14-2022, WHERE THE FOLLOWING SURVEY RELATED ITEMS APPEAR IN SCHEDULE B:**
   - (5) COVENANTS AND RESTRICTIONS CONTAINED IN DEED MADE BY MURRAY OSTRAGER AND SEYMOUR OSTRAGER TO JOHN CAMERON, INC., DATED 6/10/1960 AND RECORDED 6/14/1960 IN LIBER 2390 OF DEEDS, PAGE 356. **- BLANKET, NOTHING TO PLOT.**
   - (6) COVENANTS AND RESTRICTIONS CONTAINED IN DEED MADE BY JOHN CAMERON, INC, TO FIRST RAPIDS FURNITURE CO., INC., DATED 1/31/1966 AND RECORDED 4/5/1966 IN RECORD LIBER 48 PAGE 94. **- BLANKET, NOTHING TO PLOT.**
5. BY GRAPHIC PLOTTING, PROPERTY IS LOCATED IN FLOOD HAZARD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP NO. 3604970083F, EFFECTIVE DATE: 09-05-2007, OBTAINED FROM FEMA NFHL WEB SERVICE ON 06-21-2022.

   BE ADVISED THAT FEMA HAS POSTED A PRELIMINARY MAP FOR THIS AREA AND SHOWS THE PROPERTY LOCATED IN FLOOD HAZARD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) MAP NUMBER 3604970083G, DATED: 12-05-2013.
6. THERE WERE NO VISIBLE STREAMS OR NATURAL WATERCOURSES IN THE PROPERTY.
7. THE LOCATION AND EXTENTS OF UNDERGROUND VAULTS & TANKS, IF ANY EXIST, HAVE NOT BEEN DETERMINED BY THE SURVEYOR.
8. CONSOLIDATED EDISON OF N.Y. REFUSED TO PROVIDE CURRENT GAS & ELECTRIC MAPPING.
9. LOT 60, BLOCK 2344 CONTAINS 10 STRIPED PARKING SPACES, OF WHICH 0 ARE MARKED FOR ACCESSIBLE PARKING.
10. THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.
11. THERE WAS NO EVIDENCE OF A FIELD DELINEATION OF WETLANDS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.
12. THERE ARE NO PARTY WALLS WITHIN LOT 60, BLOCK 2344.

SCHEDULE A TITLE REPORT DESCRIPTION:

ALL THAT CERTAIN PLOT, PIECE OR PARCEL OF LAND, SITUATE, LYING AND BEING IN THE BOROUGH AND COUNTY OF THE BRONX, CITY AND STATE OF NEW YORK, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE WESTERLY SIDE OF WALTON AVENUE, DISTANT 102.17 FEET NORTHERLY FROM THE NORTHERLY SIDE OF EAST 138TH STREET;

RUNNING THENCE IN THE NORTHWESTERLY DIRECTION ON A LINE PARALLEL WITH THE NORTHERLY SIDE OF EAST 138TH STREET, 106.83 FEET TO A POINT ON THE EASTERLY SIDE OF MAJOR DEEGAN BOULEVARD;

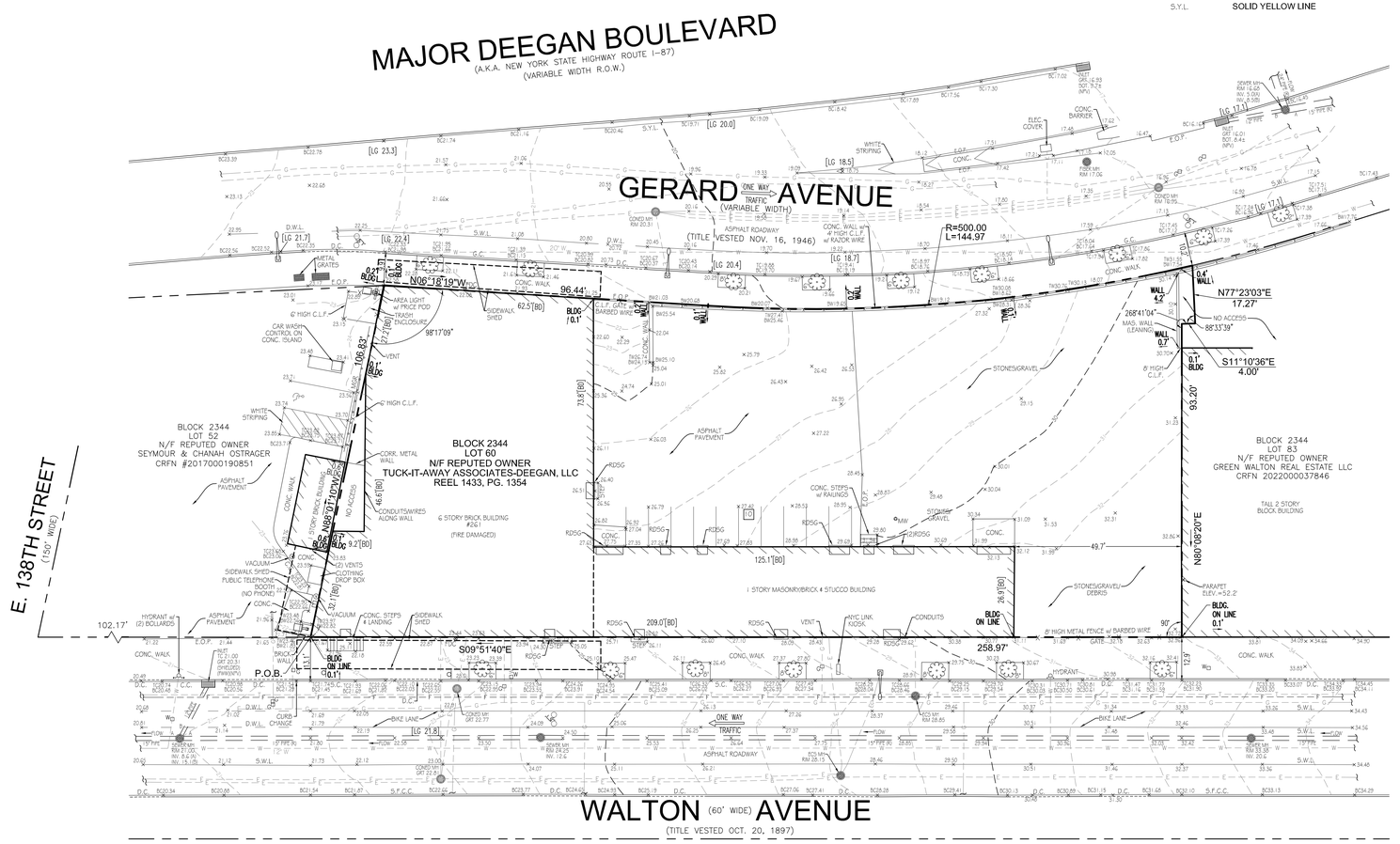
THENCE ALONG THE EASTERLY SIDE OF MAJOR DEEGAN BOULEVARD THE FOLLOWING COURSES AND DISTANCES IN A NORTHEASTERLY DIRECTION ON A LINE FORMING AN INTERIOR ANGLE OF 98 DEGREES 17 MINUTES 09 SECONDS WITH THE LAST MENTIONED COURSE, 96.44 FEET TO A POINT OF CURVE IN A NORTHERLY DIRECTION ON A CURVE TO THE LEFT HAVING A RADIUS OF 500 FEET AND A LENGTH OF 144.97 FEET TO A POINT;

THENCE LEAVING THE EASTERLY SIDE OF MAJOR DEEGAN BOULEVARD AND RUNNING THE FOLLOWING COURSES AND DISTANCES ON A LINE IN A SOUTHEASTERLY DIRECTION, 17.27 FEET TO A POINT, IN A SOUTHWESTERLY DIRECTION ON A LINE FORMING AN INTERIOR ANGLE OF 88 DEGREES 33 MINUTES 39 SECONDS WITH THE LAST MENTIONED COURSE, 4.00 FEET TO A POINT, AND IN A SOUTHEASTERLY DIRECTION ON A LINE FORMING AN INTERIOR ANGLE OF 268 DEGREES 41 MINUTES 04 SECONDS WITH THE LAST MENTIONED COURSE, 93.20 FEET TO A POINT ON THE WESTERLY SIDE OF WALTON AVENUE;

THENCE ALONG THE WESTERLY SIDE OF WALTON AVENUE IN A SOUTHWESTERLY DIRECTION AND FORMING A RIGHT ANGLE WITH THE LAST MENTIONED COURSE, 258.97 FEET TO THE POINT OR PLACE OF BEGINNING.

REFERENCES:

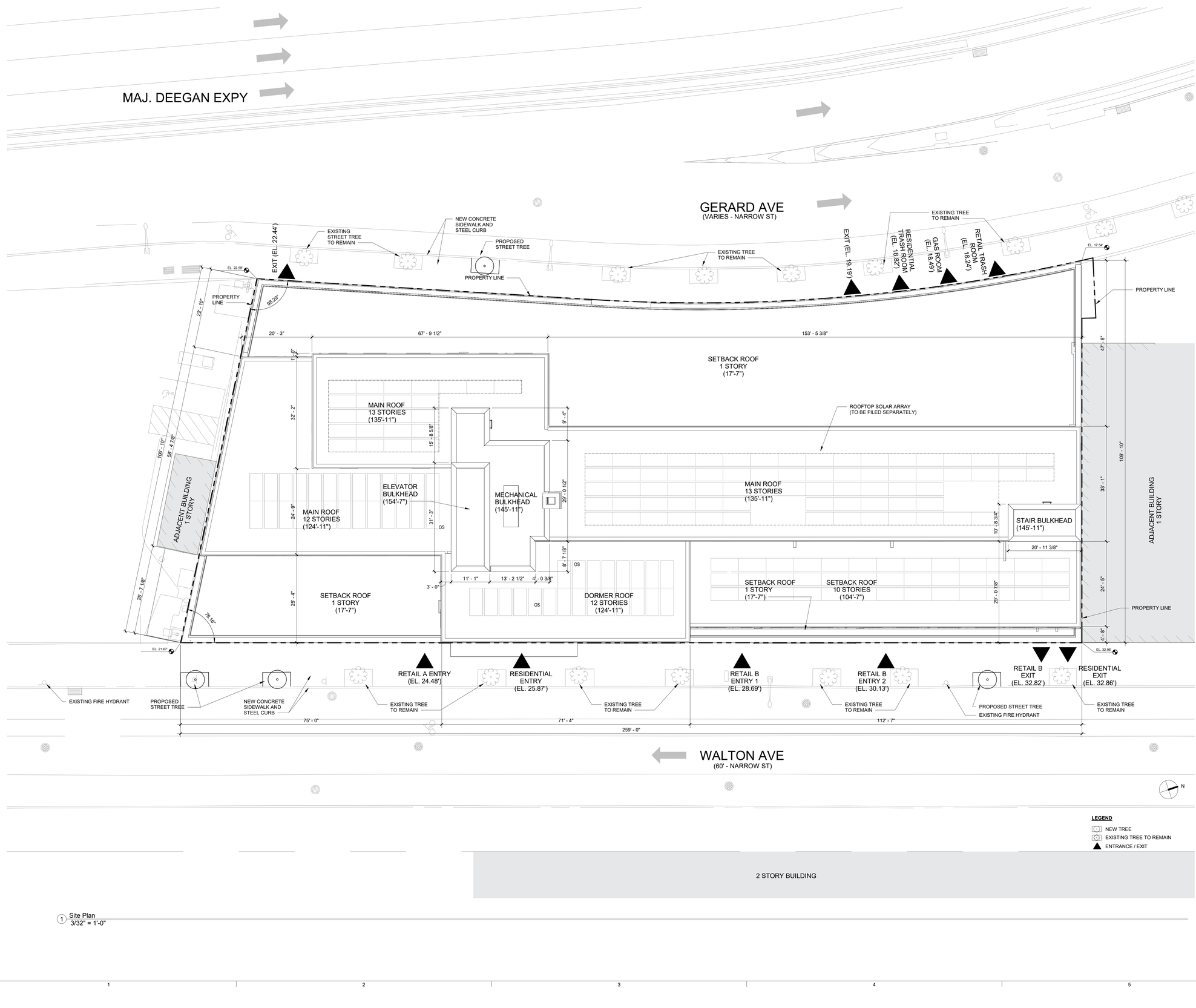
1. RECORD MAP SECTION 7 PROVIDED BY OFFICE OF THE PRESIDENT OF THE BOROUGH OF BRONX, TOPOGRAPHICAL BUREAU, LAST AMENDED 10/1/1998.
2. GRADE SECTION 7 AS AMENDED, PROVIDED BY OFFICE OF THE PRESIDENT OF THE BOROUGH OF BRONX, DATE OF LAST AMENDMENT DECEMBER 12, 1998.
3. ALTA/ACSM LAND TITLE SURVEY, STORAGE DELUXE, LOT 3, BLOCK 2349, SECTION 9, 255 EXTERIOR STREET AT 138th STREET, BOROUGH AND COUNTY OF BRONX, CITY AND STATE OF NEW YORK, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 08/03/04, LAST REVISED 05/17/05.
4. ALTA/ACSM LAND TITLE & TOPOGRAPHIC SURVEY, GASETERIA, 115 EAST 138th STREET, LOT 52, BLOCK 2344, SECTION 9, BOROUGH & COUNTY OF BRONX, CITY & STATE OF NEW YORK, PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED 11/27/2001, LAST REVISED 3/20/2002.
5. CITY OF NEW YORK FIRE DEPARTMENT, BUREAU OF FIRE ALARM TELEGRAPH, BOROUGH OF BRONX, SECTION #1, DATED MAY 1, 1924 & SECTION #3, REVISED 1/7/1985.
6. LOW TENSION MAINS AND SERVICE PLATE PROVIDED BY CONSOLIDATED EDISON CO. OF N.Y. - BRONX, PLATE NO. 8-A, LAST MODIFIED ON 07/28/2008.
7. GAS MAINS AND SERVICE PLATE PROVIDED BY CONSOLIDATED EDISON CO. OF N.Y. - BRONX, PLATE NO. 8-A, LAST MODIFIED ON 06/30/2004.
8. SEWER MAPPING PROVIDED BY NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WATER & SEWER OPERATIONS, MAP PRINT DATE 10/4/2017.
9. WATER MAPPING PROVIDED BY NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF WATER & SEWER OPERATIONS, MAP PRINTED 10/4/2017.
10. TELEPHONE MAPPING PROVIDED BY EMPIRE CITY SUBWAY, RECEIVED 10/5/2017.
11. BOUNDARY & TOPOGRAPHIC SURVEY, LOT 60, BLOCK 2344, 261 WALTON AVENUE, BOROUGH & COUNTY OF BRONX, CITY & STATE OF NEW YORK, PREPARED BY GALLAS SURVEYING GROUP, DATED 10/25/2017.


MAJOR DEEGAN BOULEVARD
(A.K.A. NEW YORK STATE HIGHWAY ROUTE I-87)
(VARIABLE WIDTH R.O.W.)
GERARD AVENUE
(VARIABLE WIDTH)
(TITLE VESTED NOV. 16, 1946)
ONE WAY TRAFFIC
ASPHALT ROADWAY
CONC. WALL w/ 4' HIGH C.L.F. w/ RAZOR WIRE
R=500.00
L=144.97
E. 138TH STREET
(150' WIDE)
WALTON (60' WIDE) AVENUE
(TITLE VESTED OCT. 20, 1897)
BLOCK 2344
LOT 52
N/F REPUTED OWNER
SEYMOUR & CHANAH OSTRAGER
CRFN #2017000190851
BLOCK 2344
LOT 60
N/F REPUTED OWNER
TUCK-IT-AWAY ASSOCIATES-DEEGAN, LLC
REEL 1433, PG. 1354
BLOCK 2344
LOT 83
N/F REPUTED OWNER
GREEN WALTON REAL ESTATE LLC
CRFN 2022000037846
TALL 2 STORY BLOCK BUILDING
1 STORY MASONRY/BRICK & STUCCO BUILDING
6 STORY BRICK BUILDING #26 (FIRE DAMAGED)
P.O.B.
N06°18'19"W
96.44'
98°17'09"
106.83'
N89°07'10"E
102.17'
S09°51'40"E
258.97'
N77°23'03"E
17.27'
88°33'39"
S11°10'36"E
4.00'
268°41'04"
93.20'
N80°08'20"E
125.1'[BD]
209.0'[BD]
73.8'[BD]
26.9'[BD]
49.7'
BLDG. ON LINE 0.1'
BLDG. ON LINE
HYDRANT w/ (2) BOLLARDS
ASPHALT PAVEMENT
CONC. WALK
STONES/GRAVEL
STONES/GRAVEL/ DEBRIS
PARAPET ELEV.=52.2'
6' HIGH METAL FENCE w/ BARBED WIRE
GATE
CONC. BARRIER
FENCE MH RIM 17.06'
ELEC. COVER
CONDO MH RIM 18.75'
SEWER MH RIM 16.65' INV. 5.00'N INV. 6.00'E
SEWER MH RIM 16.01' INV. 6.44'
CONDO MH RIM 20.31
CONDO MH RIM 26.85
SEWER MH RIM 24.25' INV. 12'E
SEWER MH RIM 20.31' INV. 20.6'
ECS MH RIM 28.13'
NYC LINK KIOSK
CONDUITS
VACUUM SIDEWALK SHED
PUBLIC TELEPHONE BOOTH (NO PHONE)
(2) VENTS
CLOTHING DROP BOX
SIDEWALK SHED
AREA LIGHT w/ PIGS POD
TRASH ENCLOSURE
CAR WASH CONTROL ON CONC. ISLAND
METAL GRATES
VENT
WHITE STRIPING
BIKE LANE
CURB CHANGE
CONC. STEPS w/ RAILINGS
CONC. STEPS 4 LANDING
CORR. METAL WALL
CONDUITS/WIRES ALONG WALL
NO ACCESS
ASPHALT PAVEMENT
BRICK WALL
BLDG. ON LINE 0.1'
D.W.L.
S.W.L.
C.L.F.
E.O.P.
E.O.F.
C.O.
F.D.C.
MW
MAG. WALL (LEANING)
WALL 4.2
WALL 0.7
WALL 0.4
WALL 0.1
BLDG 0.1'
BLDG 0.2'
BLDG 0.7'
BLDG 0.4'
LG 21.8
LG 21.7
LG 22.4
LG 23.3
LG 20.4
LG 18.5
LG 18.7
LG 20.0
LG 17.1
LG 17.1
LG 16.4
LG 17.1
LG 16.4
LG 16.4
LG 17.1
LG 16.4
LG 16.4
LG 17.1
LG 16.4

APPENDIX B
Proposed Development Plan

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1 Site Plan
3/32" = 1'-0"

261 Walton Ave

261 Walton Ave
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Nyack, NY 10960

Lighting Designer
Goldstick Lighting Design
629 Fifth Ave, Suite 204
Pelham, NY 10803

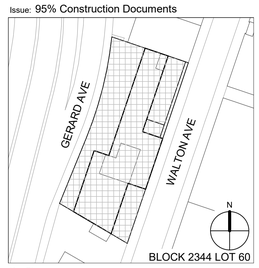
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Sustainability Consultant
The Daylight Savings Company
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Goshen, NY 10924

Expeditor
JM Zoning
225 Broadway, Suite 1300
New York, NY 10007

Revisions

Issue: 95% Construction Documents



Key Plan

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Site Plan

Date	03/31/23
Scale	As indicated
Drawn By	PN
Checked By	RA
Project No.	2204
Sheet No.:	A-001.00
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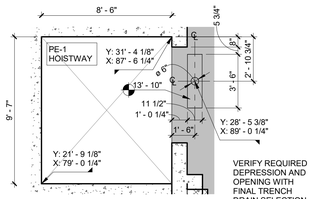
Seal

SLAB OPENING AND MASONRY DIMENSION PLAN NOTES

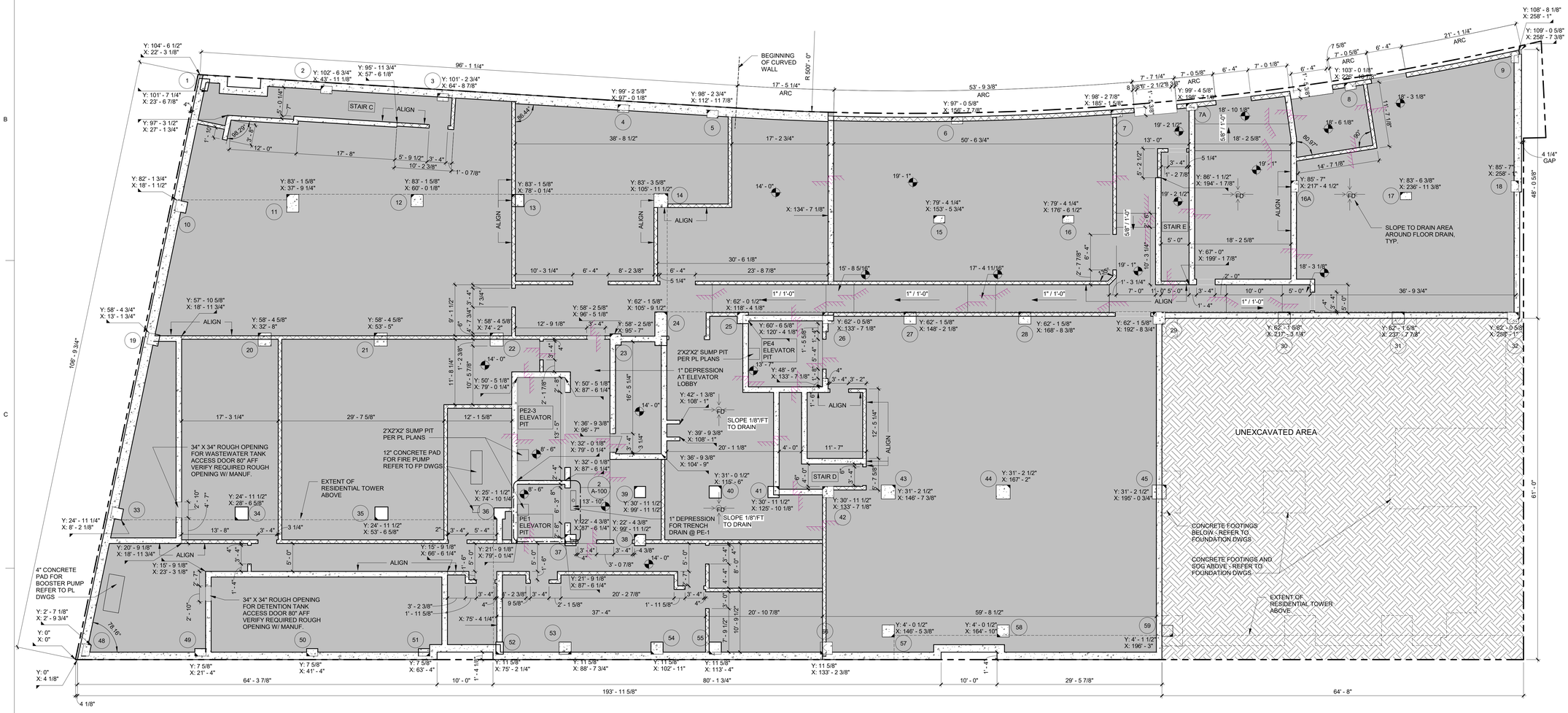
1. Refer to structural drawings for concrete column and beam sizes, foundation wall and slab thicknesses, steel member sizes, CMU wall thickness, footing design, and reinforcement.

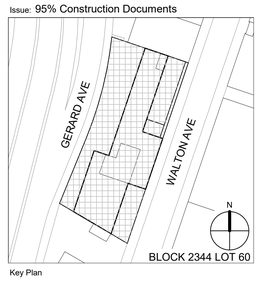
2. Refer to elevator drawings for elevator shaft information

3. Refer to egress drawings for locations of fire rated walls



TYPICAL ELEVATOR TRENCH DRAIN LOCATION @ PE-1
2 1/4" = 1'-0"





Key Plan

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Revisions

Issue: 95% Construction Documents

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Cellar Edge of Slab and Masonry Dimension Plan

Date	03/31/23
Scale	As indicated
Drawn By	DA
Checked By	DA
Project No.	2204
Sheet No.:	A-100.00

Seal

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SLAB OPENING AND MASONRY DIMENSION PLAN NOTES

1. Refer to structural drawings for concrete column and beam sizes, foundation wall and slab thicknesses, steel member sizes, CMU wall thickness, footing design, and reinforcement.

2. Refer to elevator drawings for elevator shaft information

3. Refer to egress drawings for locations of fire rated walls



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Goldstick Lighting Design
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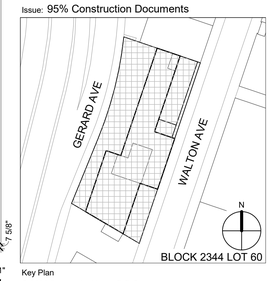
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Ground Floor Edge of Slab and Masonry Dimension Plan

Date	03/31/23
Scale	1/8" = 1'-0"
Drawn By	DA
Checked By	DA
Project No.	2204
Sheet No.:	A-101.00

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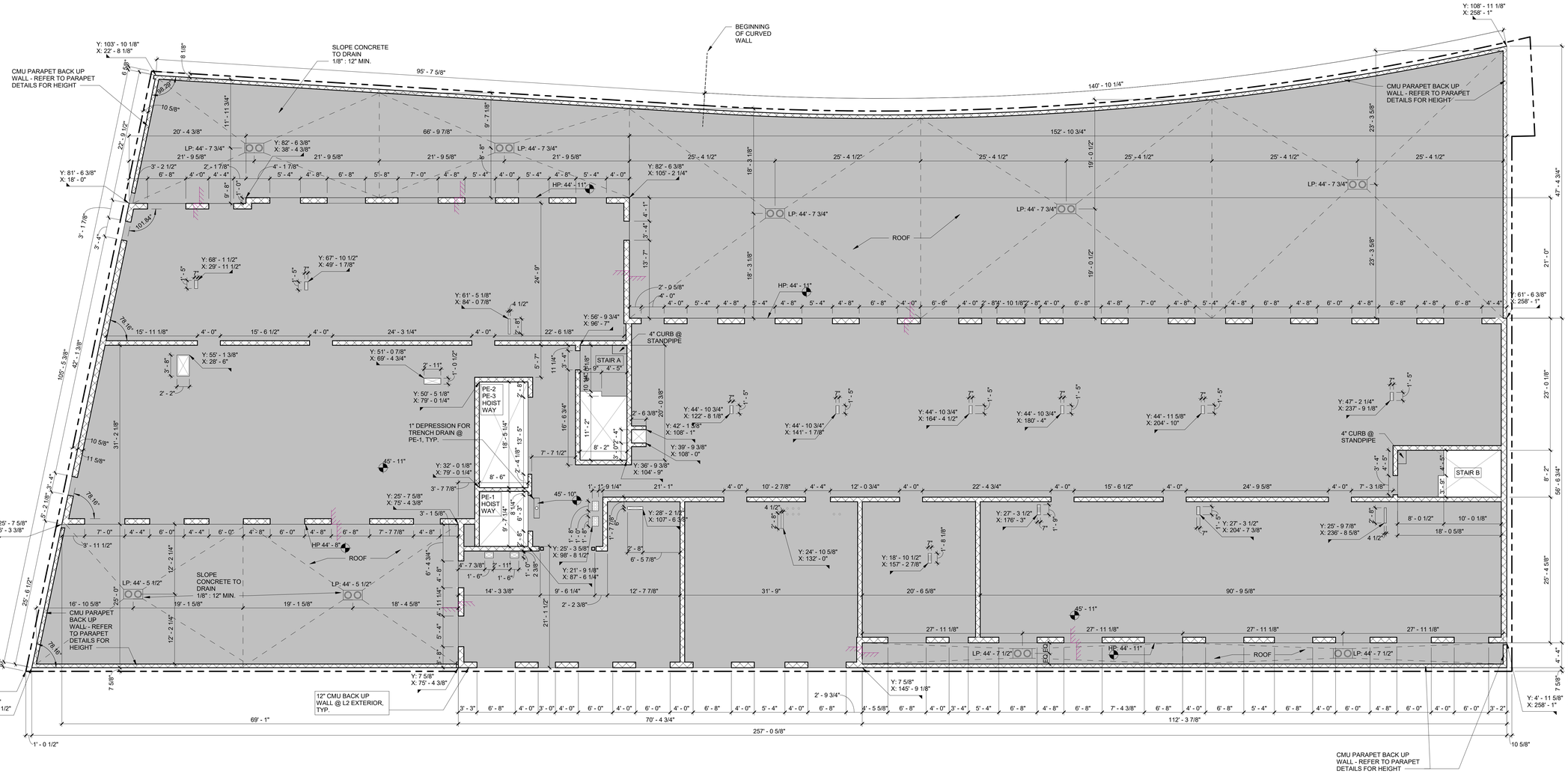
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1. Refer to structural drawings for concrete column and beam sizes, foundation wall and slab thicknesses, steel member sizes, CMU wall thickness, footing design, and reinforcement.

2. Refer to elevator drawings for elevator shaft information

3. Refer to egress drawings for locations of fire rated walls



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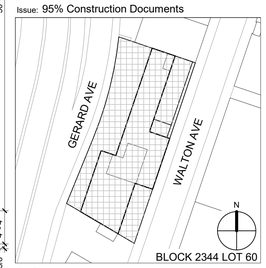
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2nd Floor Edge of Slab and Masonry Dimension Plan

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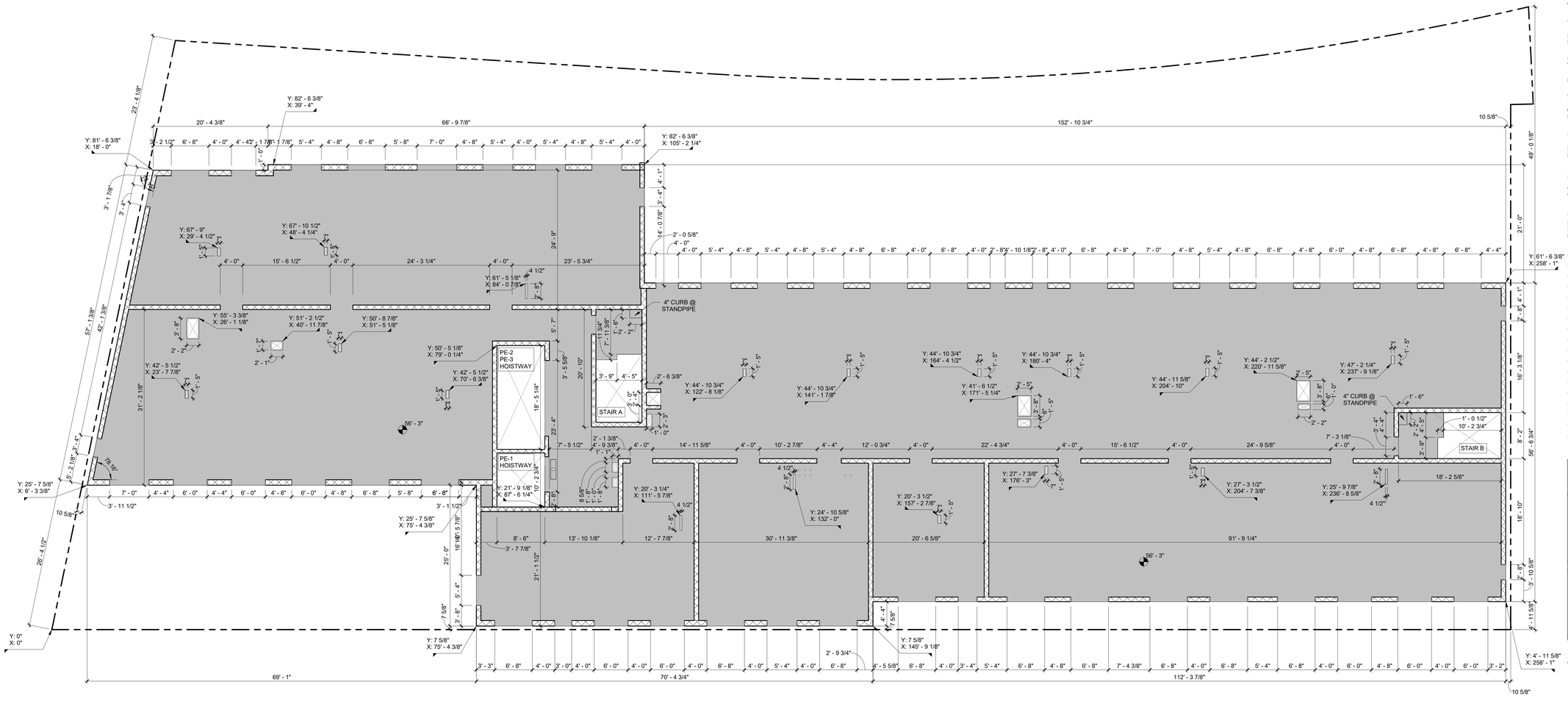
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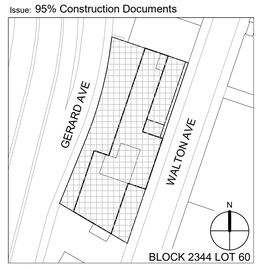
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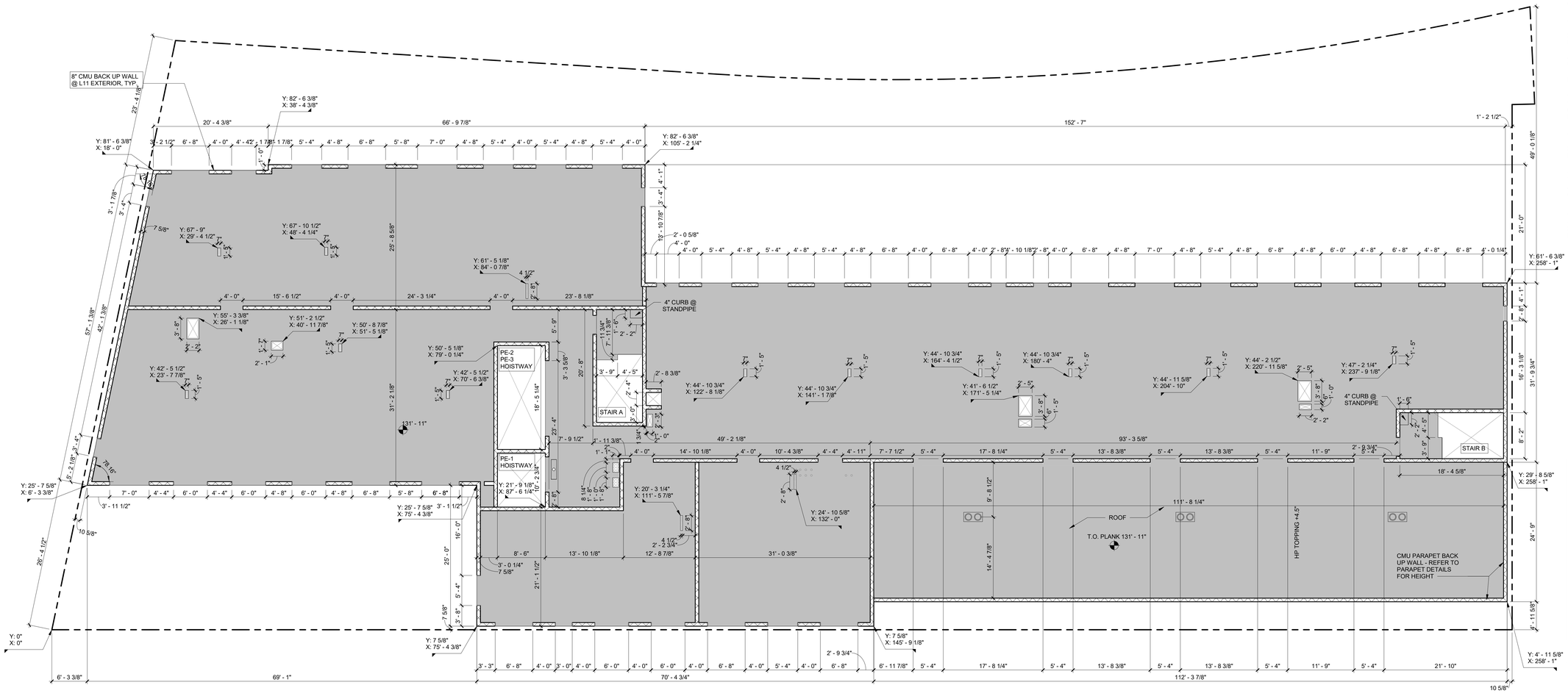
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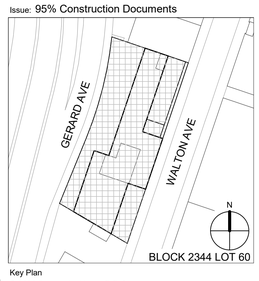
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11th Floor Edge of Slab and Masonry Dimension Plan

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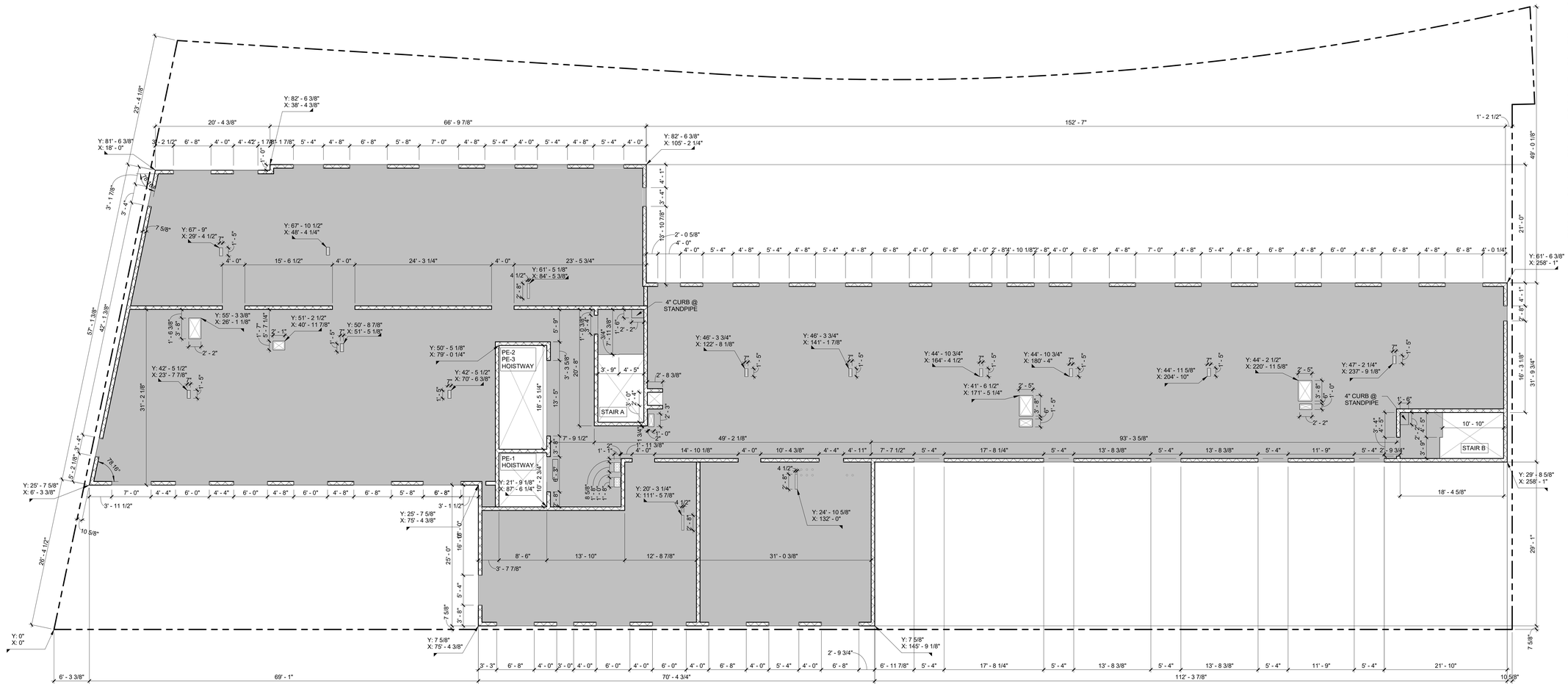
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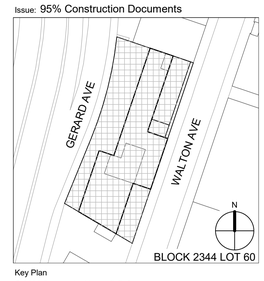
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12th Floor Edge of Slab and Masonry Dimension Plan

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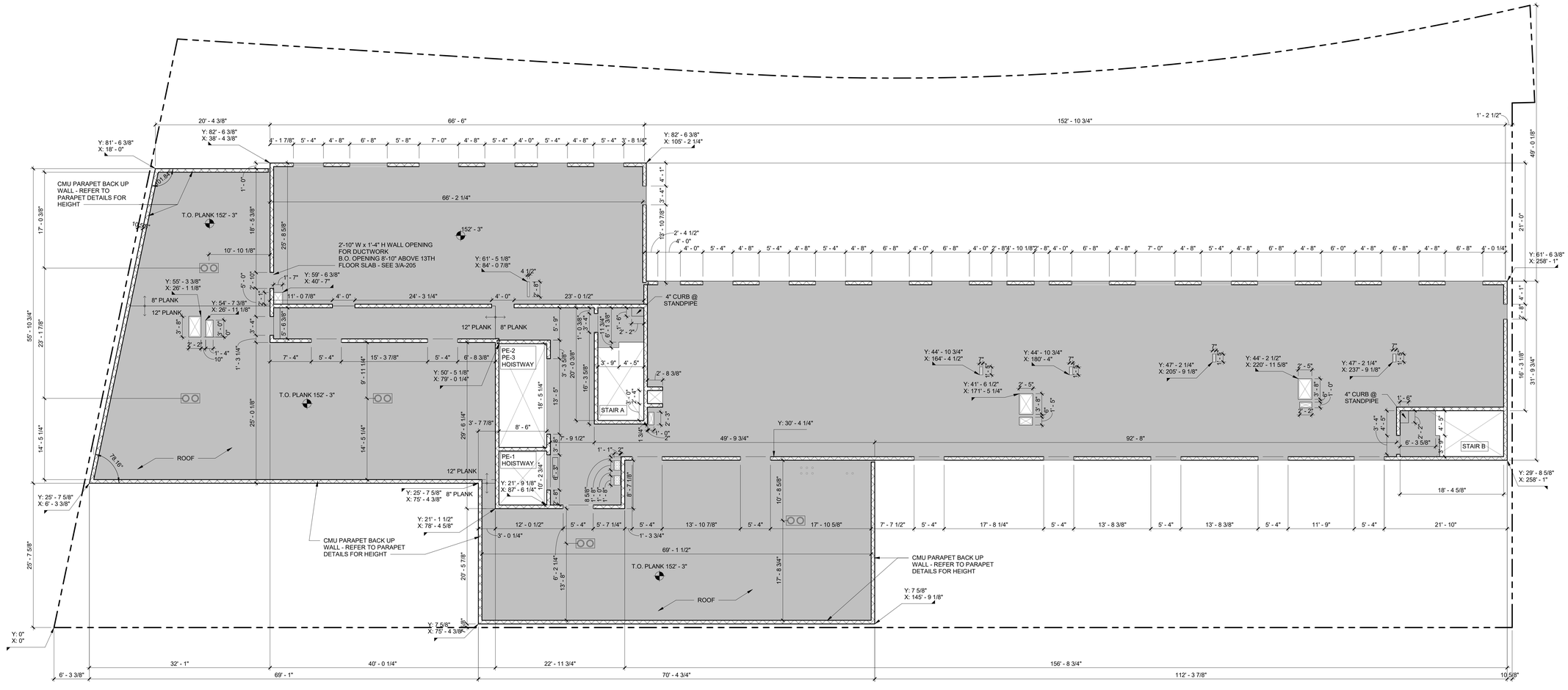
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SLAB OPENING AND MASONRY DIMENSION PLAN NOTES

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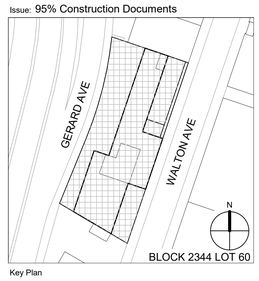
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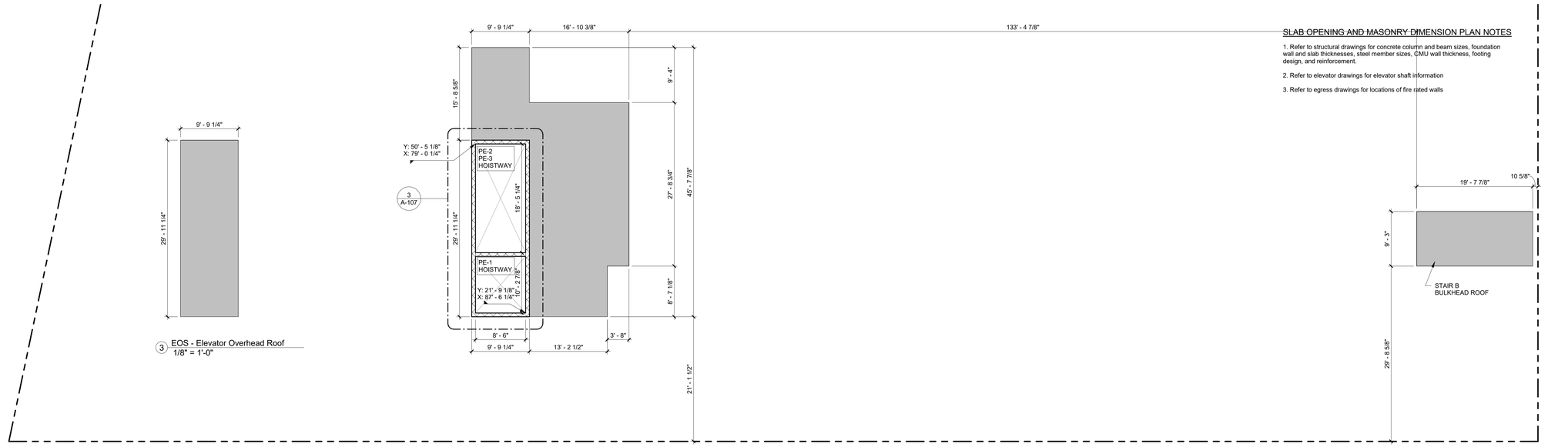
13th Floor Edge of Slab and Masonry Dimension Plan

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3 EOS - Elevator Overhead Roof
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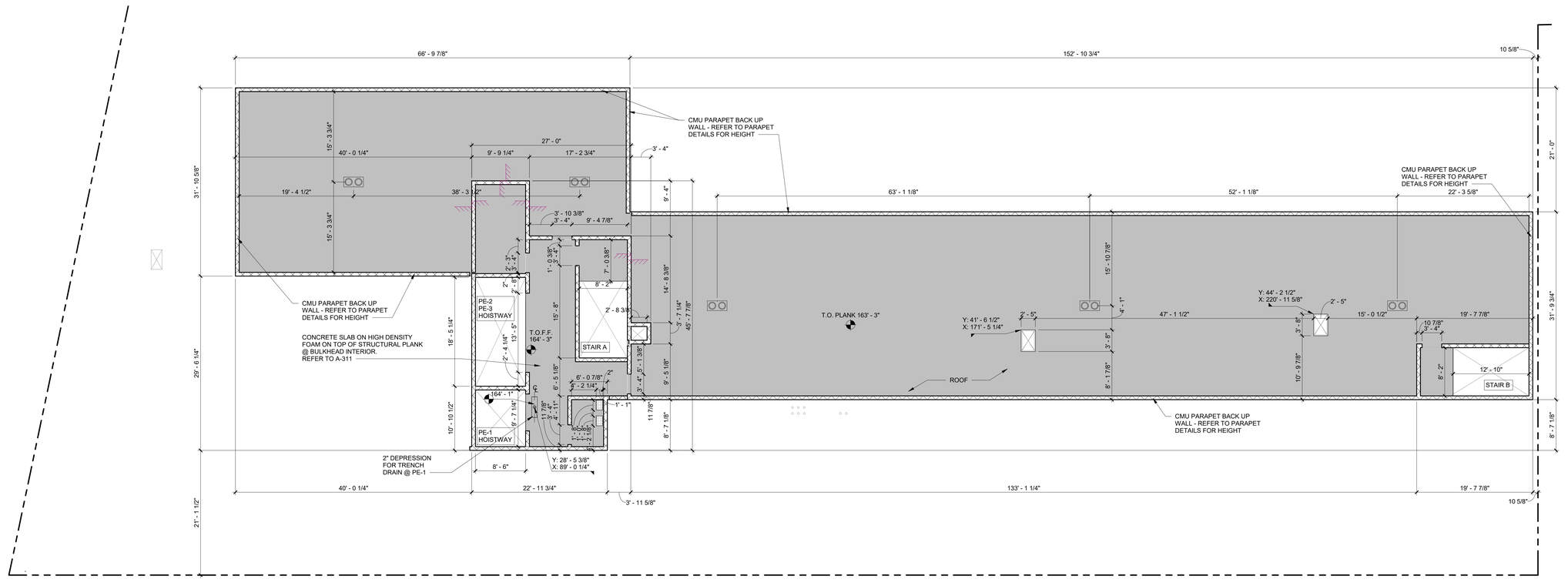
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2 EOS - Bulkhead Roof
1/8" = 1'-0"



1 EOS - Roof
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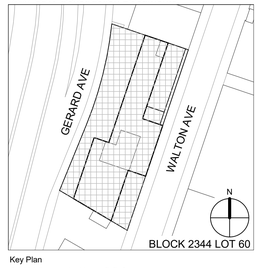
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Roof and Bulkhead Edge of Slab and Masonry Dimension Plan

Date	03/31/23
Scale	1/8" = 1'-0"
Drawn By	DA
Checked By	DA
Project No.	2204

Seal

Sheet No.:
0 of
A-107.00

FLOOR PLAN NOTES:

1. SEE ENLARGED DWELLING UNIT PLAN SEGMENTS FOR ROOM SIZES, DIMENSIONS, ELECTRIC PANELS AND NID BOX LOCATIONS, PTAC ENCLOSURES, AND WALL AND DOOR TYPES
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9. REFER TO LANDSCAPE DRAWINGS AND SITE PLAN FOR LANDSCAPE AND SITE WORK

GERARD AVE

BEGINNING OF CURVED WALL

FDNY SIAMESE CONNECTION - SEE FP DWGS

AREA UNDER STAIR INACCESSIBLE

STAIR C

Super's Workshop 022 970.6 SF

Res. Building Storage A 023 672.3 SF

Res. Building Storage B 024 1433.1 SF

Retail A Storage 021 2289.4 SF

CORNER GUARD

SLOPED SURFACE

Residential Trash Storage 025 541.6 SF

Retail Trash Storage 026 1457.3 SF

GAS 027 135.0 SF

RECYCLABLES BALERS

PROVIDE CORNER GUARD AT OUTSIDE CORNERS IN TRASH ROOM

Stair E

RAMP A

RAMP B

Corridor 020

Bike Room 002 1199.4 SF

Fire Pump 011 254.3 SF

Wastewater Equipment Room 012 610.8 SF

Wastewater Tank 013 268.9 SF

Water Meter 014 409.4 SF

Detention Tank 015 548.5 SF

Electrical Meters 016 101.4 SF

Corridor 001

Corridor 010

Stair A

ELEVATOR BANK A

TRENCH DRAIN - SEE PL DWGS

ATS 019 121.9 SF

Electrical 017 686.0 SF

Telecom 018 162.2 SF

HOSE BIB

Compactor 029 720.3 SF

Elevator Control Room 030 117.4 SF

Stair D

3HR RATED FIRE ENCLOSURE AT FLOOR, WALLS & CEILING ASSEMBLY

PE-4 FREIGHT ELEVATOR, INFILL CMU WALL, ELEVATOR DOOR, AND CONTROL ROOM EQUIPMENT ADD ALTERNATE

Retail B Storage 028 3523.5 SF

UNEXCAVATED AREA

30"X30" HEAVY DUTY SELF SEALING WASTEWATER TANK ACCESS HATCH AT TANK WALL @ 80" AFF W/ FIXED ACCESS LADDERS ON BOTH SIDES OF WALL

30"X30" HEAVY DUTY SELF SEALING DETENTION TANK ACCESS HATCH AT TANK WALL @ 80" AFF W/ FIXED ACCESS LADDERS ON BOTH SIDES OF WALL

WALTON AVE

1 Cellar
1/8" = 1'-0"

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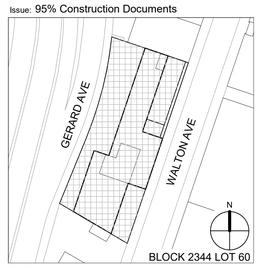
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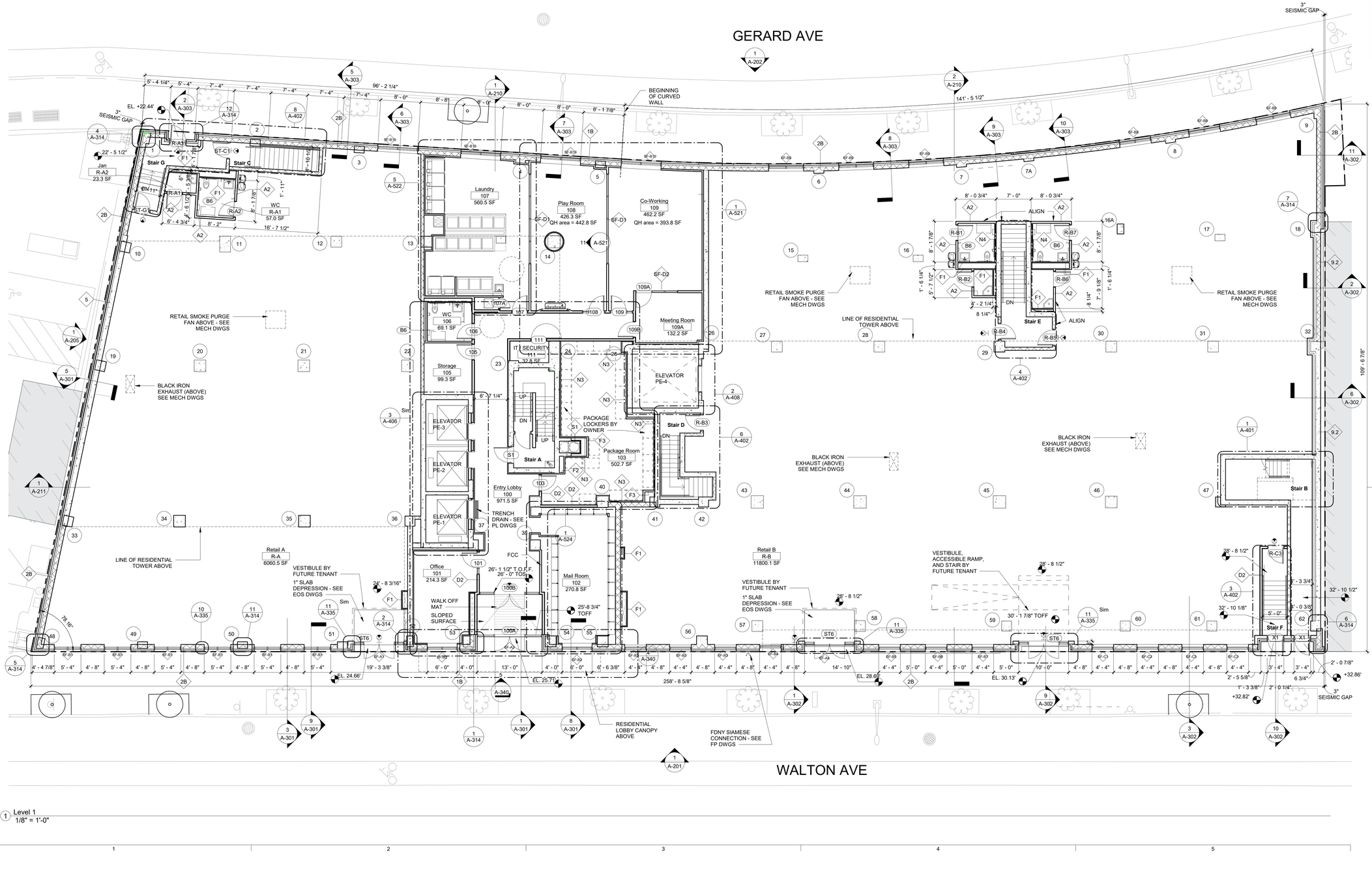
Cellar Plan

Date	03/31/23
Scale	As indicated
Drawn By	BO/PN/SW
Checked By	RA
Project No.	2204
Seal	

Sheet No.:
0 of
A-110.00

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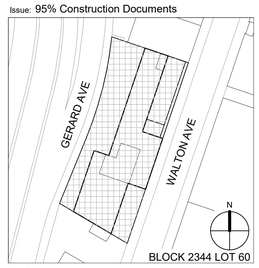
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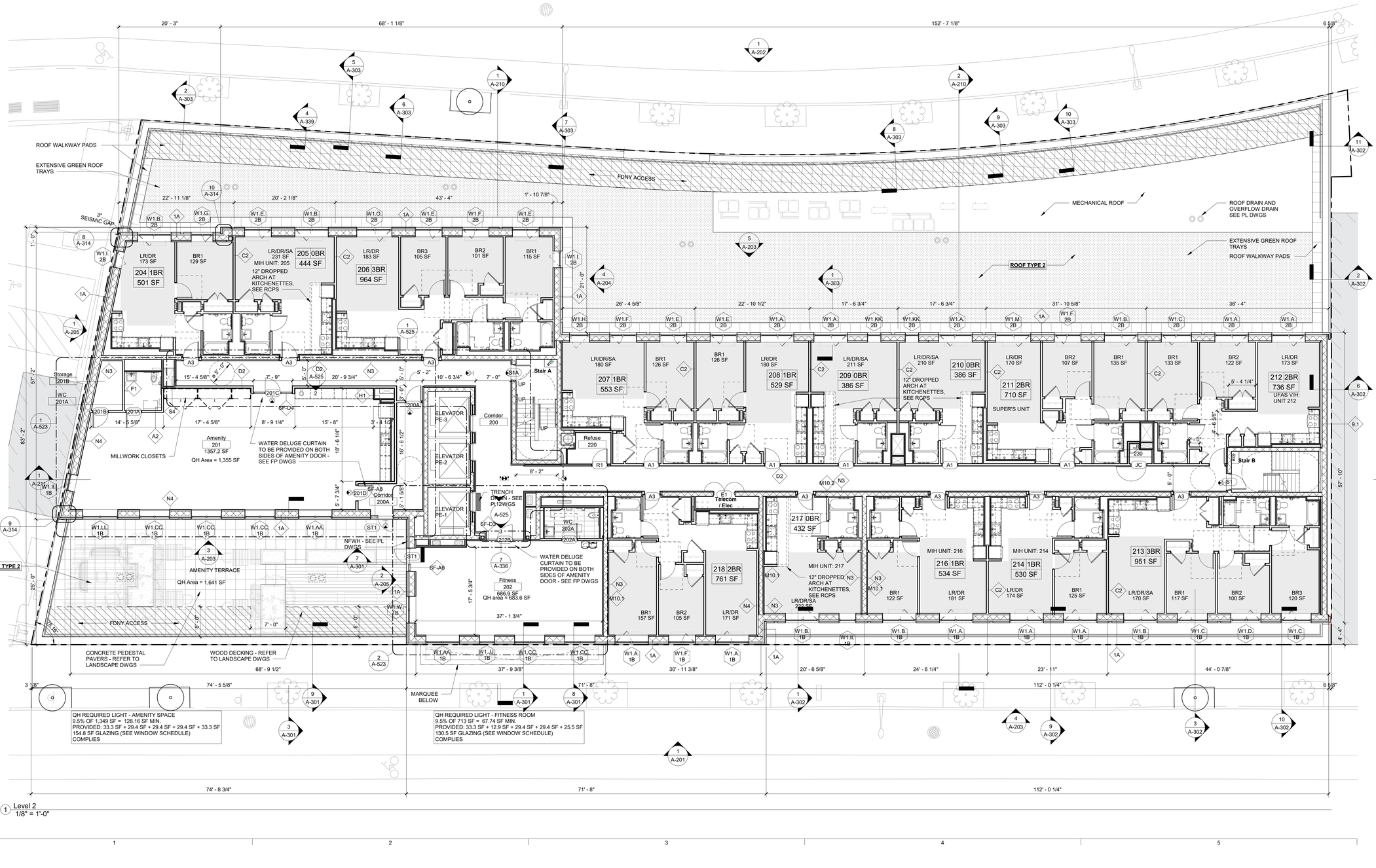
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Ground Floor Plan

Date	03/31/23
Scale	As indicated
Drawn By	BO/PN/SW
Checked By	RA
Project No.	2204
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Sheet No.:	A-111.00
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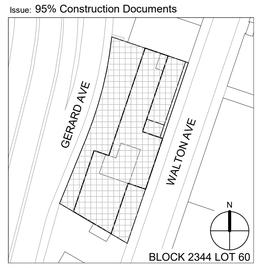
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2nd Floor Plan

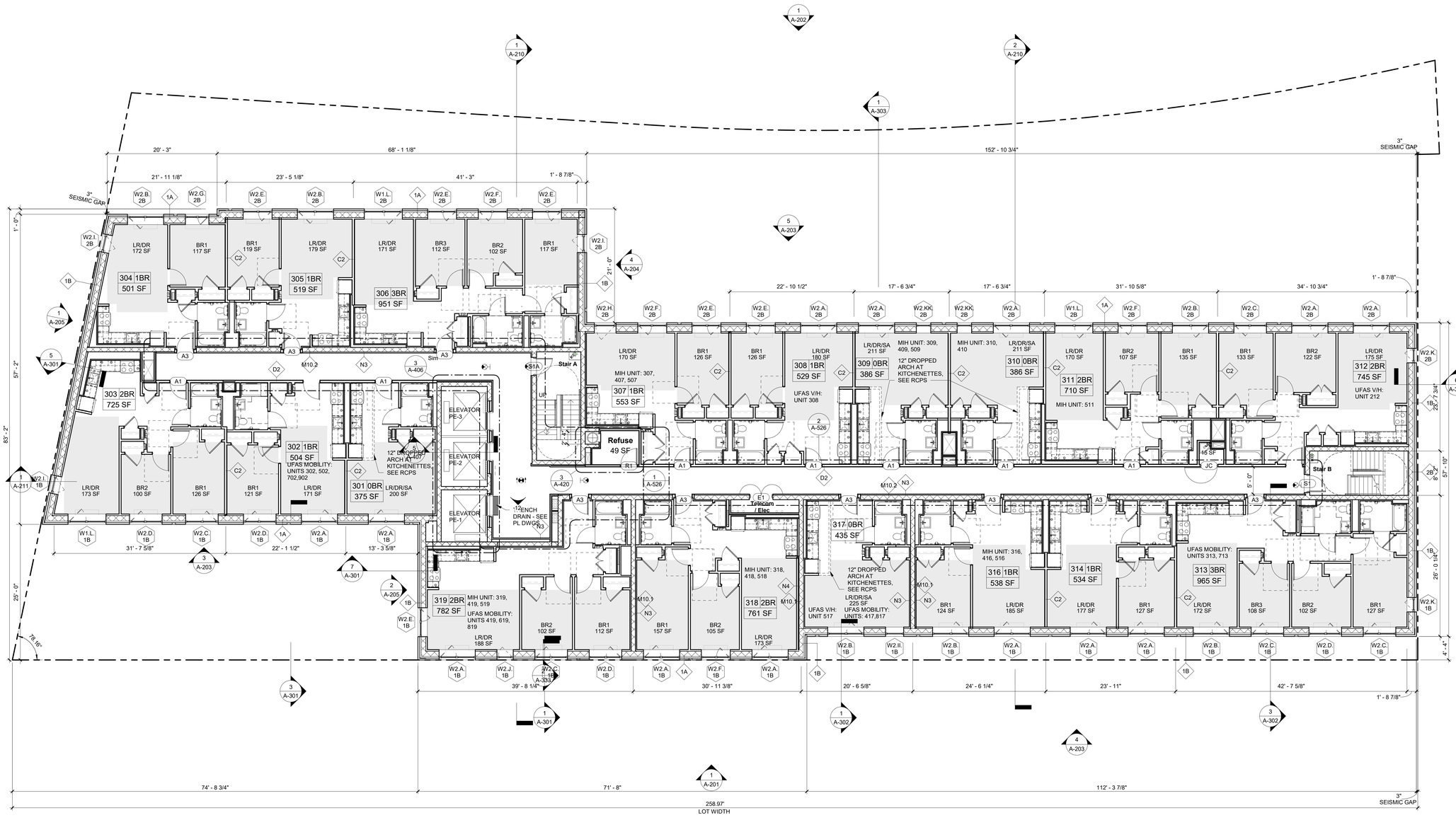
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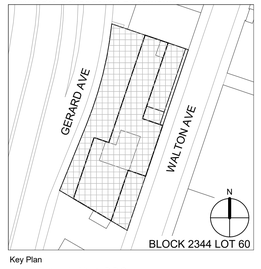
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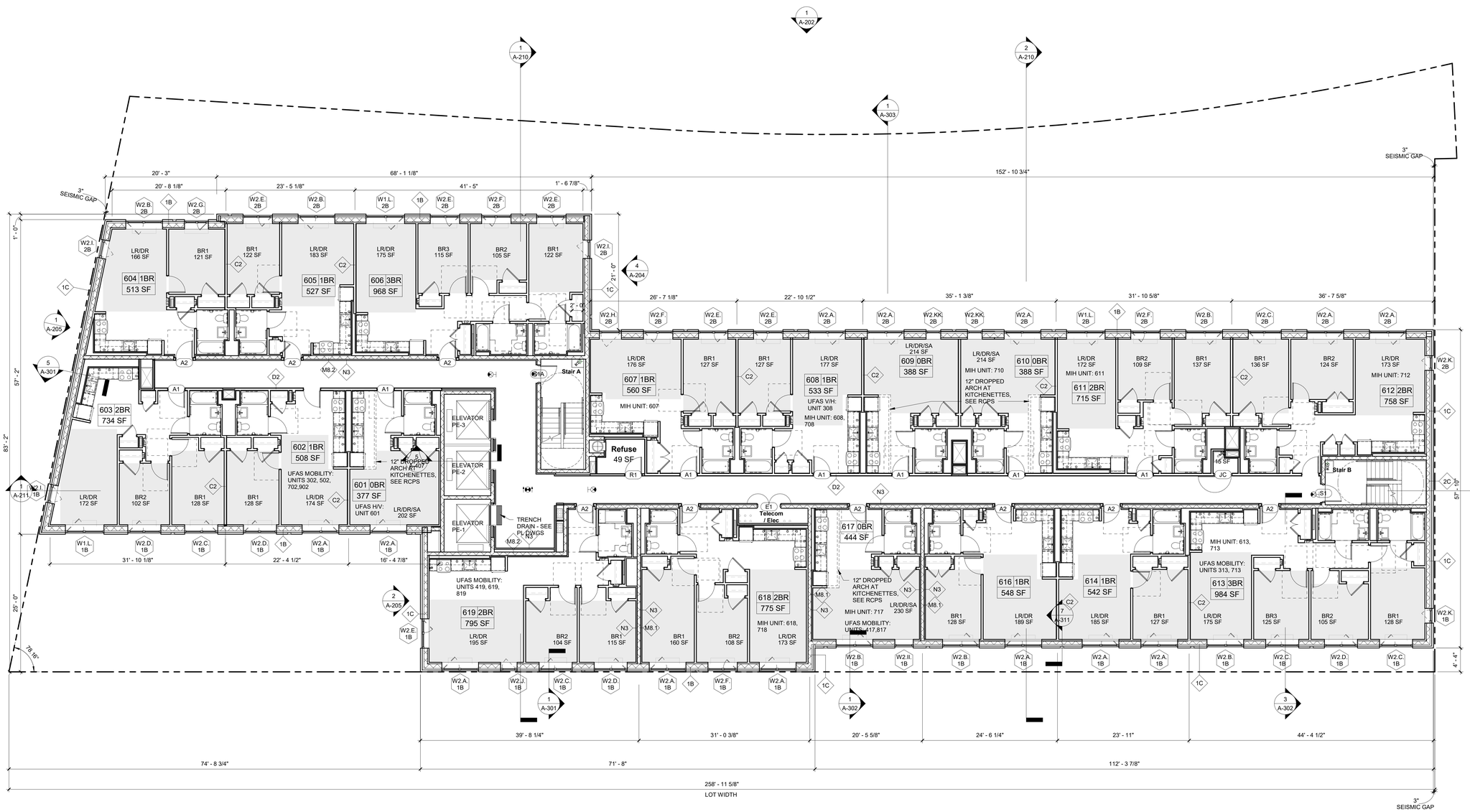
3rd-5th Floor Plan

Date	03/31/23
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Drawn By	BO/PN/SW
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Project No.	2204
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Seal

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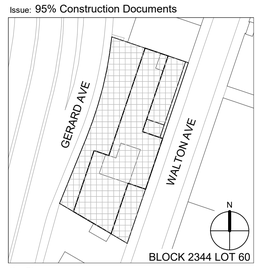
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Revisions

Issue: 95% Construction Documents



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Project No. 2204
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Sheet No.:
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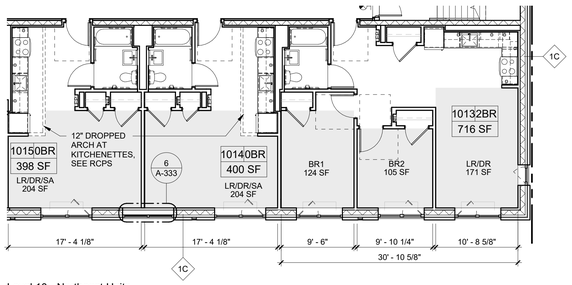
6th-7th Floor Plan

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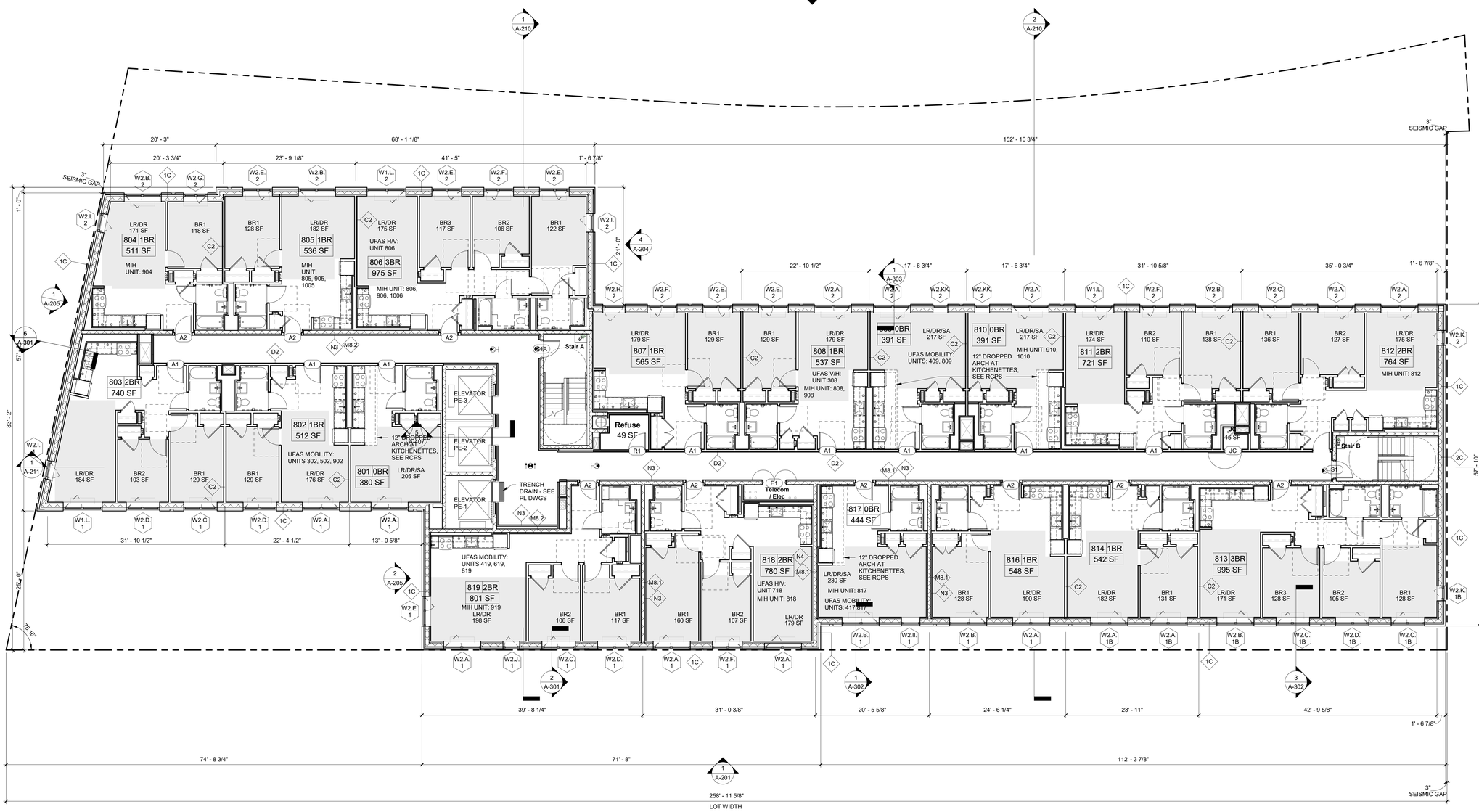
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FLOOR PLAN NOTES:

1. SEE ENLARGED DWELLING UNIT PLAN SEGMENTS FOR ROOM SIZES, DIMENSIONS, ELECTRIC PANELS AND NID BOX LOCATIONS, PTAC ENCLOSURES, AND WALL AND DOOR TYPES
2. FLOOR FINISHES TO ALIGN
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9. REFER TO LANDSCAPE DRAWINGS AND SITE PLAN FOR LANDSCAPE AND SITE WORK



3 Level 10 - Northeast Units
1/8" = 1'-0"



1 Level 8
1/8" = 1'-0"

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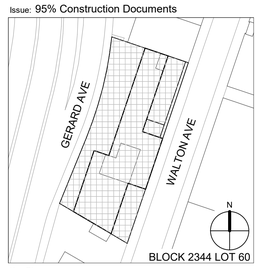
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Revisions

Issue: 95% Construction Documents



Key Plan

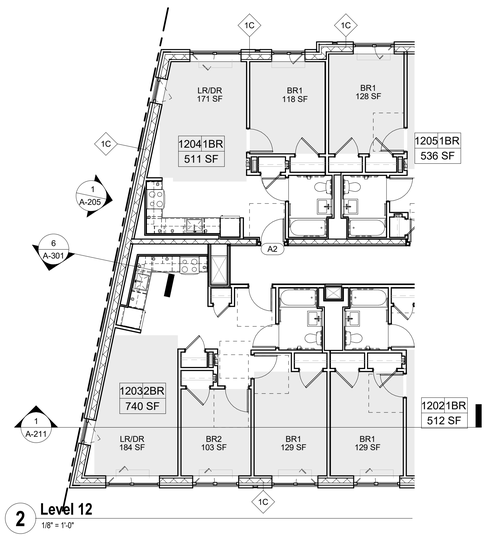
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8th-10th Floor Plan

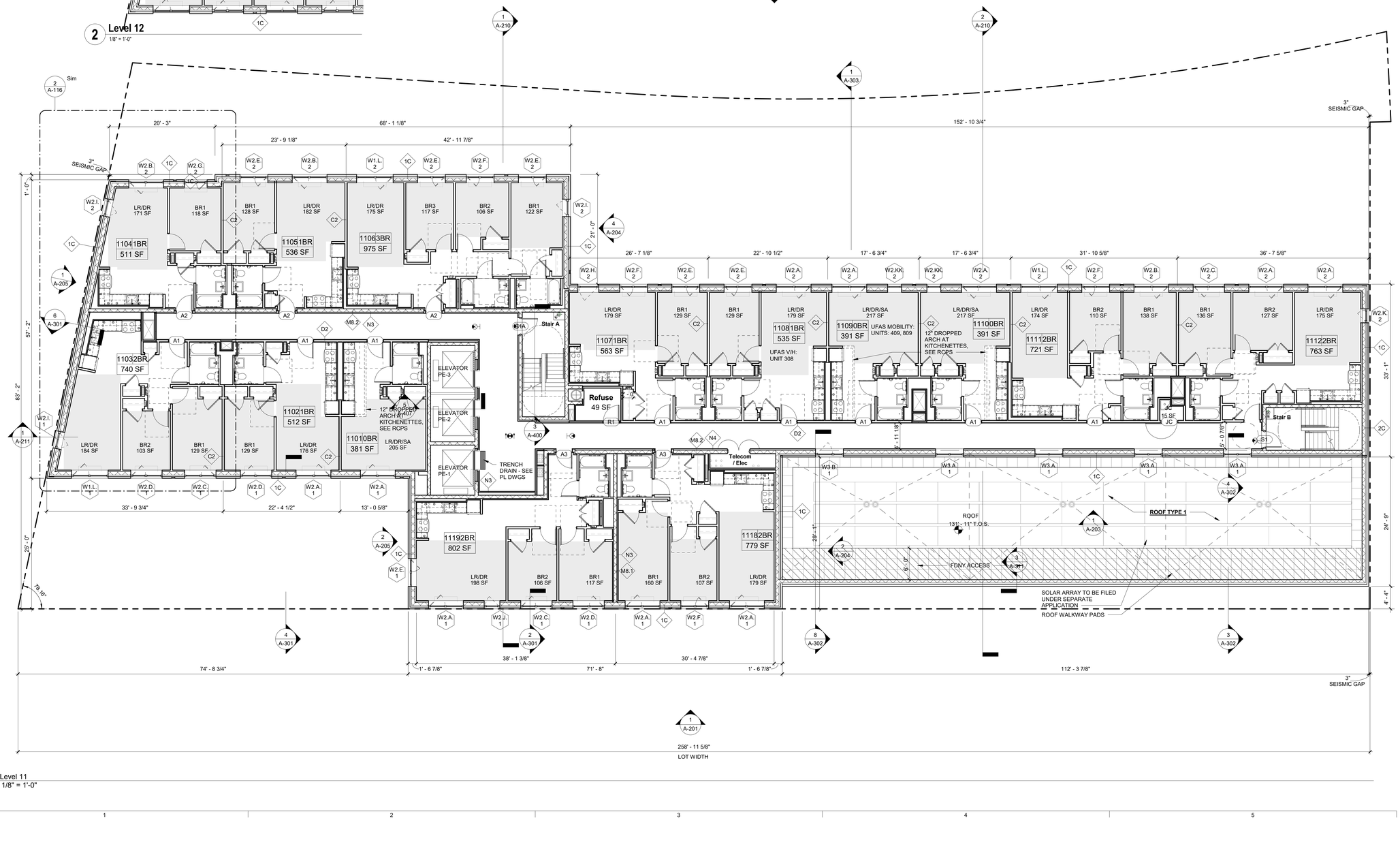
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Project No.	2204
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Sheet No.:	A-115.00
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FLOOR PLAN NOTES:

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2 Level 12
1/8" = 1'-0"



1 Level 11
1/8" = 1'-0"

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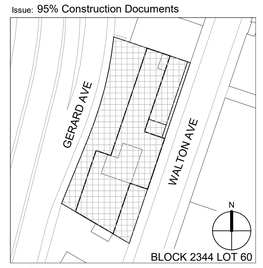
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Revisions

Issue: 95% Construction Documents



Key Plan

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11th-12th Floor Plan

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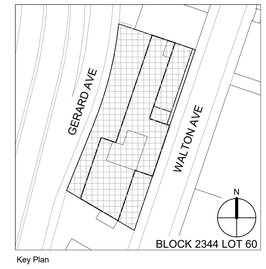
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Revisions

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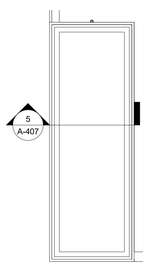
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13th Floor Plan

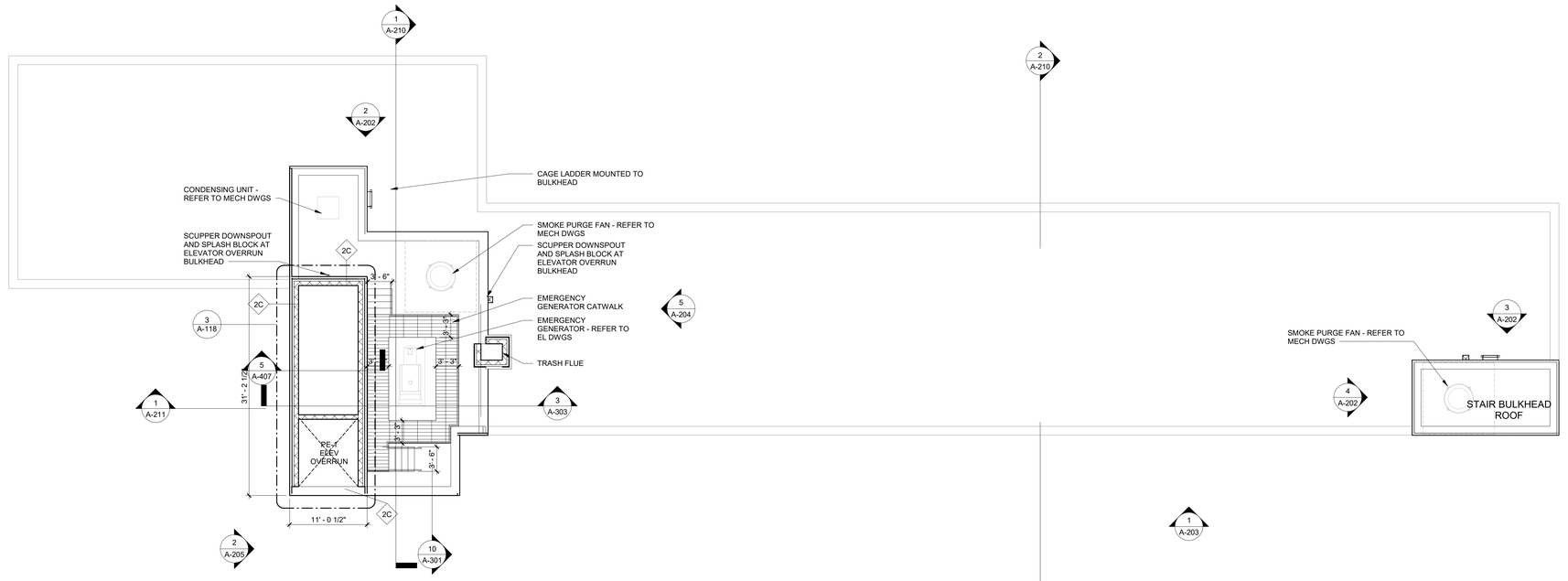
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Project No.	2204
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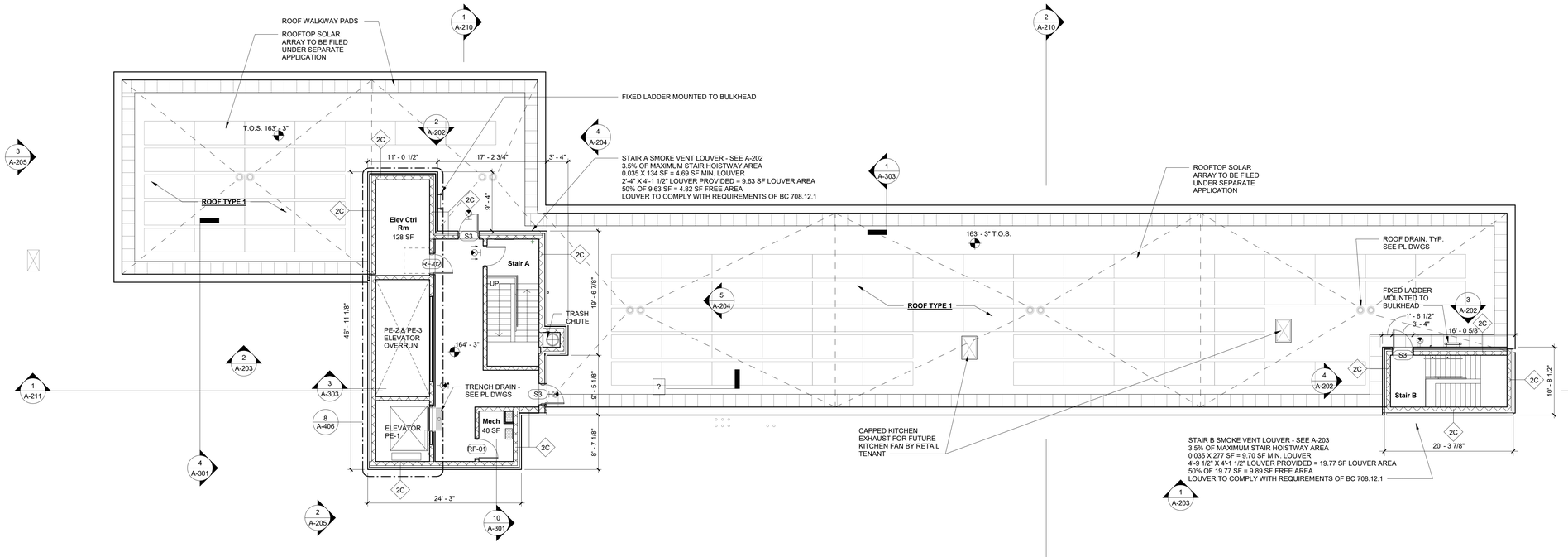
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3 Elevator Bulkhead
1/8" = 1'-0"



2 Bulkhead Roof
1/8" = 1'-0"



1 Roof
1/8" = 1'-0"

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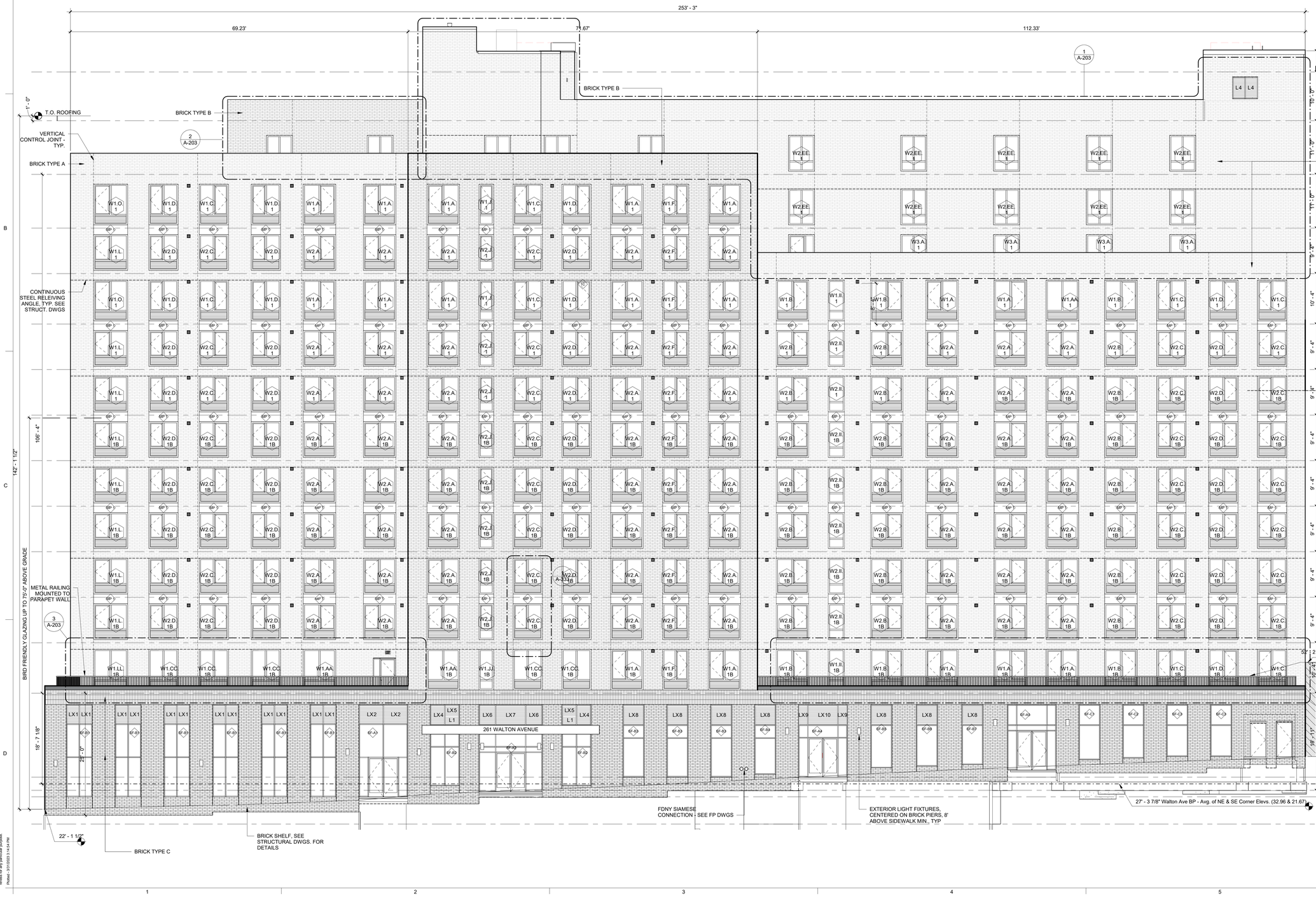
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BUILDING ELEVATION LEGEND

BRICK TYPE A	TAYLOR ALPINE GREY, BLADECUT
BRICK TYPE B	TAYLOR BLEND 60% MILLBRIDGE, 40% MOUNTAINEER, BLADECUT
BRICK TYPE C	TAYLOR EBONY IRON SPOT, SMOOTH
MP 1	ALCOA CLASSIC BRONZE
	VERTICAL CONTROL JOINT
	BRICK SHELF / RELIEVING ANGLE

WINDOW TAG LEGEND

W1.A.1 — WINDOW TYPE, REFER TO SCHEDULE AND ELEVATIONS; GLAZING TYPE, REFER TO SCHEDULE AND ELEVATIONS



261 Walton Ave

261 Walton Ave
Bronx, NY 10451

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Bronx, NY 10454

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Pelham, NY 10803

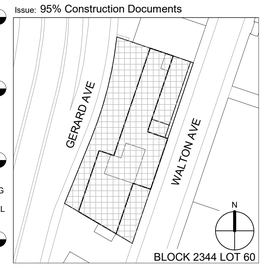
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21 Penn Plaza, 8th Floor
New York, NY 10001

Sustainability Consultant
The Daylight Savings Company
48 North Church St.
Goshen, NY 10924

Expeditor
JM Zoning
225 Broadway, Suite 1300
New York, NY 10007

Revisions

Issue: 95% Construction Documents



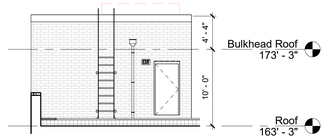
Key Plan

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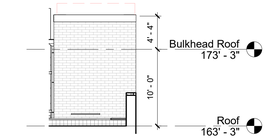
Building Elevation - East

Date	03/31/23
Scale	1/8" = 1'-0"
Drawn By	PN
Checked By	RA
Project No.	2204
Seal	

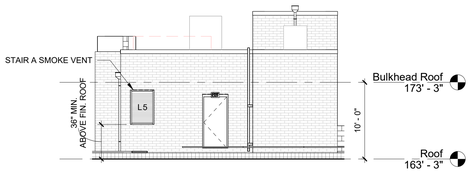
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3 STAIR BULKHEAD ELEVATION - WEST
1/8" = 1'-0"



4 STAIR BULKHEAD ELEVATION - SOUTH
1/8" = 1'-0"



2 BULKHEAD ELEVATION - WEST
1/8" = 1'-0"



1 West Elevation at Gerard Ave
1/8" = 1'-0"

BUILDING ELEVATION LEGEND

BRICK TYPE A	TAYLOR ALPINE GREY, BLADECUT
BRICK TYPE B	TAYLOR BLEND 60% MILLBRIDGE, 40% MOUNTAINEER, BLADECUT
BRICK TYPE C	TAYLOR EBONY IRON SPOT, SMOOTH
MP 1	ALCOA CLASSIC BRONZE
	VERTICAL CONTROL JOINT
	BRICK SHELF / RELIEVING ANGLE

WINDOW TAG LEGEND

W1.A.1 — WINDOW TYPE, REFER TO SCHEDULE AND ELEVATIONS
GLAZING TYPE, REFER TO SCHEDULE AND ELEVATIONS

261 Walton Ave

261 Walton Ave
Bronx, NY 10451

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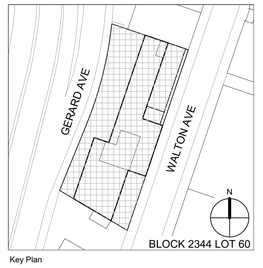
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Issue: 95% Construction Documents



Key Plan

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Building Elevation - West

Date	03/31/23
Scale	1/8" = 1'-0"
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Checked By	RA
Project No.	2204

Seal

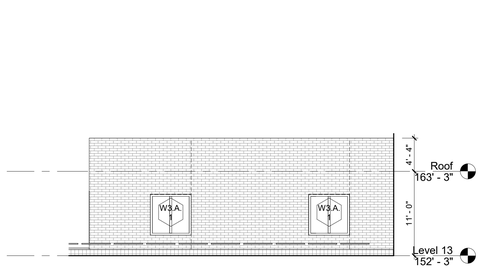
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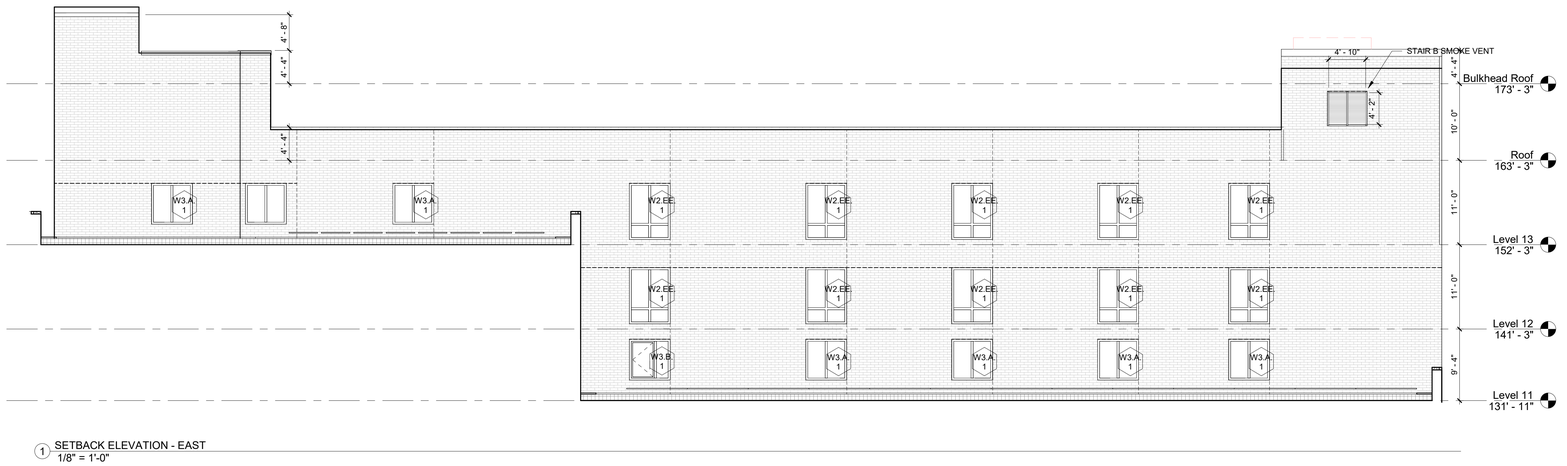
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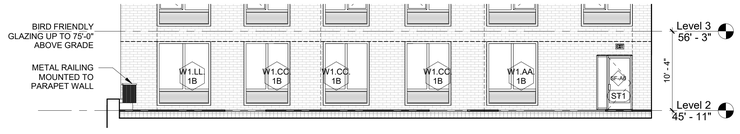
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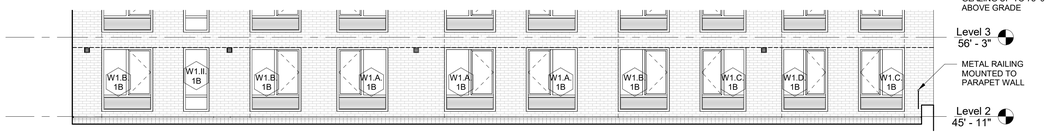
2 BULKHEAD ELEVATION - SOUTH EAST
1/8" = 1'-0"



1 SETBACK ELEVATION - EAST
1/8" = 1'-0"



3 EAST ELEVATION - SOUTH SETBACK
1/8" = 1'-0"



4 EAST ELEVATION - NORTH SETBACK
1/8" = 1'-0"



5 WEST ELEVATION - SETBACK
1/8" = 1'-0"

BUILDING ELEVATION LEGEND

BRICK TYPE A	TAYLOR ALPINE GREY, BLADECUT
BRICK TYPE B	TAYLOR BLEND 60% MILLBRIDGE, 40% MOUNTAINEER, BLADECUT
BRICK TYPE C	TAYLOR EBONY IRON SPOT, SMOOTH
MP 1	ALCOA CLASSIC BRONZE
	VERTICAL CONTROL JOINT
	BRICK SHELF / RELIEVING ANGLE

WINDOW TAG LEGEND

W1.A
1
WINDOW TYPE, REFER TO SCHEDULE AND ELEVATIONS
GLAZING TYPE, REFER TO SCHEDULE AND ELEVATIONS

261 Walton Ave

261 Walton Ave
Bronx, NY 10451

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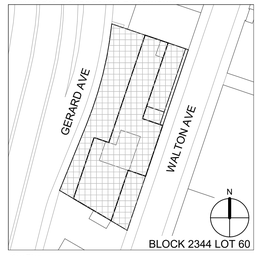
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Revisions

Issue: 95% Construction Documents



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Building Elevation - East & West Callouts

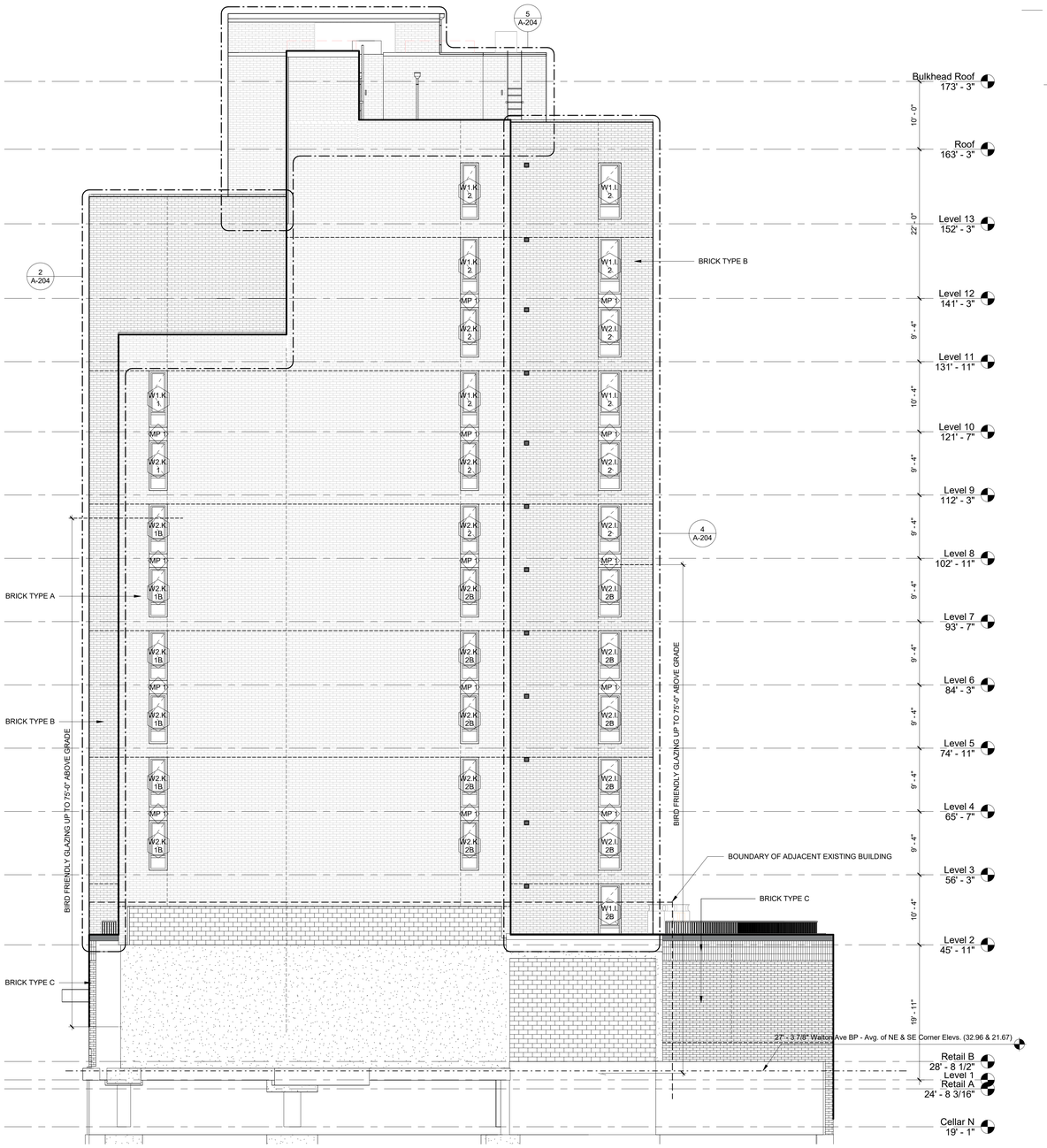
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Scale	1/8" = 1'-0"
Drawn By	PN
Checked By	RA
Project No.	2204

Seal

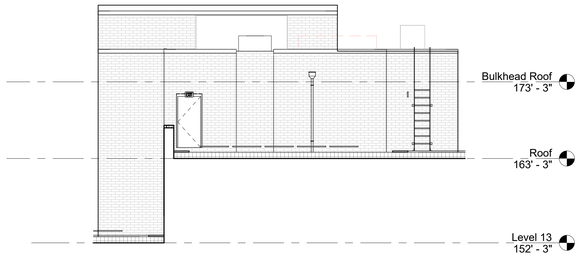
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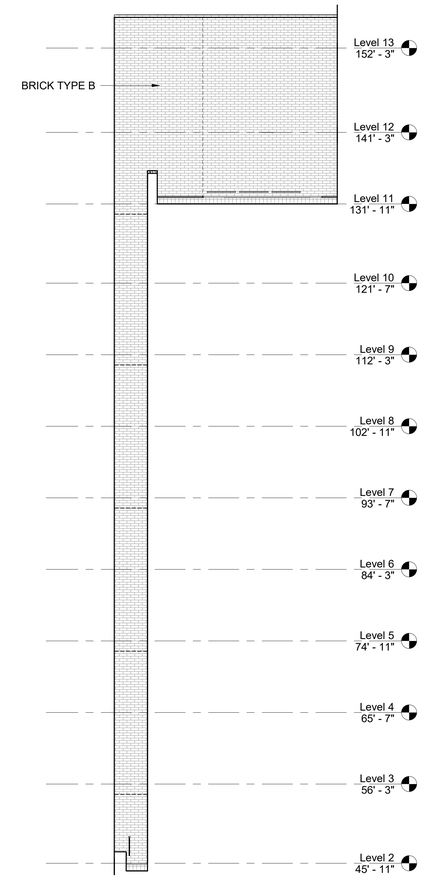
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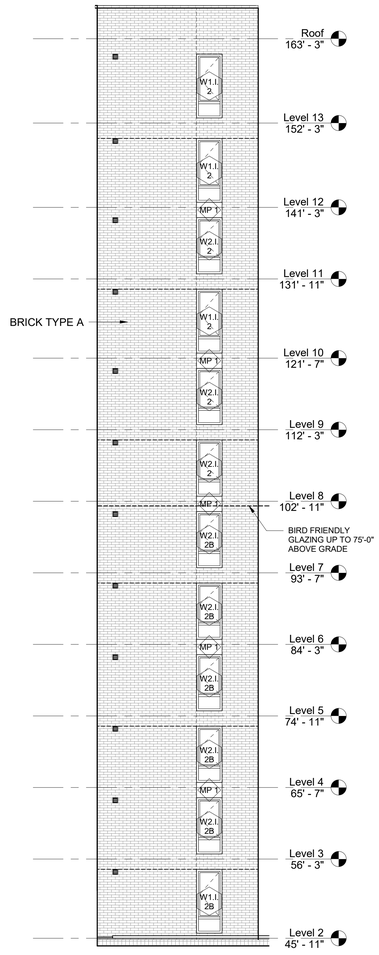
1 North Elevation
1/8" = 1'-0"



5 BULKHEAD ELEVATION - NORTH
1/8" = 1'-0"



2 Elevation 4 - a
1/8" = 1'-0"



4 1 - a
1/8" = 1'-0"

BUILDING ELEVATION LEGEND

BRICK TYPE A	TAYLOR ALPINE GREY, BLADECUT
BRICK TYPE B	TAYLOR BLEND 60% MILLBRIDGE, 40% MOUNTAINEER, BLADECUT
BRICK TYPE C	TAYLOR EBONY IRON SPOT, SMOOTH
MP 1	ALCOA CLASSIC BRONZE
	VERTICAL CONTROL JOINT
	BRICK SHELF / RELIEVING ANGLE

WINDOW TAG LEGEND

W1.A 1 — WINDOW TYPE, REFER TO SCHEDULE AND ELEVATIONS
GLAZING TYPE, REFER TO SCHEDULE AND ELEVATIONS

261 Walton Ave

261 Walton Ave
Bronx, NY 10451

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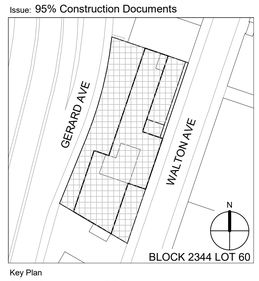
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Expeditor
JM Zoning
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New York, NY 10007

Revisions

Issue: 95% Construction Documents



Key Plan

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Building Elevation - North

Date	03/31/23
Scale	1/8" = 1'-0"
Drawn By	PN
Checked By	RA
Project No.	2204

Seal

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BUILDING ELEVATION LEGEND

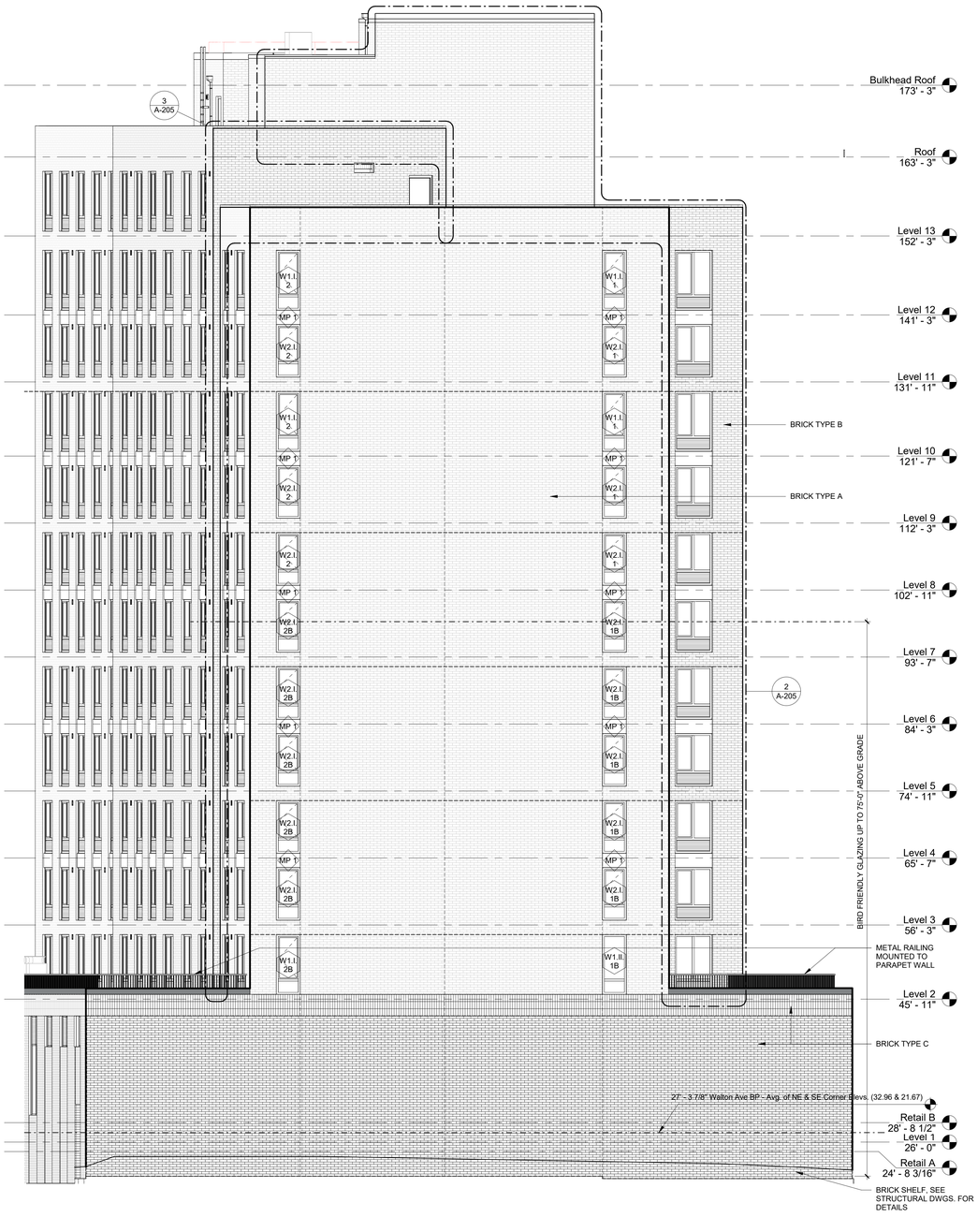
BRICK TYPE A	TAYLOR ALPINE GREY, BLADECUT
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MP 1	ALCOA CLASSIC BRONZE
	VERTICAL CONTROL JOINT
	BRICK SHELF / RELIEVING ANGLE

WINDOW TAG LEGEND

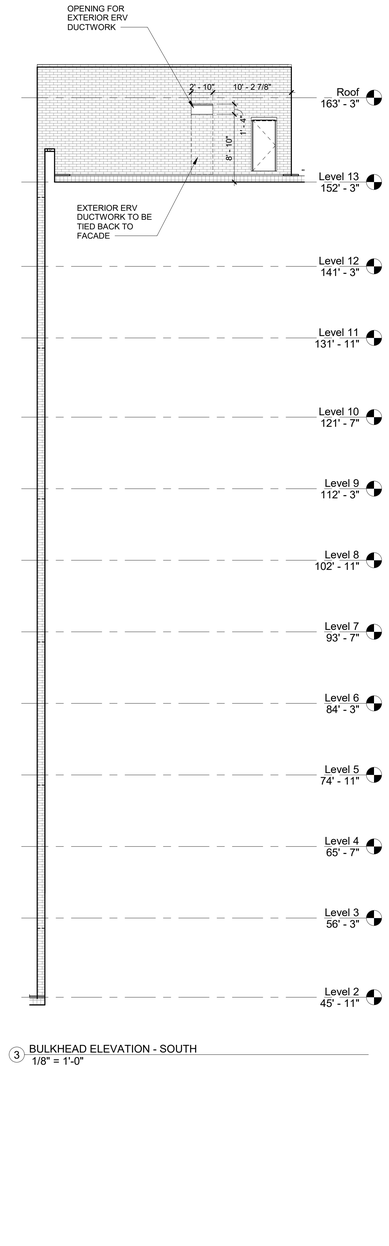
W1.A 1

WINDOW TYPE, REFER TO SCHEDULE AND ELEVATIONS

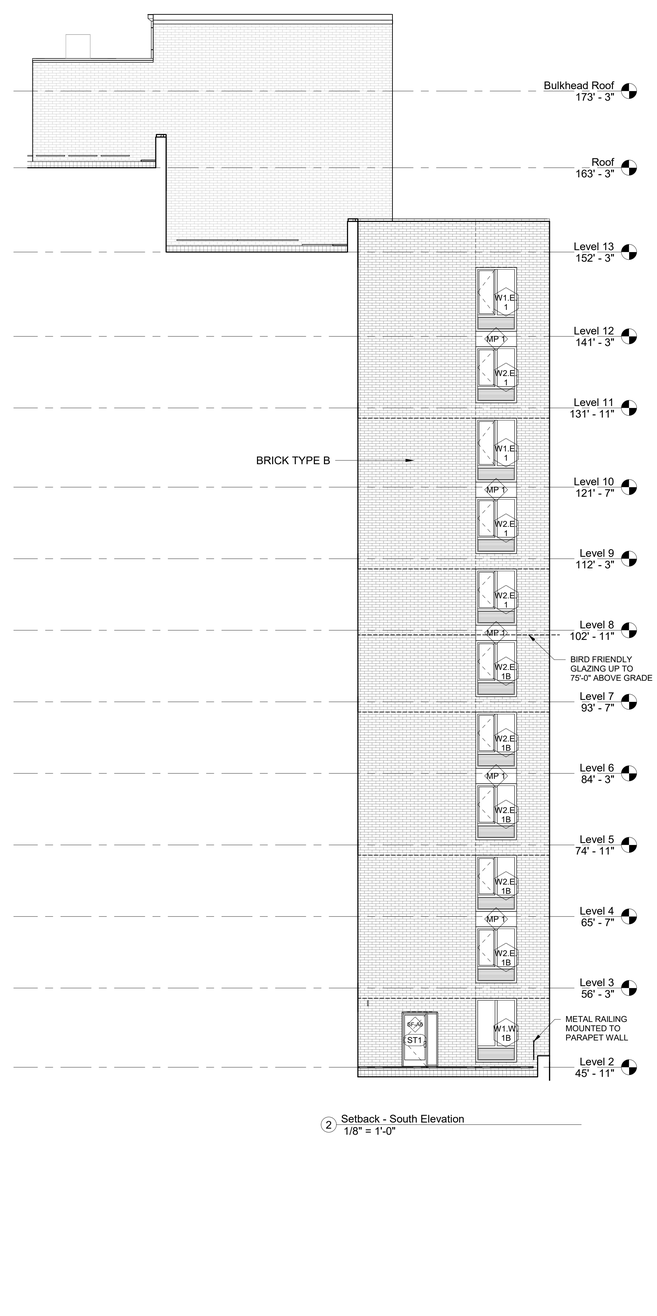
GLAZING TYPE, REFER TO SCHEDULE AND ELEVATIONS



1 South Elevation
1/8" = 1'-0"



3 BULKHEAD ELEVATION - SOUTH
1/8" = 1'-0"



2 Setback - South Elevation
1/8" = 1'-0"

261 Walton Ave

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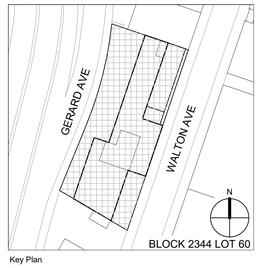
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Revisions

Issue: 95% Construction Documents



Key Plan

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Building Elevation - South

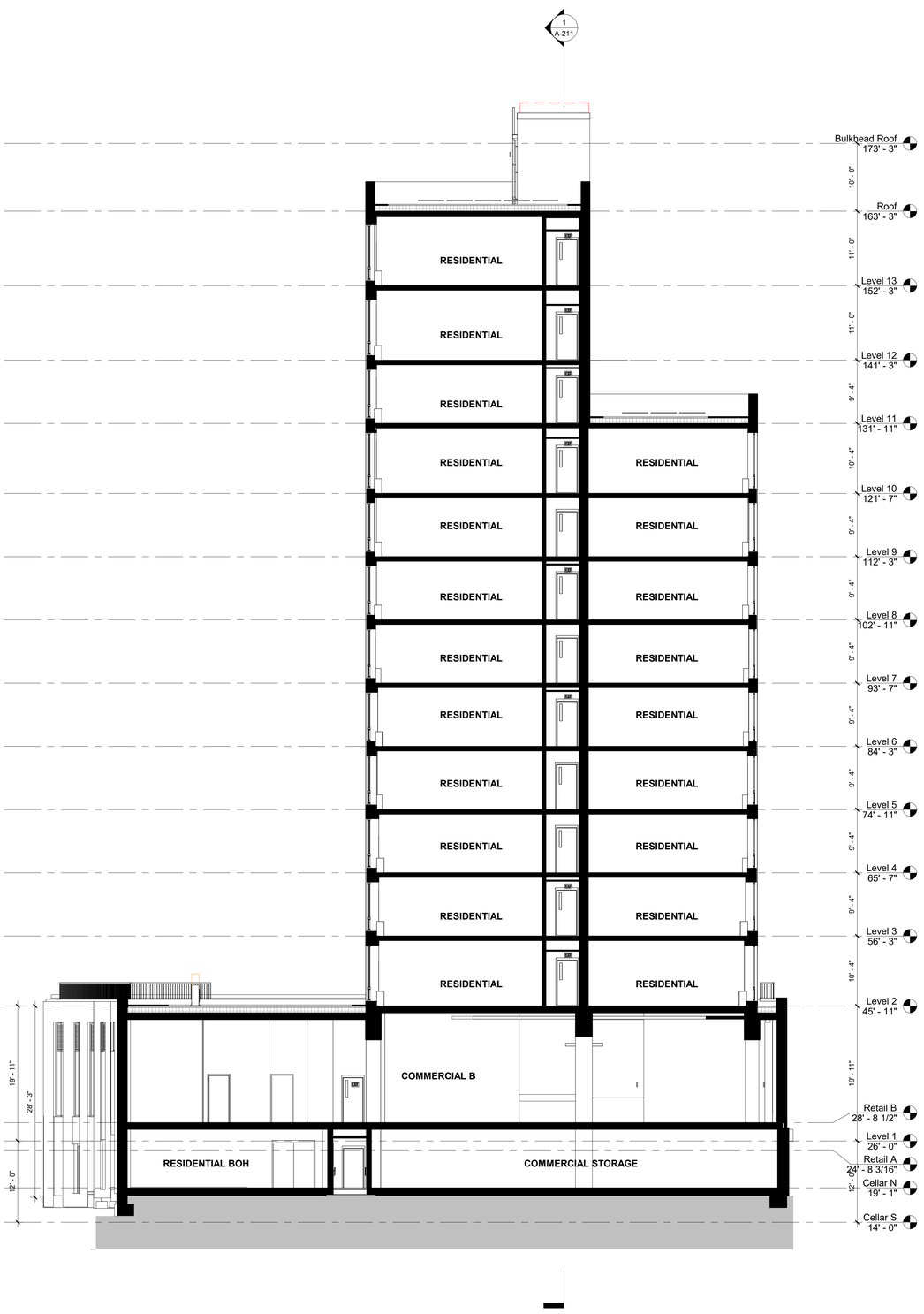
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Drawn By	PN
Checked By	RA
Project No.	2204

Seal

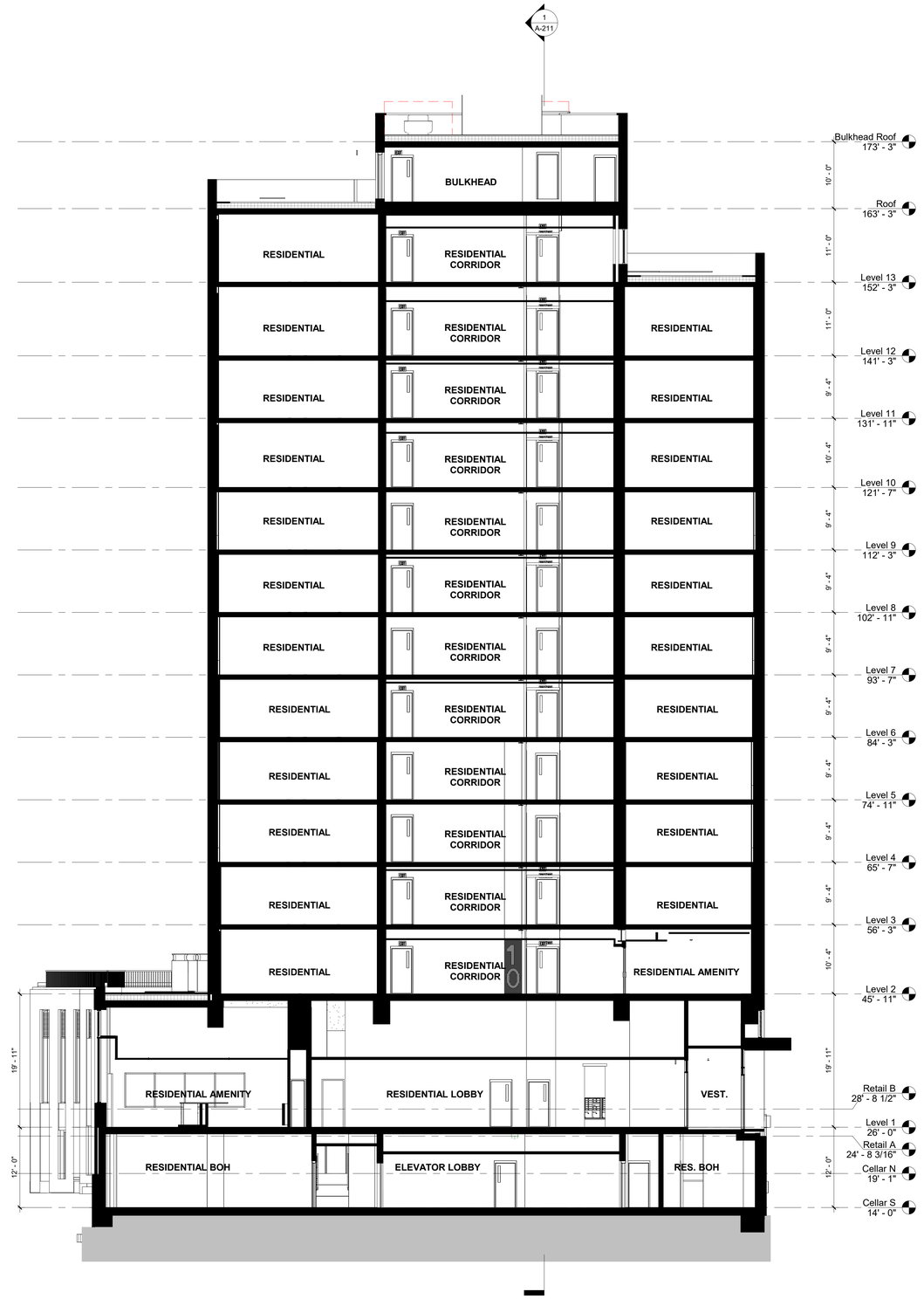
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2 Building Section - Transverse - N. Tower
1/8" = 1'-0"



1 Building Section - Transverse - Lobby
1/8" = 1'-0"

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Nyack, NY 10960

Lighting Designer
Goldstick Lighting Design
629 Fifth Ave, Suite 204
Pelham, NY 10803

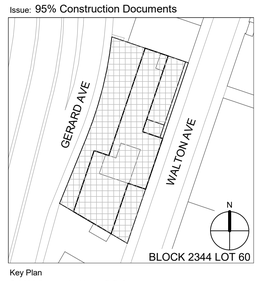
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Sustainability Consultant
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Goshen, NY 10924

Expeditor
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Revisions

Issue: 95% Construction Documents



Key Plan

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Building Section - Transverse

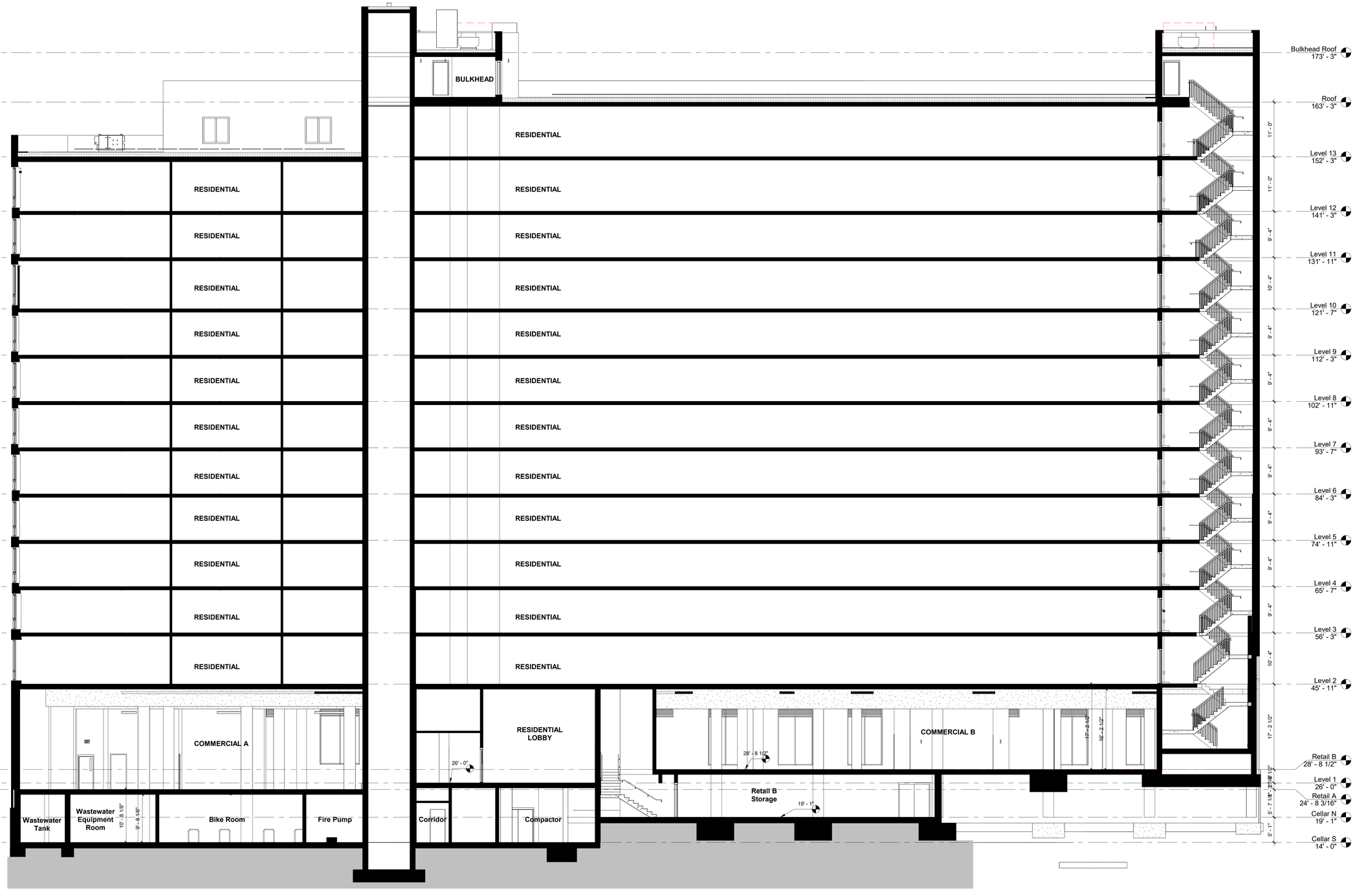
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Drawn By	DA
Checked By	DA
Project No.	2204

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1 Building Section - Longitudinal
1/8" = 1'-0"

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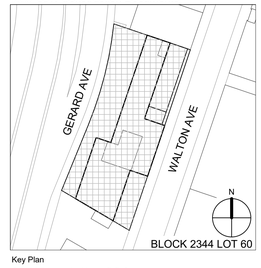
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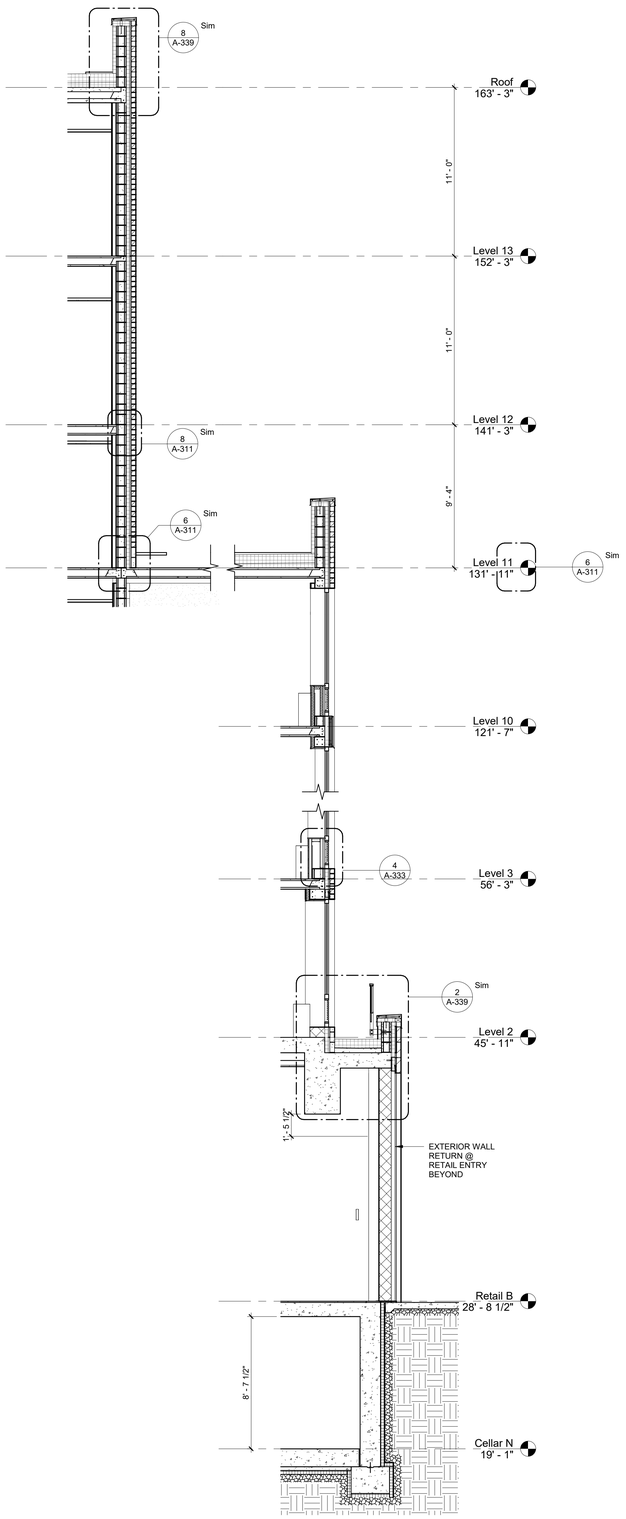
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Project No.	2204
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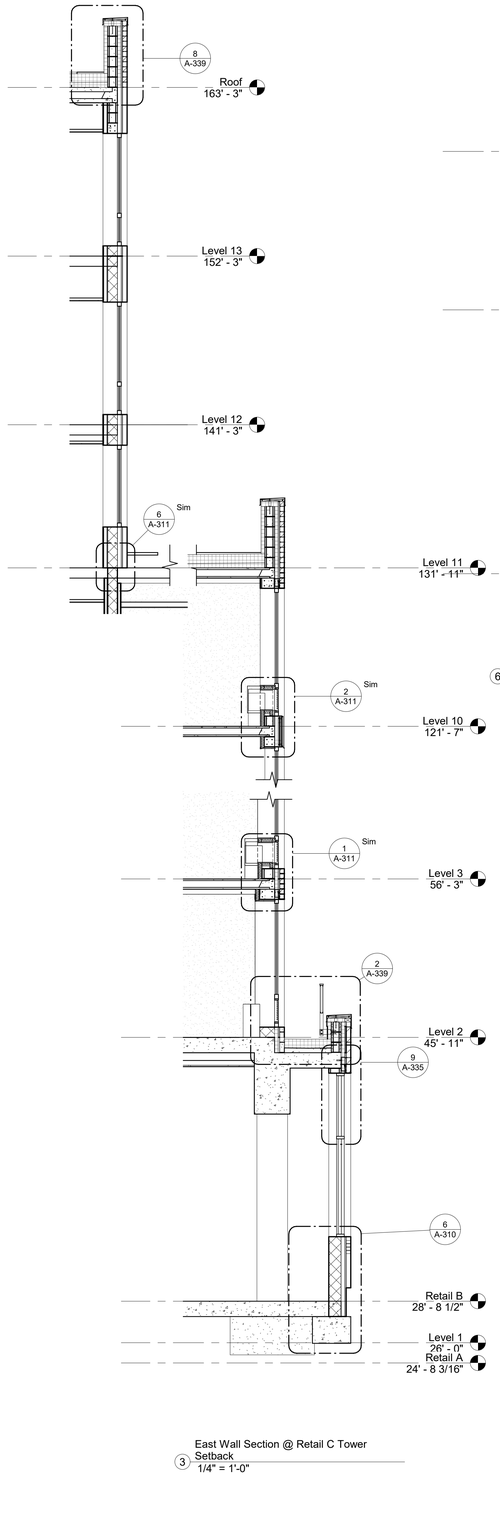
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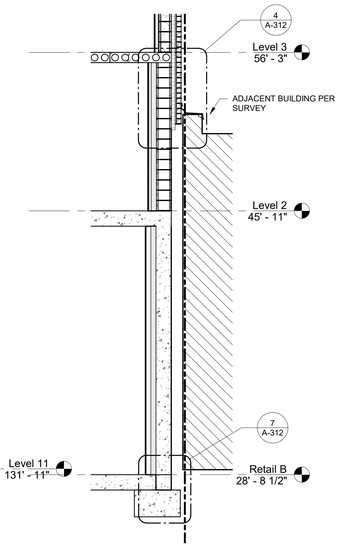
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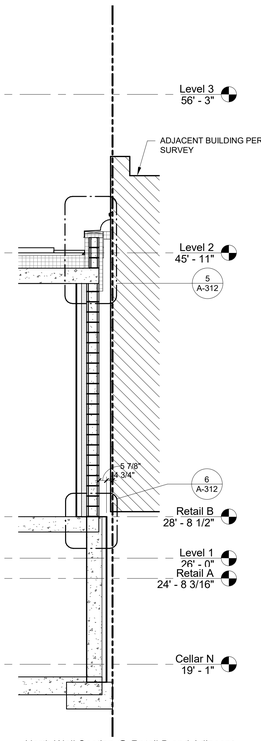
1 East Wall Section @ Retail B
1/4" = 1'-0"



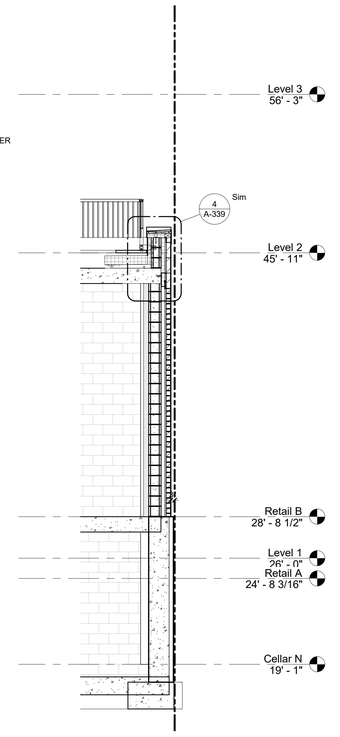
3 East Wall Section @ Retail C Tower Setback
1/4" = 1'-0"



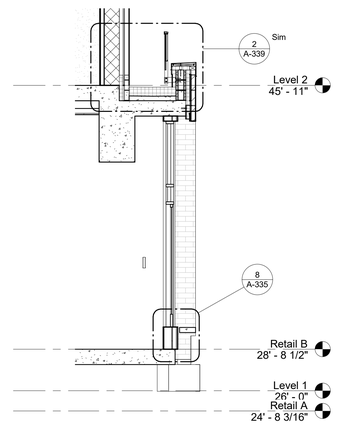
6 North Wall Section @ Residential Tower and Adjacent Building
1/4" = 1'-0"



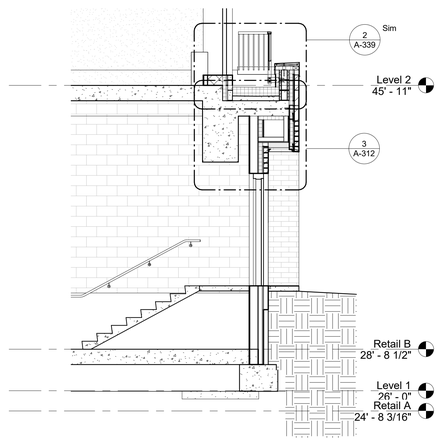
2 North Wall Section @ Retail B and Adjacent Building
1/4" = 1'-0"



11 North Wall Section @ Retail B
1/4" = 1'-0"



9 East Wall Section @ Retail C Entry
1/4" = 1'-0"



10 East Wall Section @ Retail B/C Egress
1/4" = 1'-0"

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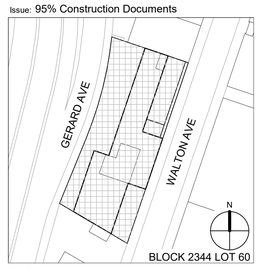
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Wall Sections

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Scale	1/4" = 1'-0"
Drawn By	DA
Checked By	DA
Project No.	2204

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Sheet No.:

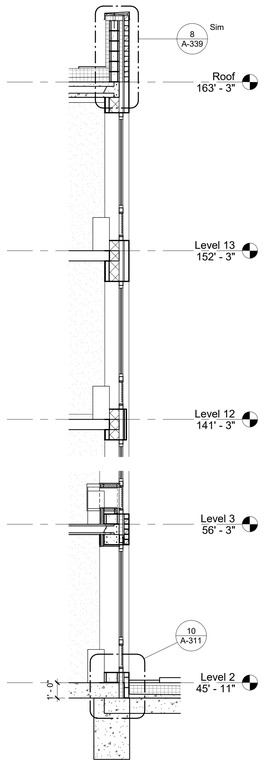
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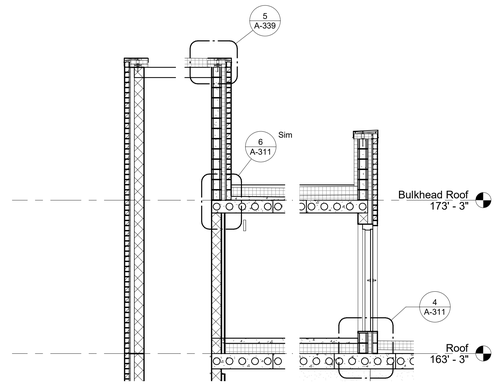
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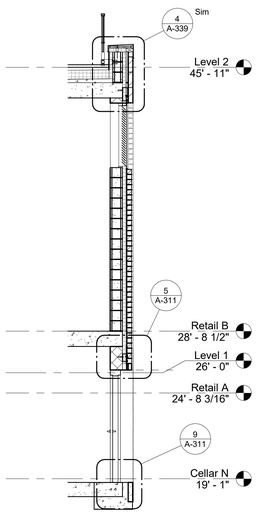
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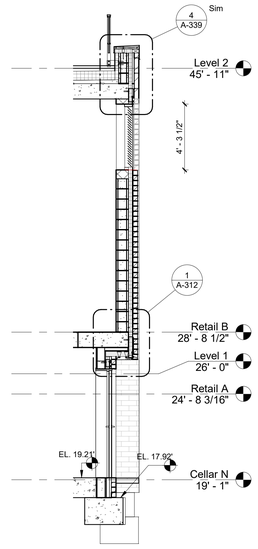
1 Typ. West Wall Section @ Residential Tower
1/4" = 1'-0"



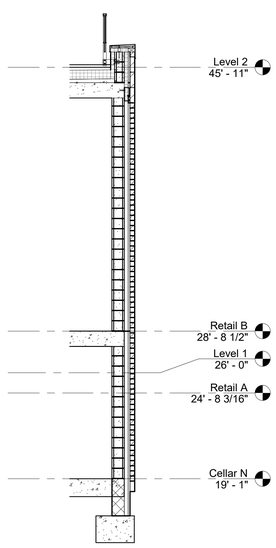
3 Wall Section @ Bulkhead
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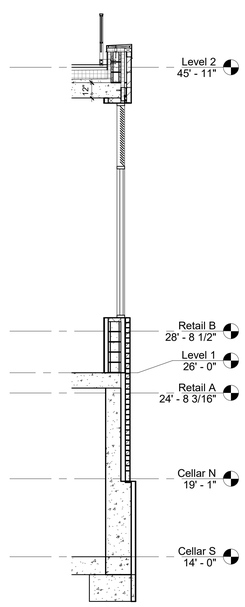
10 West Wall Section @ Trash Storage Room
1/4" = 1'-0"



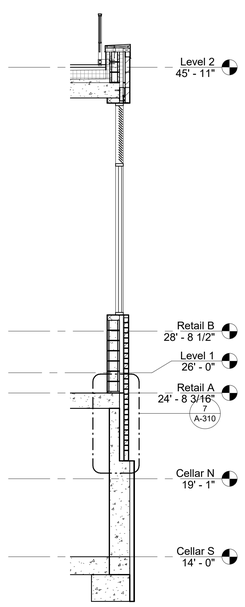
9 West Wall Section @ Cellar Exit
1/4" = 1'-0"



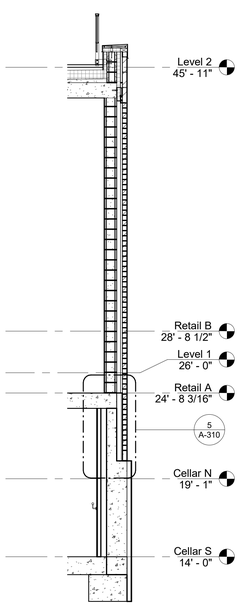
8 Typ. West Wall Section
1/4" = 1'-0"



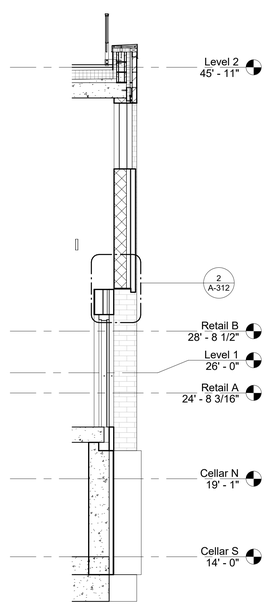
7 Typ. West Wall Section @ at Brick Recess
1/4" = 1'-0"



6 Section 49
1/4" = 1'-0"



5 Section 47
1/4" = 1'-0"



2 West Wall Section @ Stair G Exit
1/4" = 1'-0"

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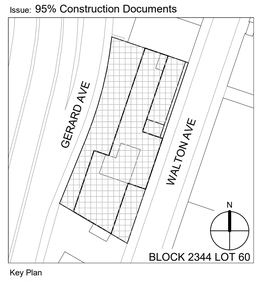
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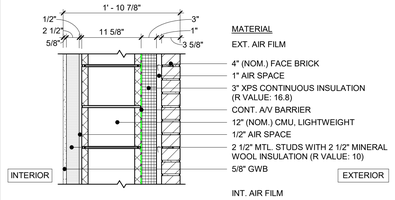
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Wall Sections

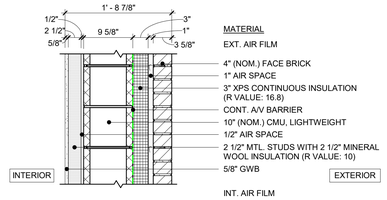
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Drawn By	DA
Checked By	DA
Project No.	2204

Seal

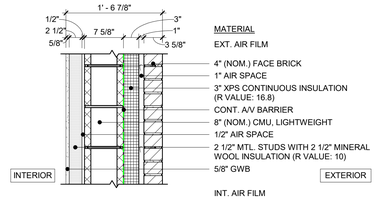
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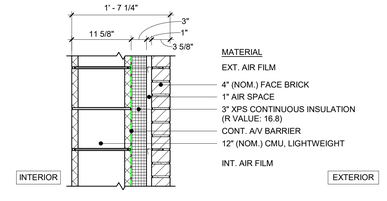
Wall Type 1A - Brick on 12" CMU w/ Int. Furring (R-26.8) Copy 1
1 1" = 1'-0"



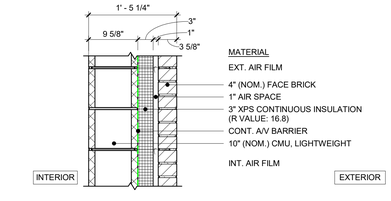
Wall Type 1B - Brick on 10" CMU w/ Int. Furring (R-26.8) Copy 1
2 1" = 1'-0"



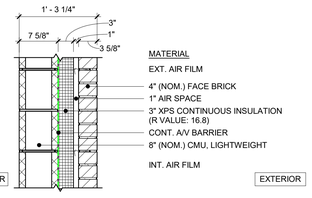
Wall Type 1C - Brick on 8" CMU w/ Int. Furring (R-26.8) Copy 1
3 1" = 1'-0"



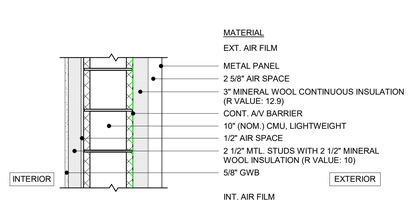
Wall Type 2A - Brick on 12" CMU (R-16.8) Copy 1
4 1" = 1'-0"



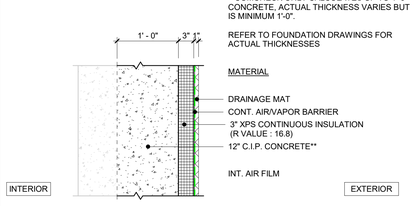
Wall Type 2B - Brick on 10" CMU (R-16.8) Copy 1
5 1" = 1'-0"



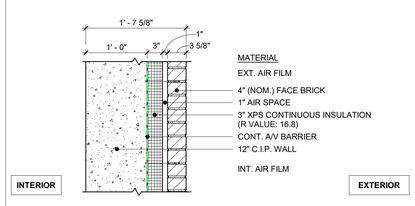
Wall Type 2C - Brick on 8" CMU (R-16.8) Copy 1
6 1" = 1'-0"



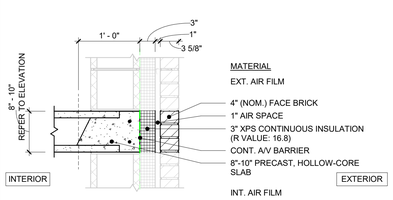
Wall Type 3 - Metal Panel on 10" CMU w/ Int. Furring (R-22.9) Copy 1
8 1" = 1'-0"



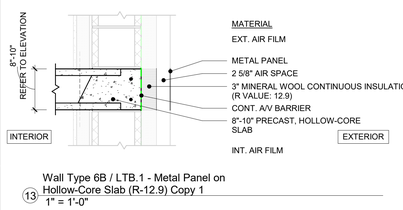
Wall Type 4 - Foundation Wall (R-16.8) Copy 1
10 1" = 1'-0"



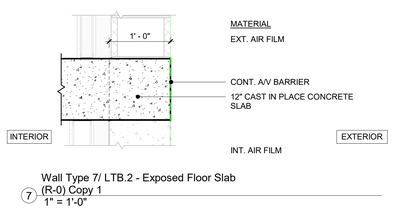
Wall Type 5 - Brick on 12" C.I.P. Concrete (R-16.8) Copy 1
11 1" = 1'-0"



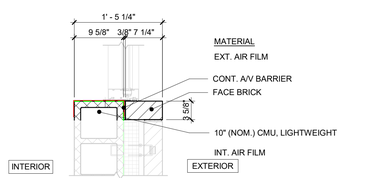
Wall Type 6A / LTB.1 - Brick on Hollow-Core Slab (R-16.8) Copy 1
12 1" = 1'-0"



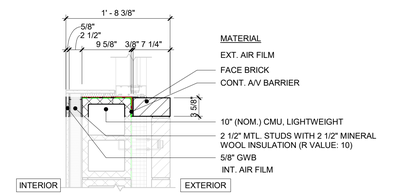
Wall Type 6B / LTB.1 - Metal Panel on Hollow-Core Slab (R-12.9) Copy 1
13 1" = 1'-0"



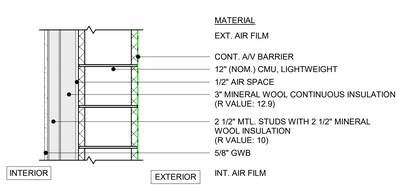
Wall Type 7/ LTB.2 - Exposed Floor Slab (R-0) Copy 1
7 1" = 1'-0"



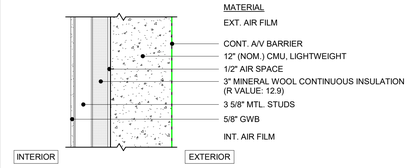
Wall Type 8.1/ LTB.3 - Thermal Bridge at Brick Return (R-0) Copy 1
9 1" = 1'-0"



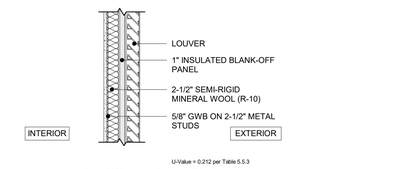
Wall Type 8.2/ LTB.4 - Thermal Bridge at Brick Return with Interior Furring (R-10) Copy 1
16 1" = 1'-0"



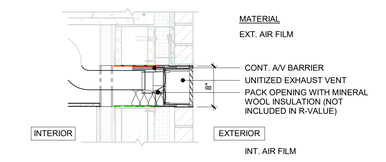
Wall Type 9.1 - 12" CMU w/ Int. Continuous Insulation & Furring (R-22.9) Copy 1
17 1" = 1'-0"



Wall Type 9.2 - 12" CIP Concrete w/ Int. Continuous Insulation (R-12.9) Copy 1
18 1" = 1'-0"



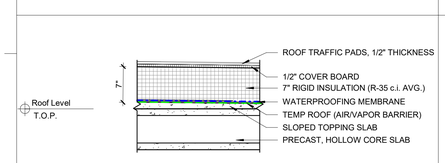
Storefront and Window- Louver Blank-off (R-10) Copy 1
15 1" = 1'-0"



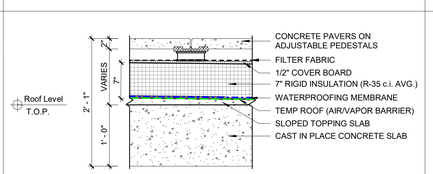
Exhaust Vent - (R-0) Copy 1
19 1" = 1'-0"

BARRIERS AND MEMBRANES LEGEND
(BEST VIEWED IN COLOR)

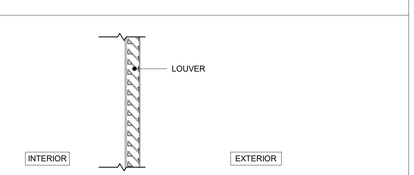
- AIR BARRIER
- VAPOR BARRIER
- FLASHING
- WATERPROOFING
- ROOFING MEMBRANE
- MEMBRANE FLASHING
- DAMPPROOFING



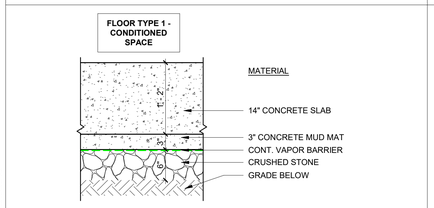
Roof Type 1 (R-35) Copy 1
20 1" = 1'-0"



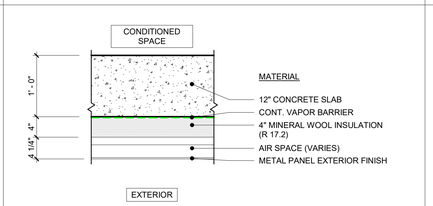
Roof Type 2 (R-35) Copy 1
21 1" = 1'-0"



Mechanical Louver Copy 1
23 1" = 1'-0"

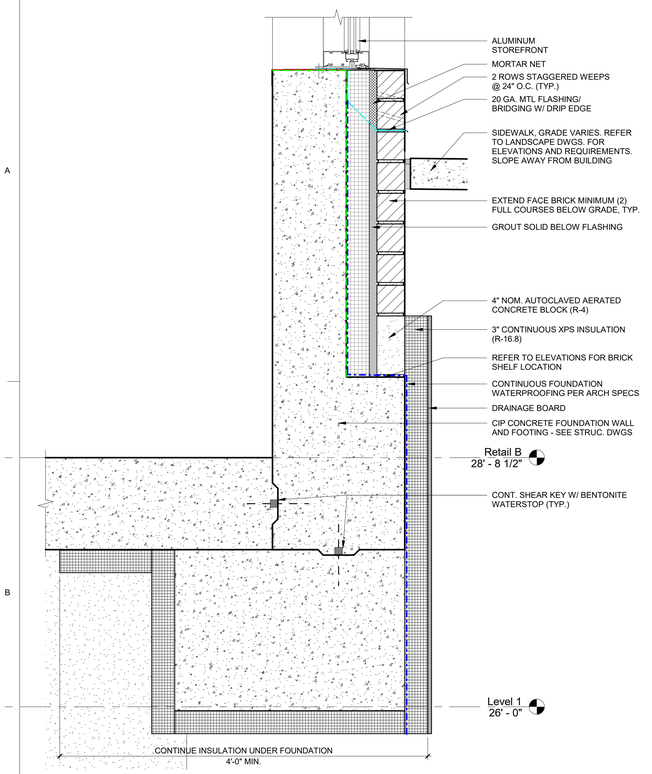


Floor Type 1 Copy 1
22 1" = 1'-0"

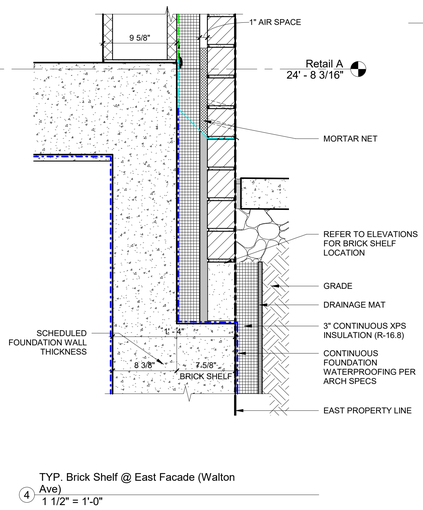


Floor Type 2 (R-17.2) Copy 1
14 1" = 1'-0"

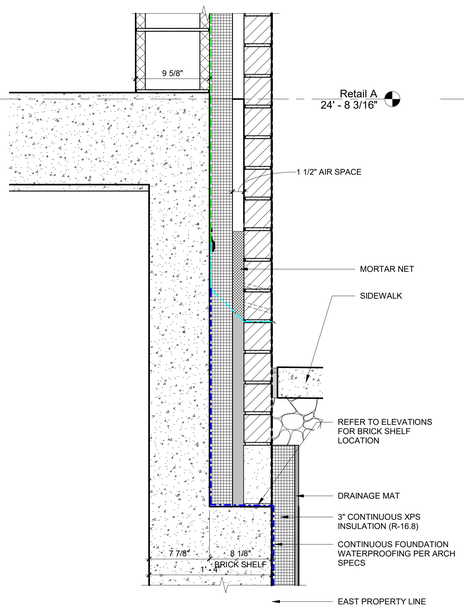
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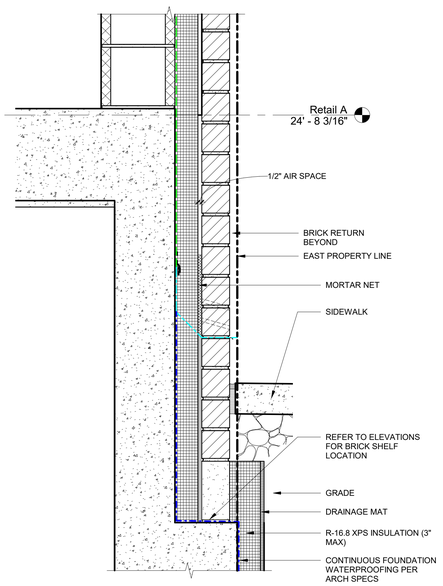
6 Footing Detail @ Ground SOG
1 1/2" = 1'-0"



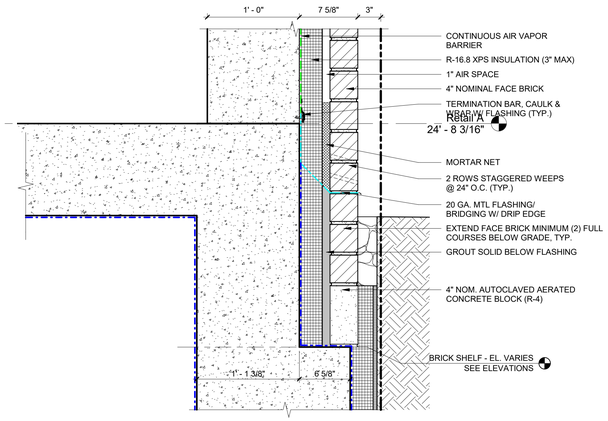
4 TYP. Brick Shelf @ East Facade (Walton Ave)
1 1/2" = 1'-0"

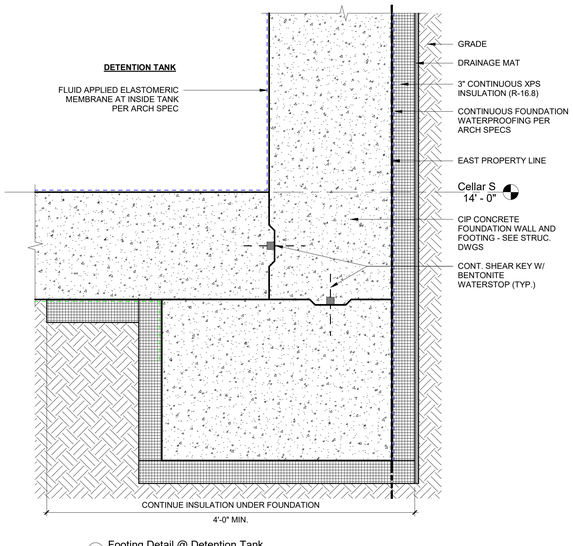


5 TYP. Brick Shelf @ West Facade (Gerard Ave)
1 1/2" = 1'-0"

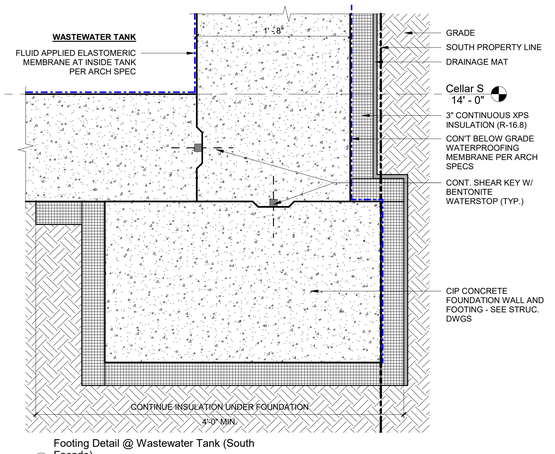


7 TYP. Brick Shelf @ West Facade Brick Recesses (Gerard Ave)
1 1/2" = 1'-0"

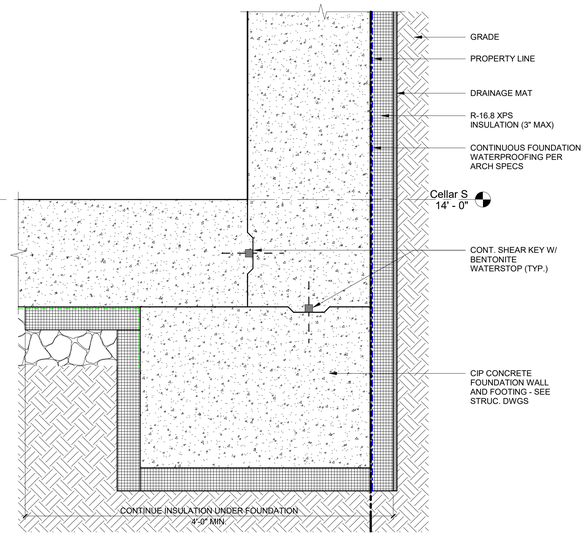




3 Footing Detail @ Detention Tank
1 1/2" = 1'-0"



2 Footing Detail @ Wastewater Tank (South Facade)
1 1/2" = 1'-0"



1 Footing Detail Typical @ Conditioned Cellar
1 1/2" = 1'-0"

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261 Walton Ave

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Bronx, NY 10451

JCAL Development
55 Bruckner Blvd
Bronx, NY 10454

Touchstone Builders
200 Business Park Dr
Suite 307
Armonk, NY 10504

Knickpoint Ventures
555 Madison Avenue, Fl 6,
New York, NY 10022

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Dagher Engineering
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Landscape Architect
Weintraub Diaz Landscape Architecture PLLC
19 New Street
Nyack, NY 10960

Lighting Designer
Goldstick Lighting Design
629 Fifth Ave, Suite 204
Pelham, NY 10803

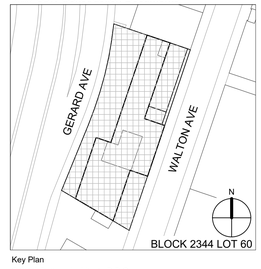
Environmental Consultant
Langan
21 Penn Plaza, 8th Floor
New York, NY 10001

Sustainability Consultant
The Daylight Savings Company
48 North Church St.
Goshen, NY 10924

Expeditor
JM Zoning
225 Broadway, Suite 1300
New York, NY 10007

Revisions

Issue: 95% Construction Documents



Key Plan

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Foundation Details

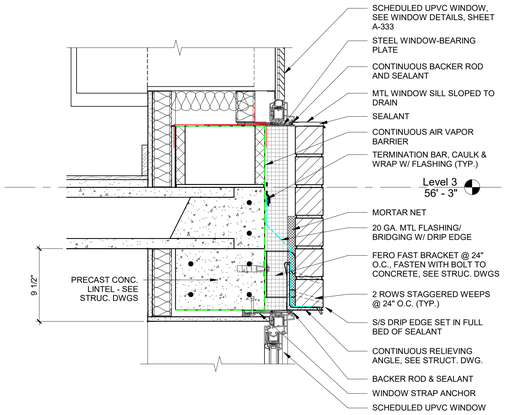
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Checked By	DA
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Sheet No.:	A-310.00

Seal

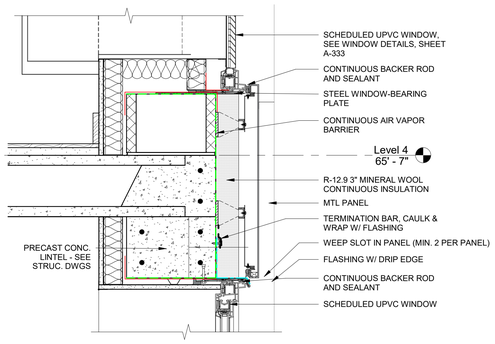
0 of

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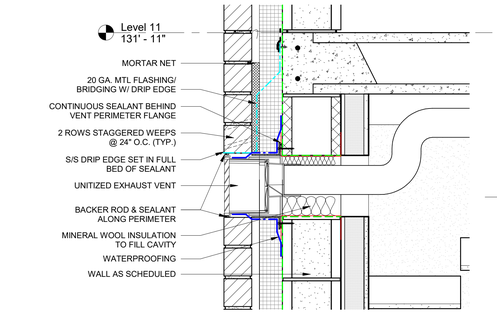
1 Typical Window with PTHP Sill & Head at Brick
1 1/2" = 1'-0"



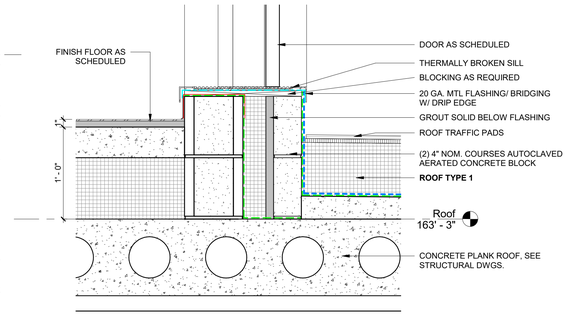
2 Typical Window with PTHP Sill & Head at Metal Panel
1 1/2" = 1'-0"

BARRIERS AND MEMBRANES LEGEND
(BEST VIEWED IN COLOR)

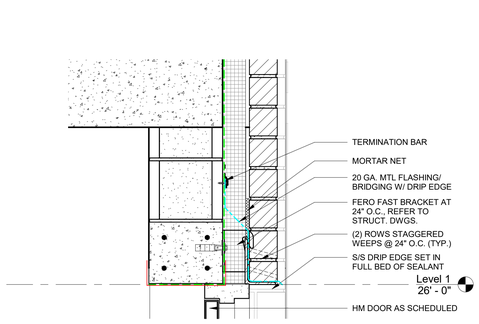
- AIR BARRIER
- VAPOR BARRIER
- FLASHING
- WATERPROOFING
- ROOFING MEMBRANE
- MEMBRANE FLASHING
- DAMPPROOFING



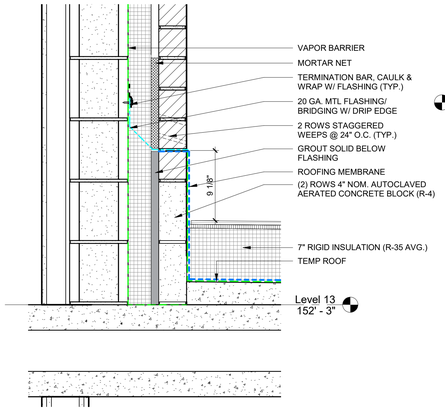
3 Unitized Vent
1 1/2" = 1'-0"



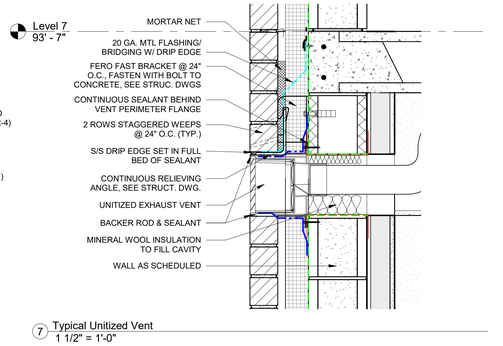
4 TYP. Threshold at Roof Bulkhead
1 1/2" = 1'-0"



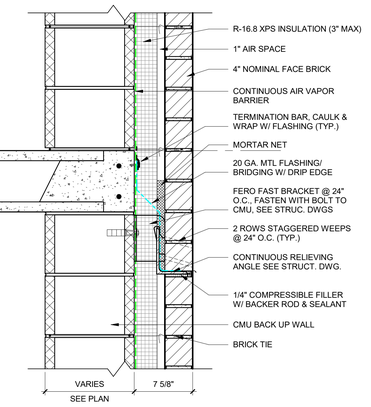
5 Typical Exterior HM Door Head
1 1/2" = 1'-0"



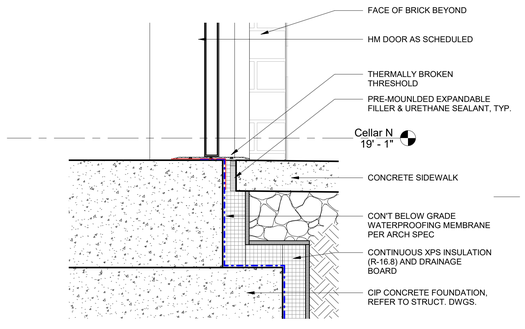
TYP. Section Detail - Roof Flashing @ Main Roof
6 1 1/2" = 1'-0"



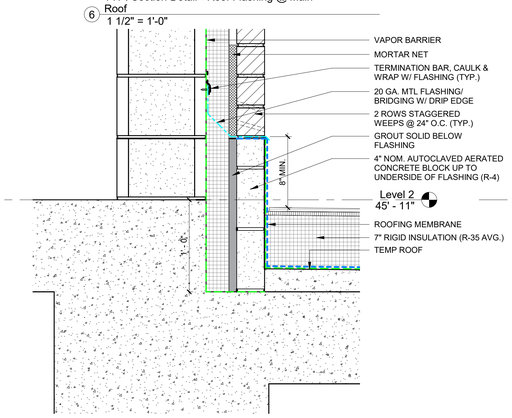
7 Typical Unitized Vent
1 1/2" = 1'-0"



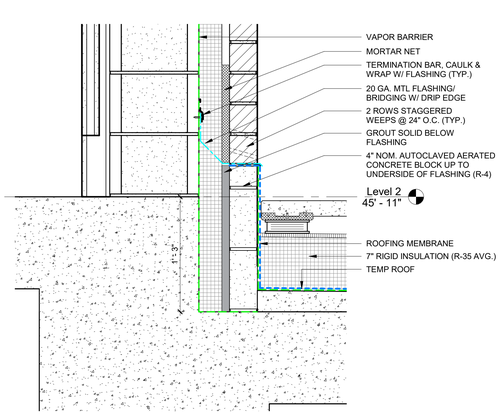
8 Brick Relieving Angle - Typical @ CMU
1 1/2" = 1'-0"



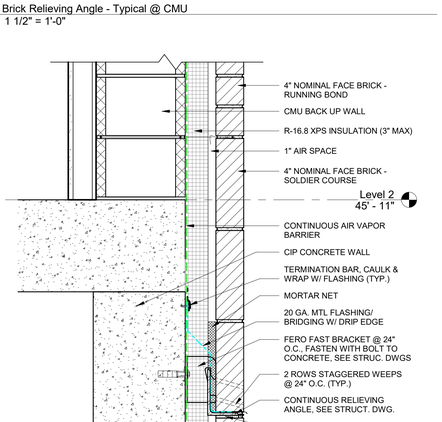
9 Typical Exterior HM Door Sill
1 1/2" = 1'-0"



10 Section Detail - IRMA Roof @ 2nd Floor Dropped Slab
1 1/2" = 1'-0"



11 Section Detail - Dropped Slab @ Amenity Terrace
1 1/2" = 1'-0"



12 Brick Detail @ Concrete/CMU Transition
1 1/2" = 1'-0"

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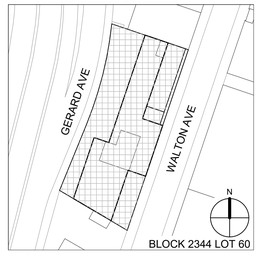
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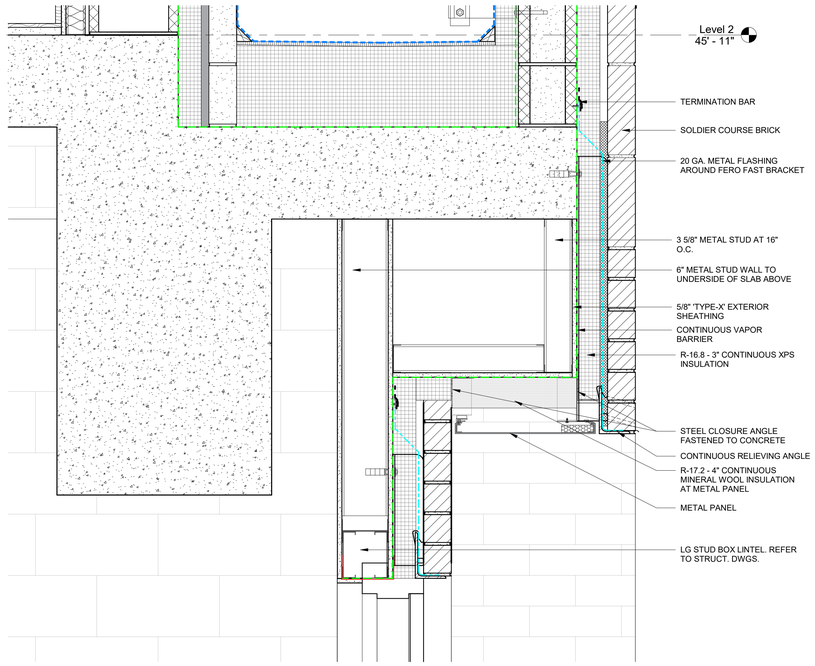
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Typical Exterior Wall Section Details

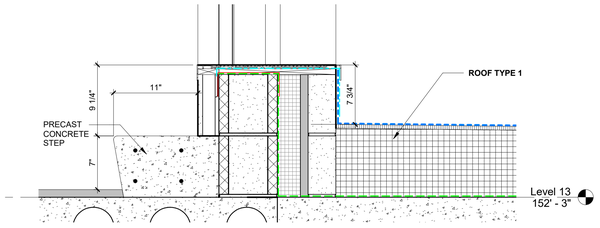
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Project No.	2204

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0 of
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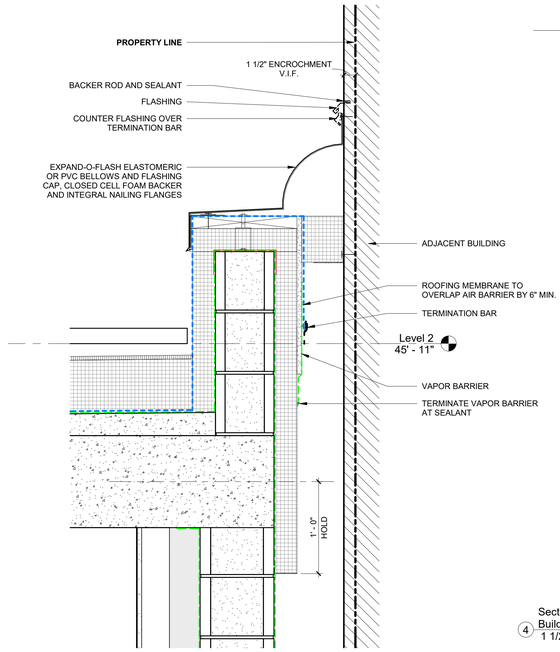
3 Section Detail - Retail B Egress Door
1 1/2" = 1'-0"



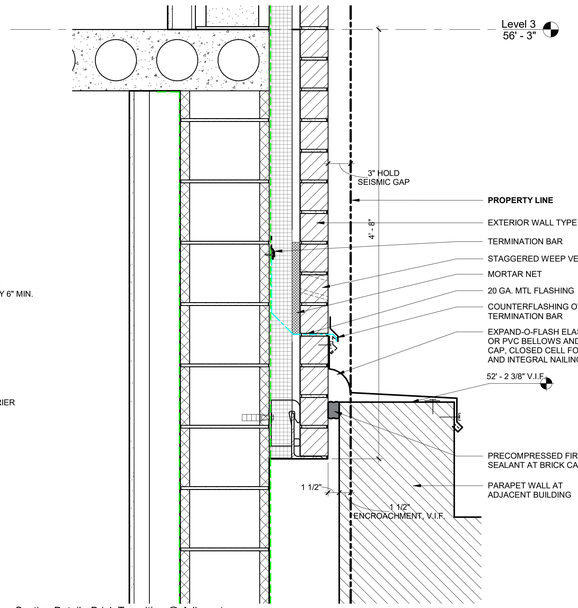
Section Detail - Sill @ 13th Floor Mechanical Roof Access Door
8 1 1/2" = 1'-0"

BARRIERS AND MEMBRANES LEGEND
(BEST VIEWED IN COLOR)

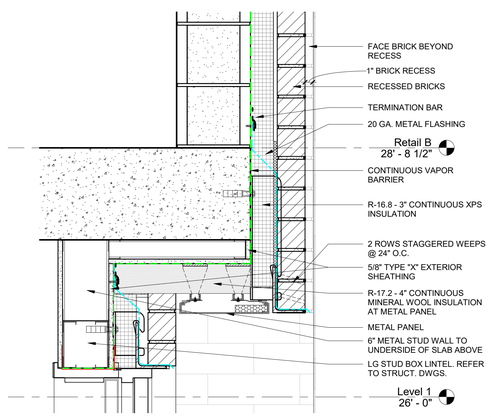
- AIR BARRIER
- VAPOR BARRIER
- FLASHING
- WATERPROOFING
- ROOFING MEMBRANE
- MEMBRANE FLASHING
- DAMPPROOFING



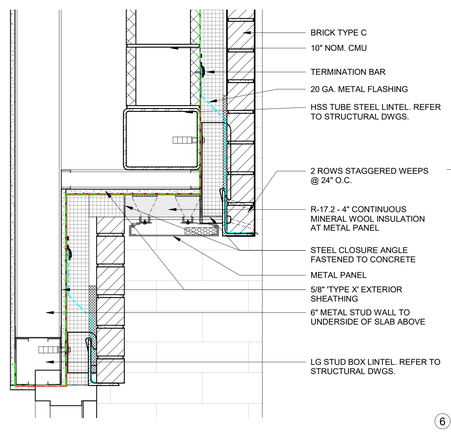
5 Parapet Wall Section @ Adjacent North Building
1 1/2" = 1'-0"



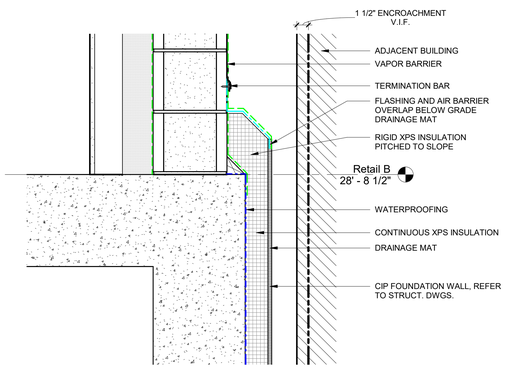
4 Section Detail - Brick Transition @ Adjacent Building
1 1/2" = 1'-0"



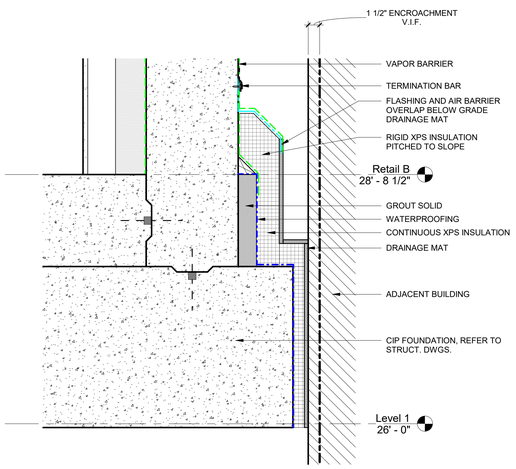
Section Detail - Cellar Egress Door
1 1/2" = 1'-0"



2 Section Detail - Retail A Egress Door
1 1/2" = 1'-0"



6 Wall Section @ North Wall and Neighboring Building
1 1/2" = 1'-0"



7 Foundation Detail at North Wall and Neighboring Building
1 1/2" = 1'-0"

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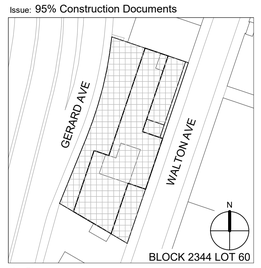
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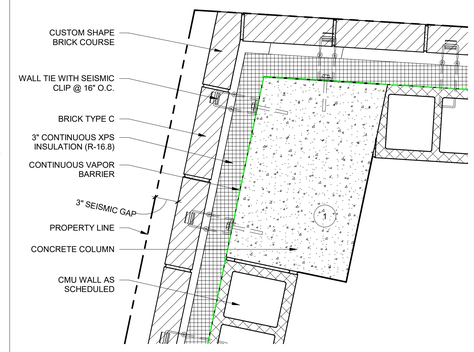
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Exterior Wall Section Details

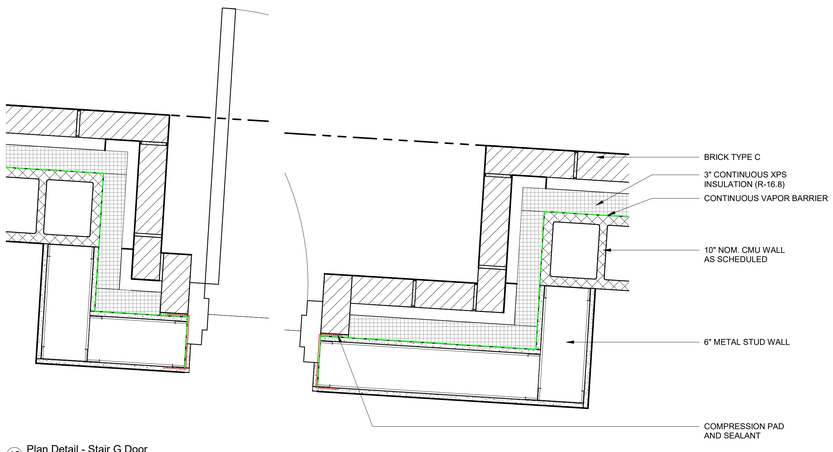
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Checked By	DA
Project No.	2204
Sheet No.:	A-312.00

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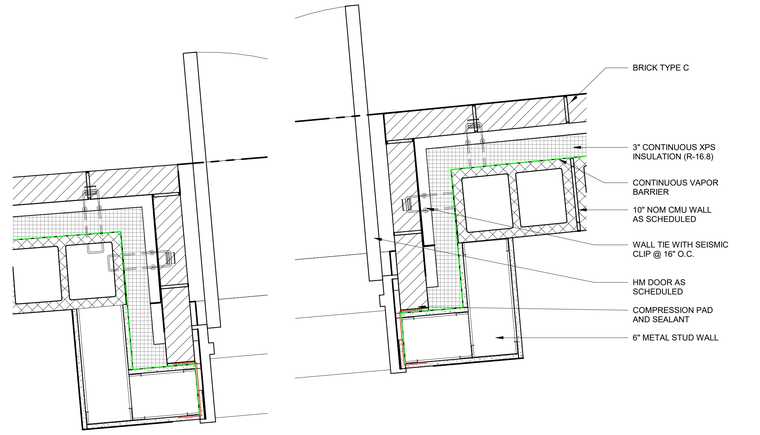
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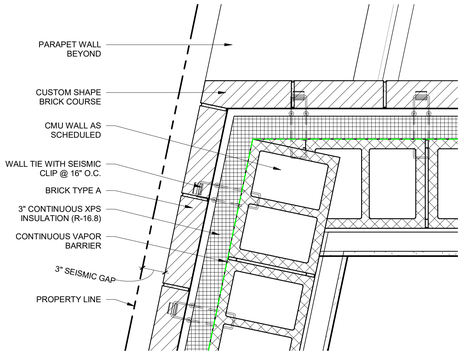
4 Plan Detail - Level 1 - SW Corner
1 1/2" = 1'-0"



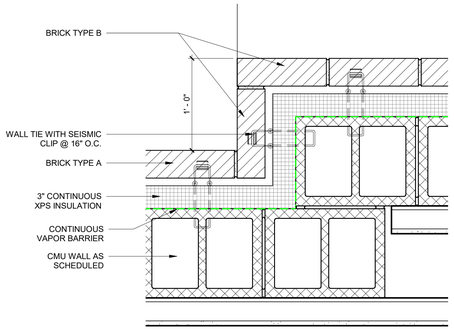
12 Plan Detail - Stair G Door
1 1/2" = 1'-0"



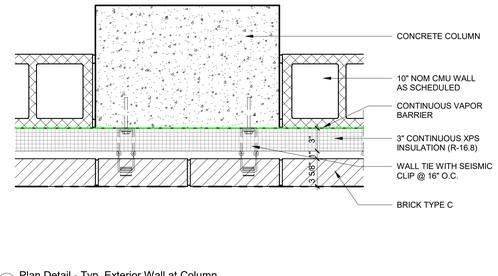
3 Plan Detail - Cellar Door XXX Jambs
1 1/2" = 1'-0"



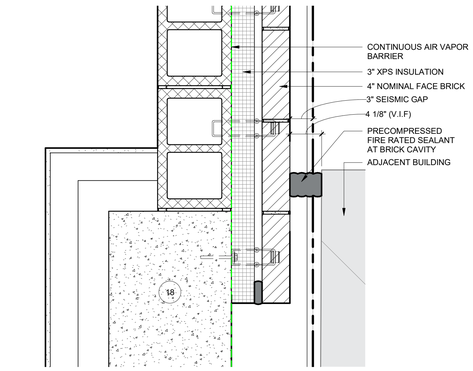
8 Plan Detail - Tower SW Corner
1 1/2" = 1'-0"



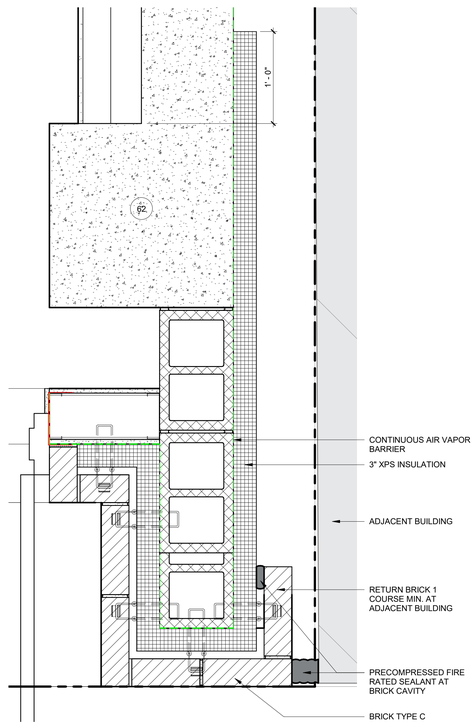
10 Plan Detail - Tower Setback at SW
1 1/2" = 1'-0"



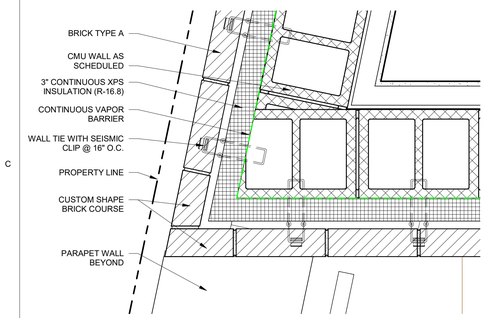
11 Plan Detail - Typ. Exterior Wall at Column
1 1/2" = 1'-0"



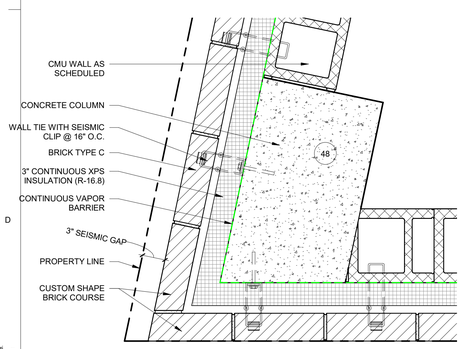
Plan Detail - Level 1 - North Wall @ Adjacent Building
1 1/2" = 1'-0"



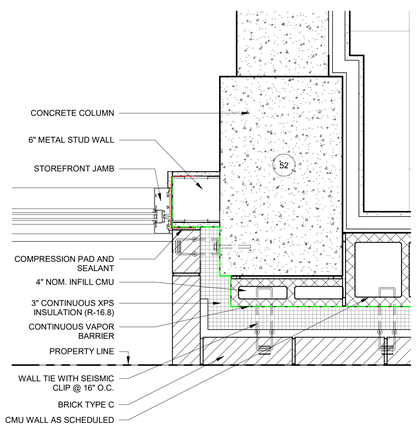
6 Plan Detail - Level 1 - NE Corner
1 1/2" = 1'-0"



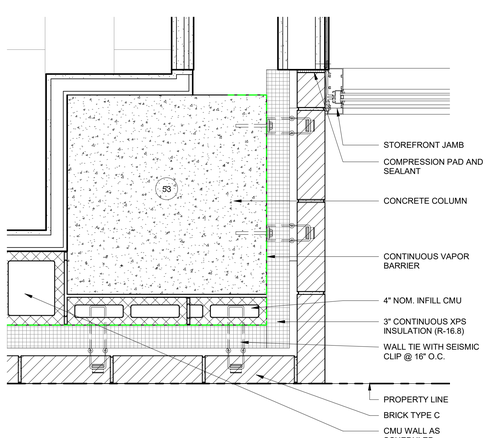
9 Plan Detail - Tower SE Corner
1 1/2" = 1'-0"



5 Plan Detail - Level 1 - SE Corner
1 1/2" = 1'-0"



2 Plan Detail - Retail A North Entry Jamb
1 1/2" = 1'-0"



1 Plan Detail - Residential Entry Jamb
1 1/2" = 1'-0"

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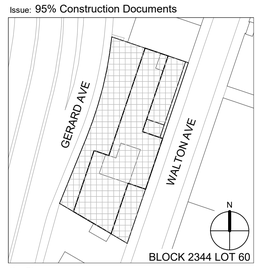
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Exterior Wall Plan Details

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Sheet No.:	A-314.00

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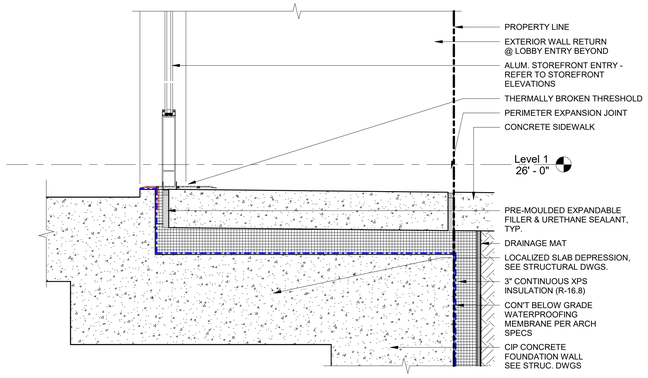
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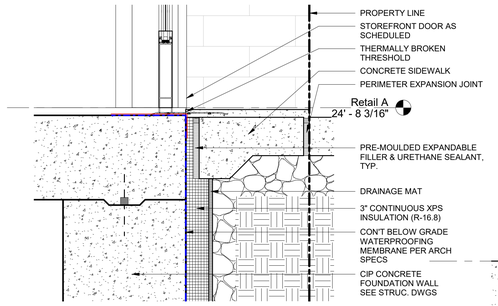
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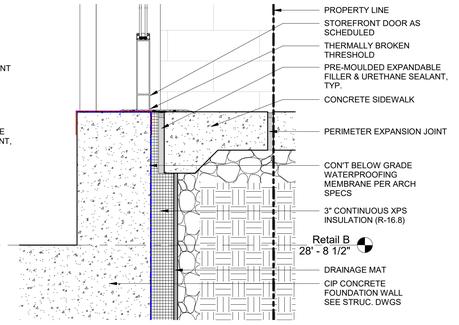
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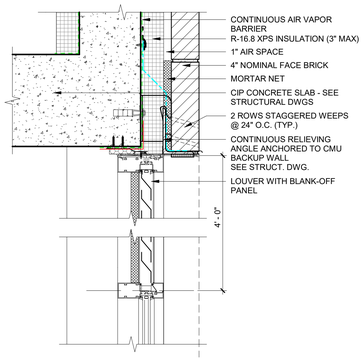
1 Storefront Sill @ Residential Entry
1 1/2" = 1'-0"



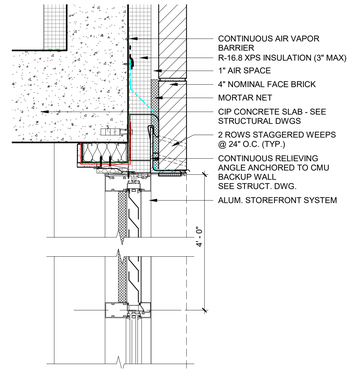
3 Storefront Entry Sill @ Retail
1 1/2" = 1'-0"



8 Storefront Entry Sill @ Retail B North Entry
1 1/2" = 1'-0"



6 Retail A - Storefront Head
1 1/2" = 1'-0"

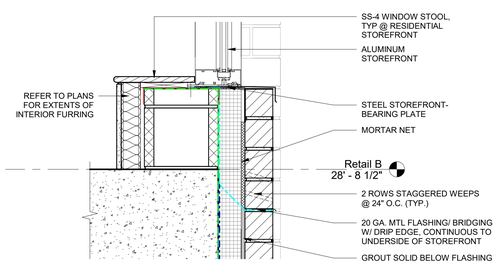


9 Typical Storefront Head
1 1/2" = 1'-0"

11 Plan Detail - Typical Storefront Entry Jamb
1 1/2" = 1'-0"

10 Plan Detail - Typ. Storefront Jamb Detail
1 1/2" = 1'-0"

5 Retail A - Storefront Sill
1 1/2" = 1'-0"



2 Section Detail - Storefront Sill @ Gerard Ave
1 1/2" = 1'-0"

4 TYP. Storefront Sill Along Walton Ave
1 1/2" = 1'-0"

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- VAPOR BARRIER
- FLASHING
- WATERPROOFING
- ROOFING MEMBRANE
- MEMBRANE FLASHING
- DAMPPROOFING

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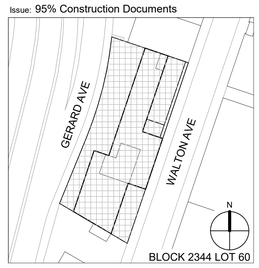
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New York, NY 10007

Revisions

Issue: 95% Construction Documents



Key Plan

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Exterior Storefront Details

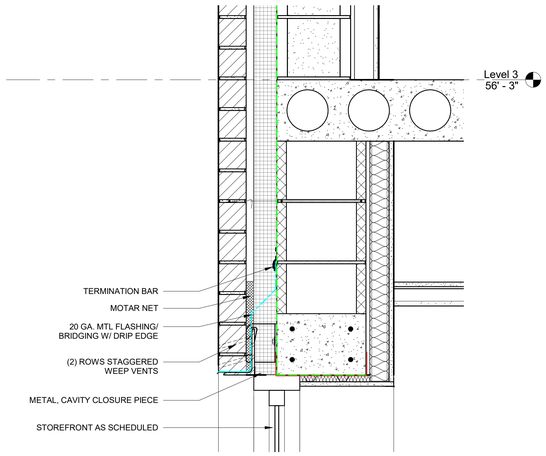
Date	03/31/23
Scale	As indicated
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Checked By	Checker
Project No.	2204

Seal

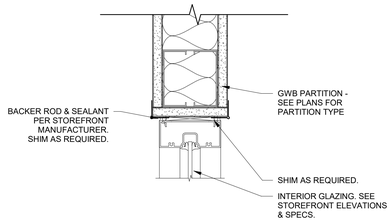
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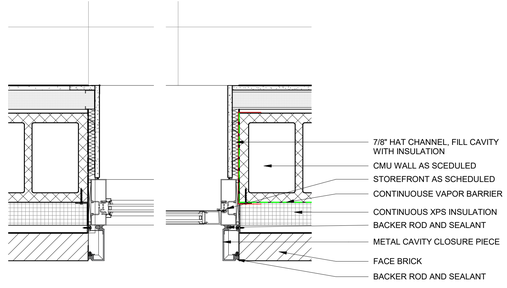
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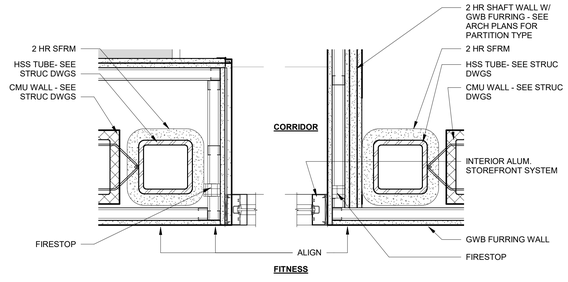
10 TYP. Door Head @ 2nd Floor Amenity Terrace
1 1/2" = 1'-0"



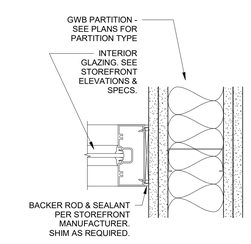
9 TYP. Interior Storefront Head
3" = 1'-0"



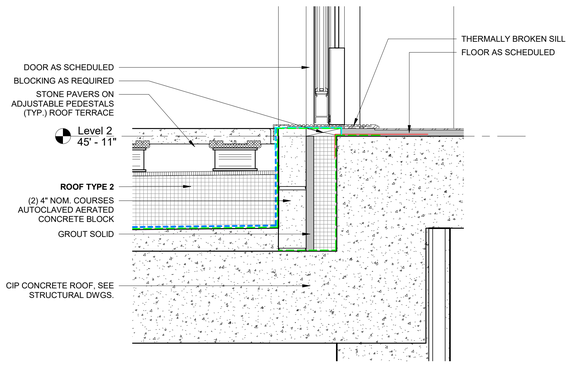
8 Plan Detail - Amenity Terrace Storefront Jamb
1 1/2" = 1'-0"



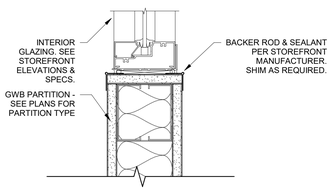
7 Plan Detail @ HSS Post at Fitness Entrance
1 1/2" = 1'-0"



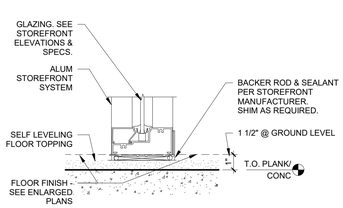
6 Interior Storefront Jamb @ GWB Partition
3" = 1'-0"



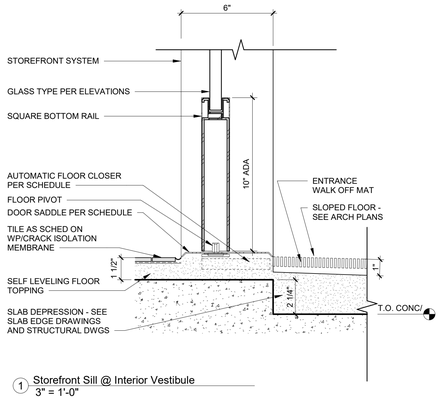
5 TYP. Threshold @ 2nd Floor Amenity Terrace
1 1/2" = 1'-0"



3 Storefront Sill @ Interior Storefront Window
3" = 1'-0"



2 TYP Interior Storefront Sill
3" = 1'-0"



1 Storefront Sill @ Interior Vestibule
3" = 1'-0"

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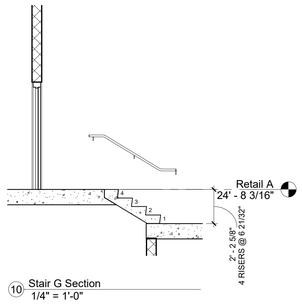
Key Plan

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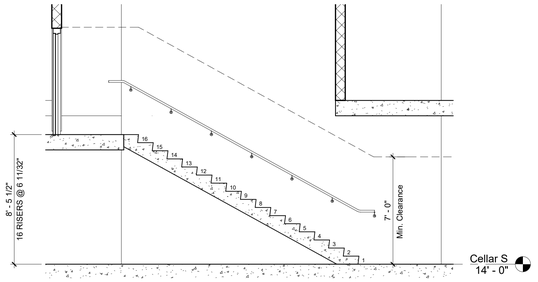
Storefront Details

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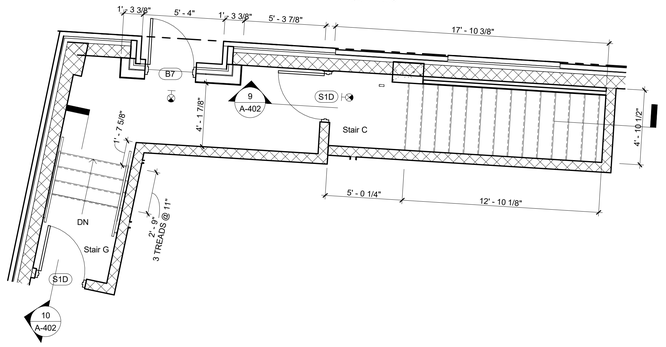
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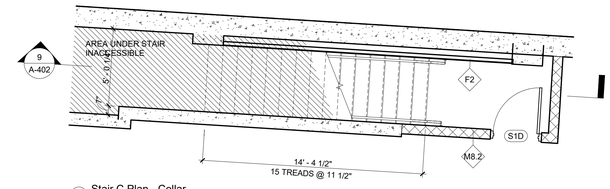
10 Stair G Section
1/4" = 1'-0"



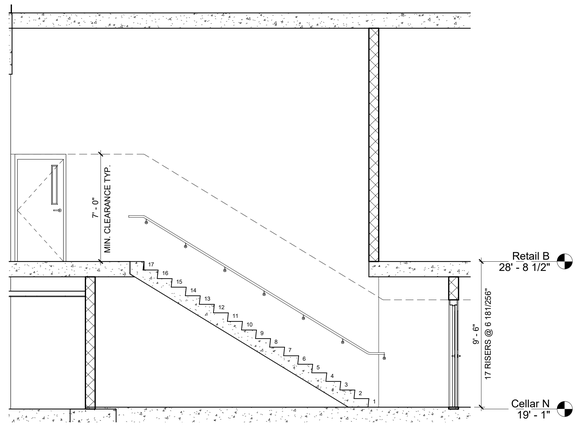
9 Stair C Section
1/4" = 1'-0"



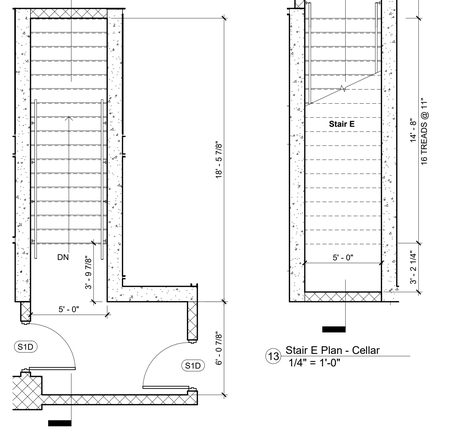
8 Stair C - Retail A
1/4" = 1'-0"



12 Stair C Plan - Cellar
1/4" = 1'-0"

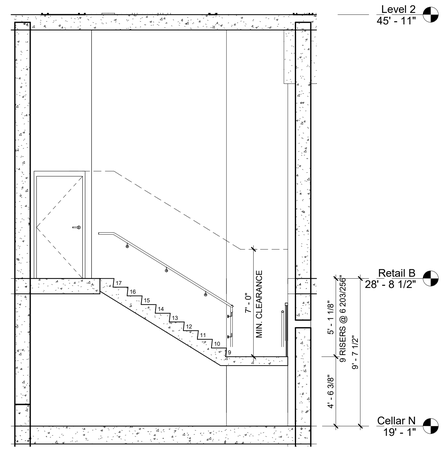


7 Stair E Section
1/4" = 1'-0"

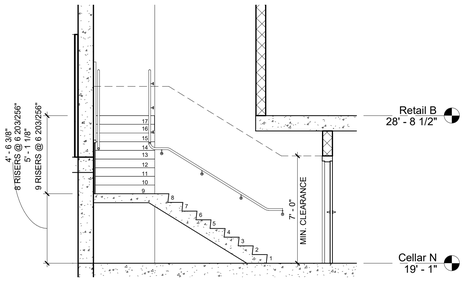


4 Stair E - Retail C
1/4" = 1'-0"

13 Stair E Plan - Cellar
1/4" = 1'-0"

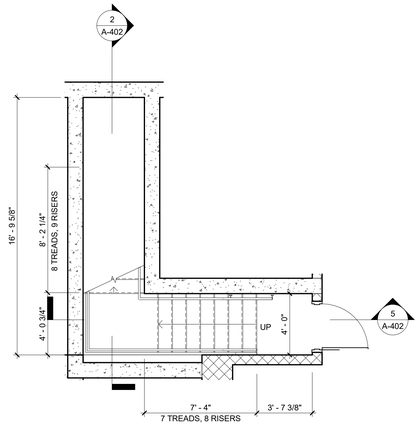


2 Stair D Section (Upper Run)
1/4" = 1'-0"



5 Stair D Section (Lower Run)
1/4" = 1'-0"

6 Stair D - Retail B
1/4" = 1'-0"



1 Stair D_Cellar
1/4" = 1'-0"

11 Stair F Section
1/4" = 1'-0"

3 Stair F - Retail C
1/4" = 1'-0"

STAIR NOTES

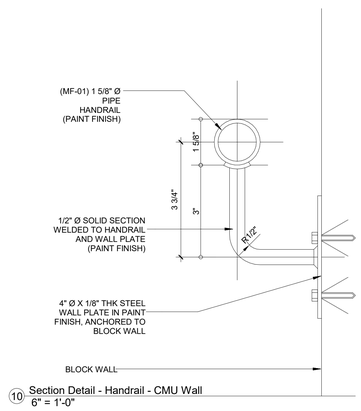
1. GENERAL NOTES:

   STAIR LANDINGS SHOULD ALIGN WITH THE F.F.E.

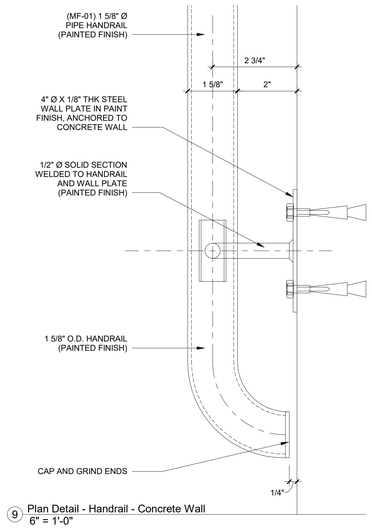
2. CANE PROTECTION NOTE:

   AT STANDPIPE RISER AND RIG, TYPICAL AT ALL LANDINGS, PROVIDE A 4" HIGH CONCRETE PAD AND CANE RAILS TO A HEIGHT OF 27" A.F.F. IN ACCORDANCE WITH ANSI 117.1 SECTION 307.2. THE CANE DETECTABLE BARRIER SHALL NOT PROTRUDE HORIZONTALLY MORE THAN 4" INTO THE CIRCULATION PATH.

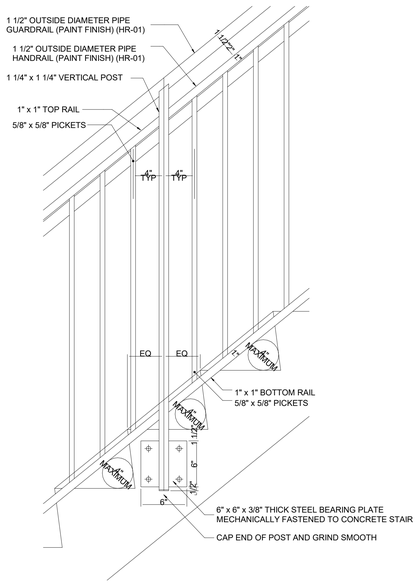
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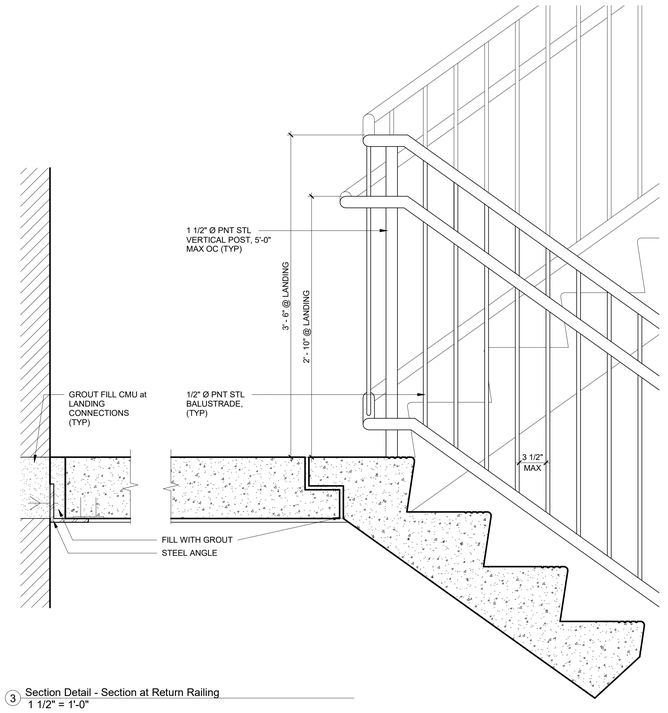
10 Section Detail - Handrail - CMU Wall
6" = 1'-0"



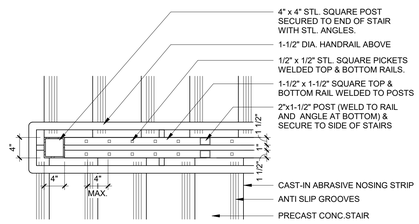
9 Plan Detail - Handrail - Concrete Wall
6" = 1'-0"



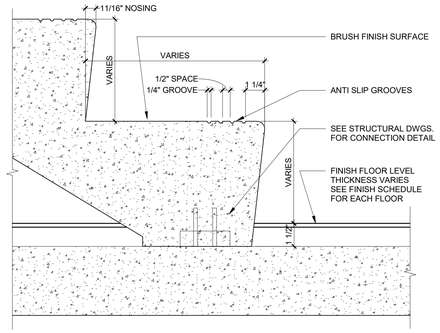
11 Section Detail - Typical Stair Post
1 1/2" = 1'-0"



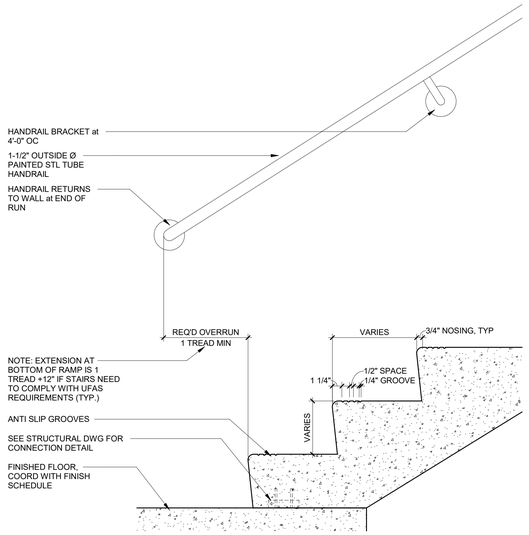
3 Section Detail - Section at Return Railing
1 1/2" = 1'-0"



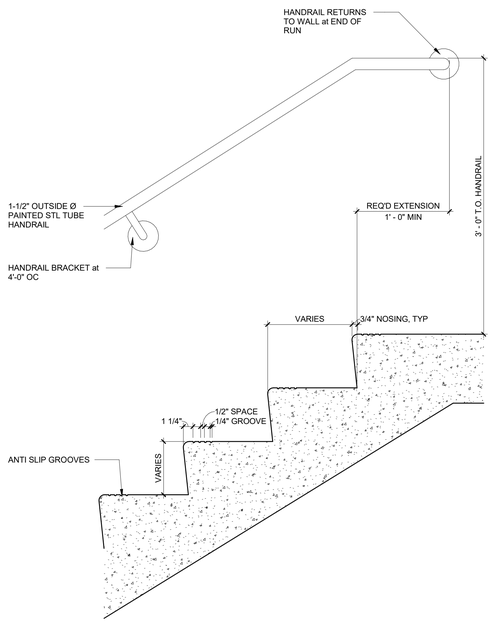
8 Plan Detail - Handrail at Precast Stair
1" = 1'-0"



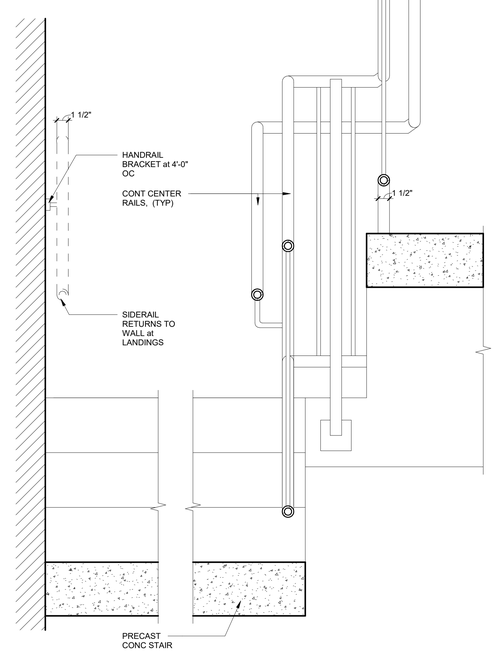
1 Precast Concrete Stair Tread and Riser
3" = 1'-0"



5 Section Detail - Typical Stair - Stair at Bottom
1 1/2" = 1'-0"



6 Section Detail - Typical Stair - Stair at top
1 1/2" = 1'-0"



4 Section Detail - Cross Section at Precast Stair
1 1/2" = 1'-0"

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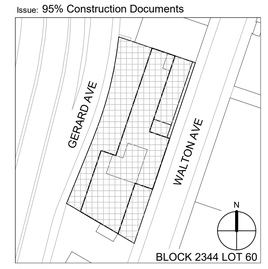
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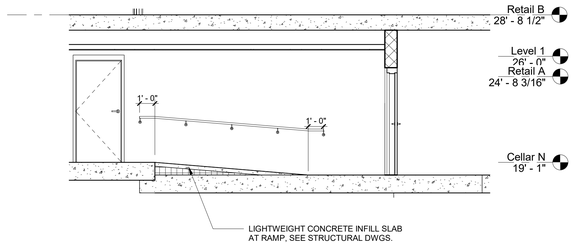
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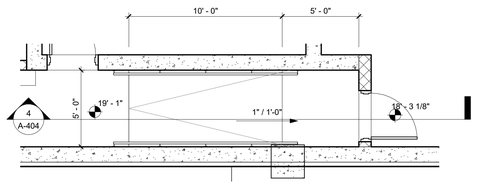
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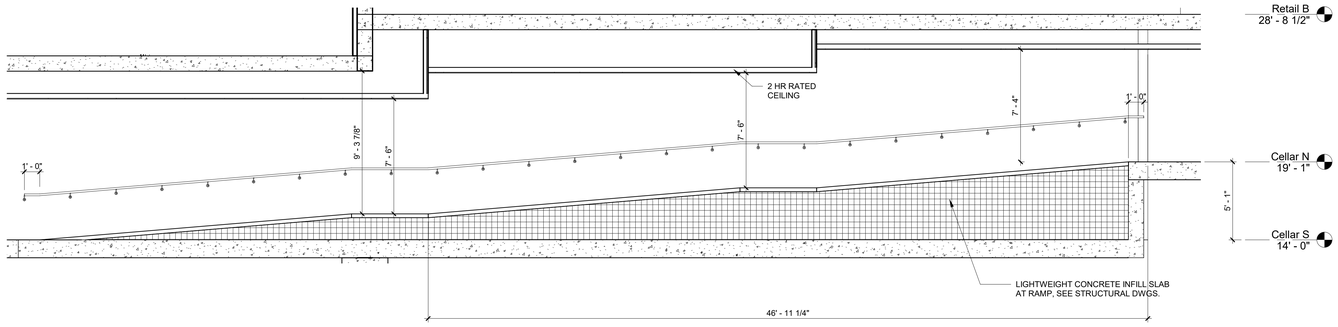
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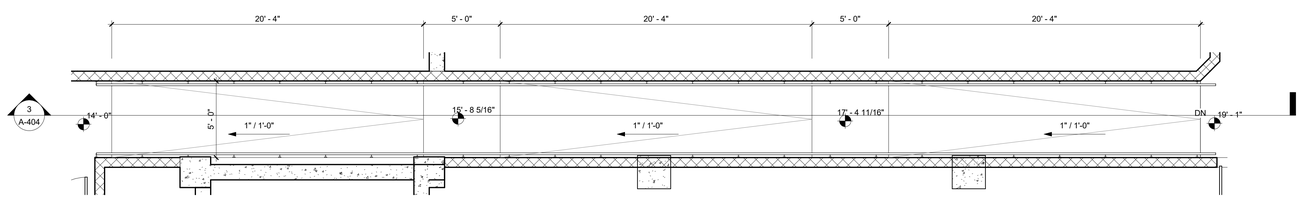
4 Ramp B - Cellar
1/4" = 1'-0"



2 ENLARGED PLAN - RAMP B
1/4" = 1'-0"



3 Ramp A - Cellar
1/4" = 1'-0"



1 ENLARGED PLAN - RAMP A
1/4" = 1'-0"

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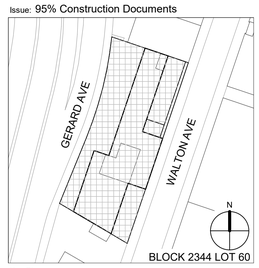
Environmental Consultant
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Expeditor
JM Zoning
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Revisions

Issue: 95% Construction Documents



Key Plan

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Ramp Plans & Sections

Date	03/31/23
Scale	1/4" = 1'-0"
Drawn By	DA
Checked By	DA
Project No.	2204

Seal

Sheet No.:

0 of

A-404.00

ELEVATOR FLOOR LANDING SCHEDULE: PE-1, PE-2, PE-3			
STOP	FLOOR	ELEVATION*	SERVED BY ELEVATOR
15	ROOF	138' - 3"	PE-1
14	13TH FLR	126' - 3"	PE-1, PE-2, PE-3
13	12TH FLR	115' - 3"	PE-1, PE-2, PE-3
12	11TH FLR	105' - 11"	PE-1, PE-2, PE-3
11	10TH FLR	95' - 7"	PE-1, PE-2, PE-3
10	9TH FLR	86' - 3"	PE-1, PE-2, PE-3
09	8TH FLR	76' - 11"	PE-1, PE-2, PE-3
08	7TH FLR	67' - 7"	PE-1, PE-2, PE-3
07	6TH FLR	58' - 3"	PE-1, PE-2, PE-3
06	5TH FLR	48' - 11"	PE-1, PE-2, PE-3
05	4TH FLR	39' - 7"	PE-1, PE-2, PE-3
04	3RD FLR	30' - 3"	PE-1, PE-2, PE-3
03	2ND FLR	19' - 11"	PE-1, PE-2, PE-3
02	1ST FLR	0' - 0"	PE-1, PE-2, PE-3, PE-4
01	CELLAR	PE-1,2,3: -12'-0" (PE-4: -9'-11")	PE-1, PE-2, PE-3, PE-4

ELEVATOR FLOOR LANDING SCHEDULE: PE-4			
STOP	FLOOR	ELEVATION*	SERVED BY ELEVATOR
02	RETAIL B	0' - 0"	PE-4
01	CELLAR	-9'-11"	PE-4

*ELEVATIONS ARE MEASURED FROM TOP OF PLANK, COORD SILLS W/ FIN FLR

ELEVATOR NOTES:

1. FIRE SERVICE ACCESS SYMBOL COMPYLYING WITH BC 3007.6.5.5 MUST BE PROVIDED ON EACH SIDE OF THE HOISTWAY DOOR FRAME.

2. HOISTWAY MUST BE PROTECTED FROM WATER INFILTRATION. SEE PLUMBING DRAWINGS.

3. FIRE SERVICE ACCESS ELEVATOR MUST BE MONITORED AT THE FIRE COMMAND CENTER AS PER NFPA 72.

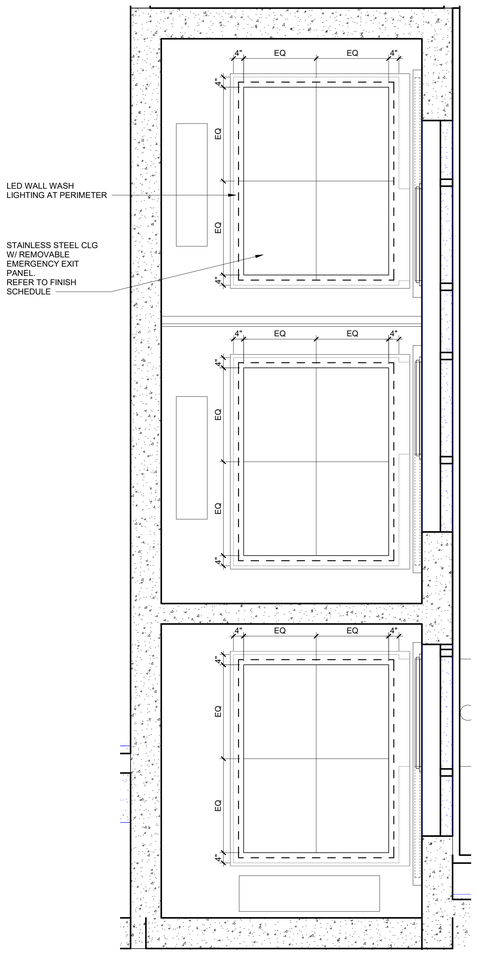
4. PROVIDE INTERNATIONAL SYMBOL FOR EMERGENCY MEDICAL SERVICES (STAR OF LIFE) TO IDENTIFY ELEVATOR THAT ACCOMODATES AT 84"X24" STRETCHER AS PER BC 3002.

5. FOR ELEVAOR CAB LUMINAIRES (NOT INCLUDING SIGNALS AND DISPLAYS), THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NOT LESS THAN 35 LUMENS PER WATT.

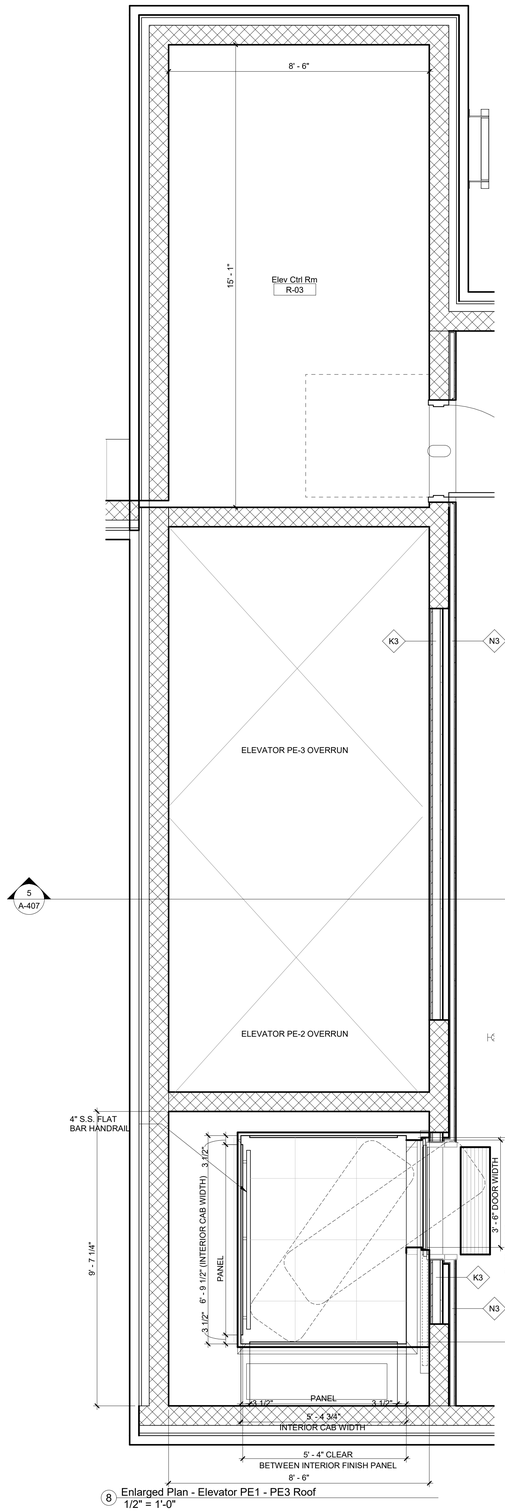
6. PROVIDE A CLEAR PLUMB HOISTWAY OF THE SIZE INDICATED ON ELEVATOR MFR'S SHOP DRAWINGS. VARIATIONS MUST NOT EXCEED 2" TOLERANCE.

7. PE-4 RETAIL FREIGHT ELEVATOR, INFILL WALL AT ELEVATOR DOOR, AND CONTROL ROOM EQUIPMENT TO BE AN ADD ALTERNATE

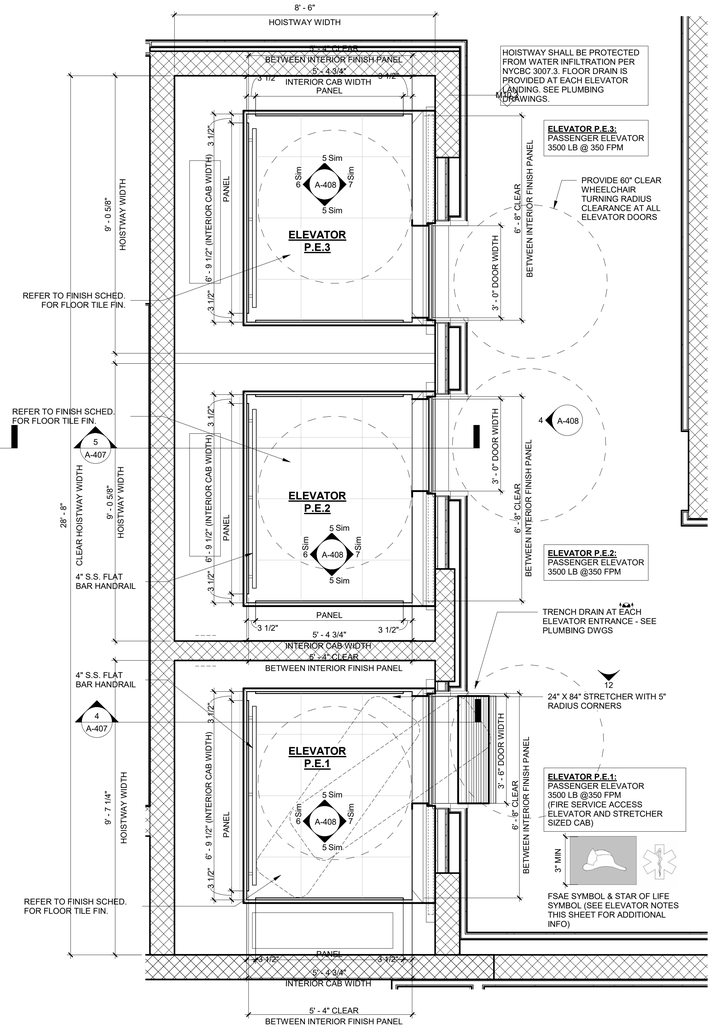
ELEVATOR SCHEDULE								
ELEV	BANK	TYPE	CAPACITY	SPEED	MAKE/MODEL	CAB HT	PIT DEPTH	REMARKS
PE-1	A	MRL TRACTION	3500 LB	350 FPM	TBD	9'-0"	5'-6"	CONFIRM PIT AND OVERHEAD W/MFR
PE-2	A	MRL TRACTION	3500 LB	350 FPM	TBD	9'-0"	5'-6"	CONFIRM PIT AND OVERHEAD W/MFR
PE-3	A	MRL TRACTION	3500 LB	350 FPM	TBD	9'-0"	5'-6"	CONFIRM PIT AND OVERHEAD W/MFR
PE-4	B	HYDROLIC SERVICE	12000 LB	75 FPM	TBD	9'-0"	5'-6"	CONFIRM PIT AND OVERHEAD W/MFR



5 Residential Elevator RCP
1/2" = 1'-0"



8 Enlarged Plan - Elevator PE1 - PE3 Roof
1/2" = 1'-0"



3 Enlarged Plan - Elevator PE1 - PE3 - Typical
1/2" = 1'-0"

261 Walton Ave

261 Walton Ave
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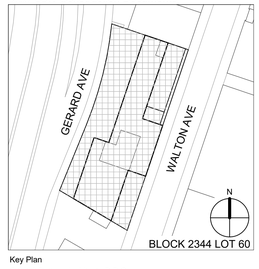
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Elevator Plans & Sections

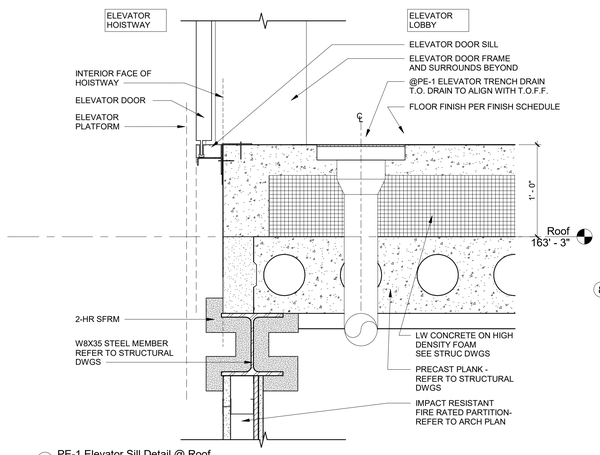
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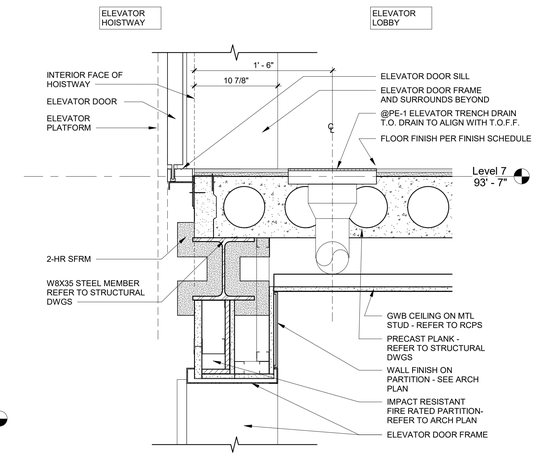
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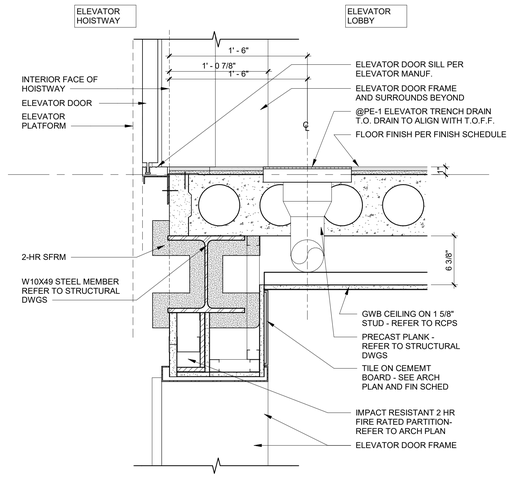
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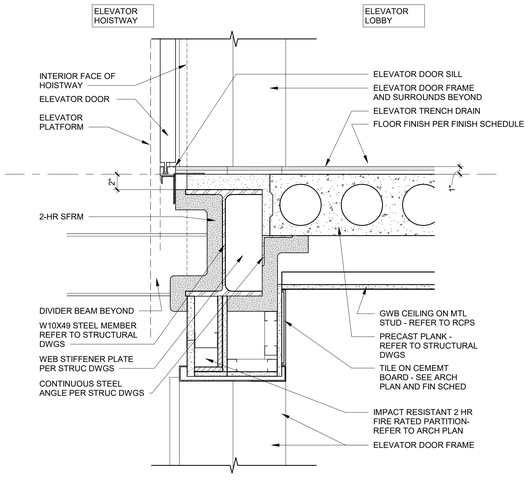
9 PE-1 Elevator Sill Detail @ Roof
1 1/2" = 1'-0"



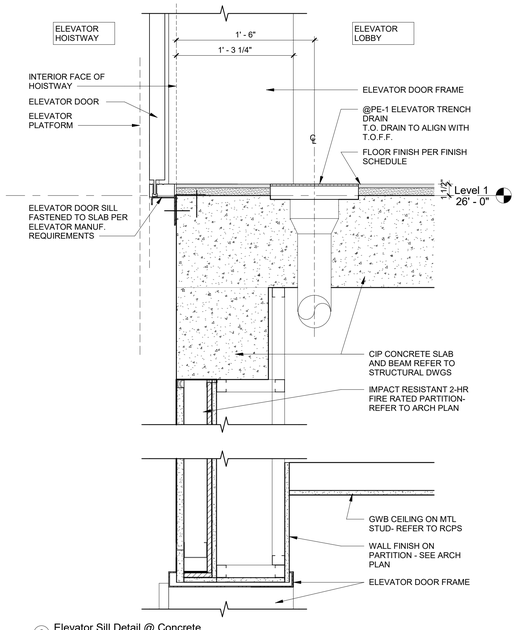
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1 1/2" = 1'-0"



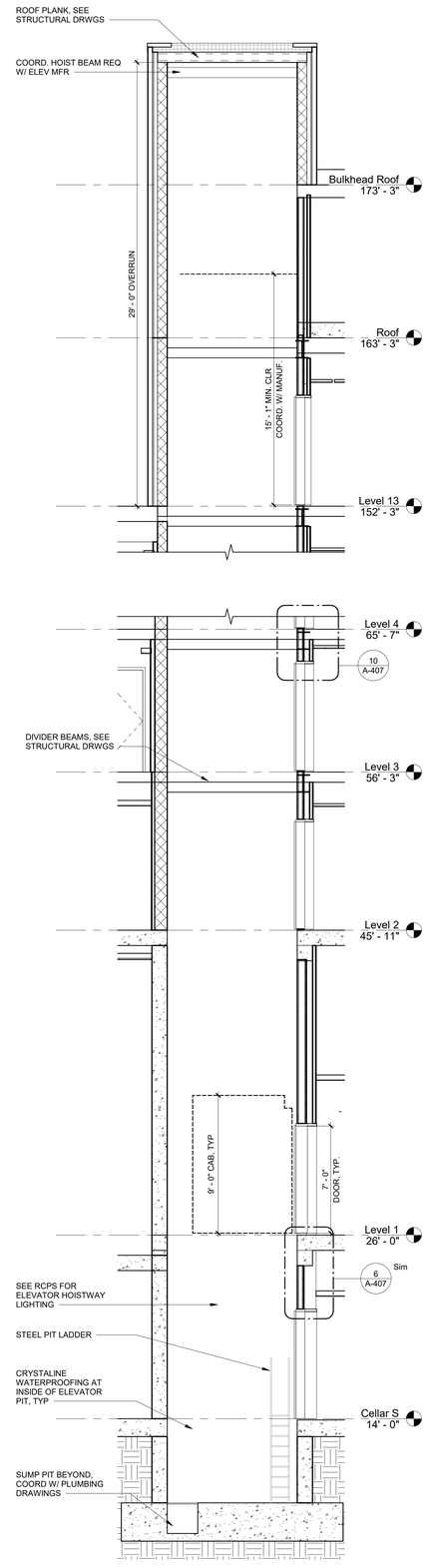
7 PE-1 Elevator Sill Detail @ 10" CMU
1 1/2" = 1'-0"



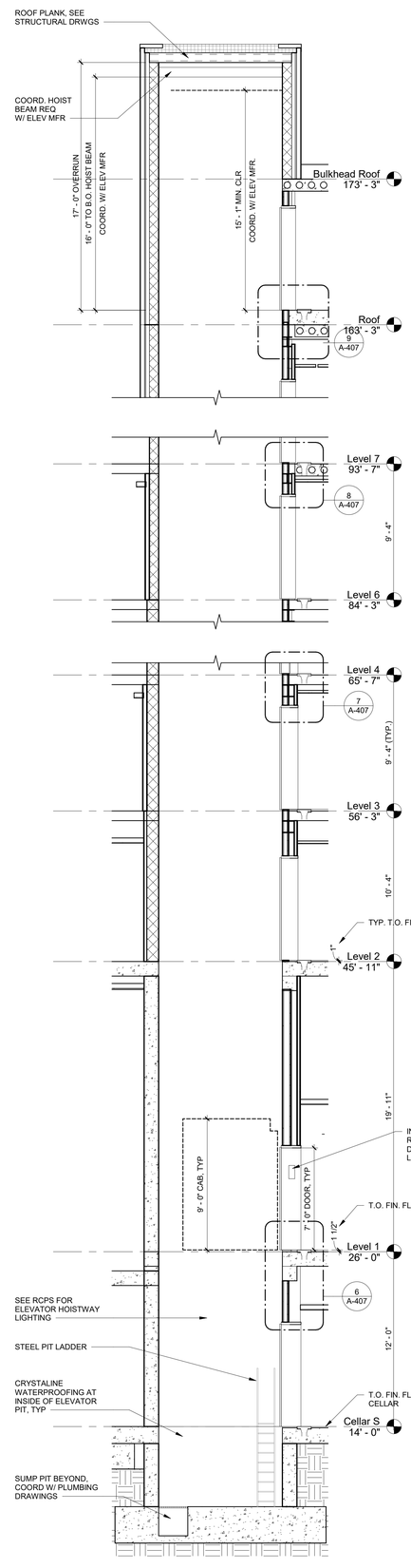
10 PE 2 PE3 Typical Elevator Sill Detail
1 1/2" = 1'-0"



6 Elevator Sill Detail @ Concrete
1 1/2" = 1'-0"



5 PE-2-3_Elevator Hoistway Section
1/4" = 1'-0"



4 PE-1_Elevator Hoistway Section
1/4" = 1'-0"

261 Walton Ave

261 Walton Ave
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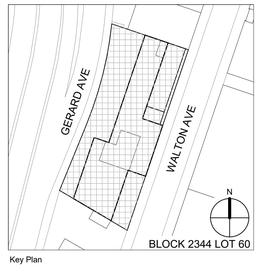
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0 of	

APPENDIX C
Previous Environmental Reports

AIRTEK ENVIRONMENTAL CORP.
39–37 29TH STREET L.I.C. NY 11101
PHONE (718) 937-3720 FAX (718)937-3721
WWW.AIRTEKENV.COM

Phase I Environmental Site Assessment

Submitted To:

M & T Bank
Attention: Ms. Claire Tolmie
350 Park Avenue, 6th Floor
New York, New York 10022

Premises:

261 Walton Avenue
Block 2344, Lot 60
Bronx, NY 10451

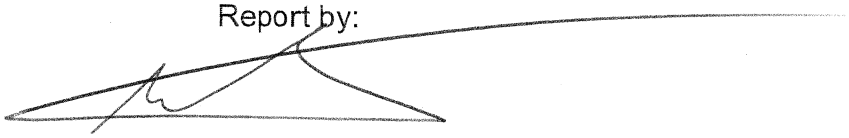
Prepared By:

Airtek Environmental Corporation
39-37 29th Street
Long Island City, New York 11101

Airtek Project Number: 11-1244

December 13, 2011

Report by:



Mike S. Zouak, CIH, President

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EXECUTIVE SUMMARY

M & T Bank (client) retained Airtek Environmental Corp. (Airtek) to conduct a Phase I Environmental Site Assessment of the property located at 261 Walton Avenue (Block 2344, Lot 60), Bronx, NY 10451 (the subject property). The objective of the assessment was to provide an independent, professional opinion regarding recognized environmental conditions, as defined by ASTM, associated with the subject property. This assessment was requested in association with a refinancing.

This assessment was performed under the conditions of, and in accordance with Airtek's Master Services Agreement (MSA) with M & T Bank, dated April 9, 2007, using ASTM E1527-00, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* as a guideline. Any exceptions to, additions to, or deletions from the ASTM guidelines are described in the report. Details of the work performed, sources of information, and findings are presented in the report. Limitations of the assessment are described in Section 1.4.

The subject property comprises a 27,454 square foot (ft^2) lot of land developed with a six-story building, two-story addition, and one-story addition currently owned by Tuck-it-away Associates. The subject property was bounded by Gerard Avenue to the west and Walton Avenue to the east. The subject property was located within a commercial and light industrial setting.

The subject property is further described as Block 2344, Lot 60. As of the date of this assessment, the subject property appeared in the New York City Department of City Planning's (NYCDCP's) City Environmental Quality Review (CEQR) Environmental Designations list. The property was designated as e-designation E-227, referring to properties which fall under the CEQR Hazardous Materials Phase I and II Testing Protocol, air quality concerns, and exhaust stack location limitations. According to records maintained by the New York City Department of Buildings (NYCDOB), the land comprising the subject property was zoned for manufacturing and residential use.

The historical research conducted for this assessment has established the use of the subject property since 1891. An 1891 fire insurance map depicted the subject property as undeveloped. A 1908 fire insurance map depicted the subject property developed with an "electrical specialties" facility and a lumber storage facility. A 1935 fire insurance map depicted the subject property as an automotive wrecking yard. A 1944 fire insurance map depicted the southern half of the subject property as developed with a card and paper warehouse and the northern half as an automotive wrecking yard. A 1951 fire insurance map indicated that one of the structures on the automotive wrecking yard portion of the property was in use for automotive repairs. Fire insurance maps dating from 1977 through 2007 depicted the subject property as developed with a furniture warehouse.

This assessment has revealed the following evidence of the *recognized environmental condition* as defined by ASTM E1527-00, or part of the scope of "all appropriate inquiry" as defined by CERCLA, in connection with the subject property:

- As of the date of this assessment, the subject property appeared in the New York City Department of City Planning's (NYCDCP's) City Environmental Quality Review (CEQR) Environmental Designations list. The property was designated as e-designation E-227, referring to properties which fall under the CEQR Hazardous Materials Phase I and II Testing Protocol, air quality concerns, and exhaust stack location limitations. Fire insurance maps dating from 1935 through 1951 depicted an automotive wrecking yard on the subject property. A 1951 fire insurance map showed an automotive repair facility on the subject property. A 1966 aerial photograph showed the subject property in its current configuration. Based on the availability of historical records, the onsite automotive wrecking yard could have existed onsite from as early as 1909 until as late as 1965. These previous uses indicate the potential usage, storage, and release of solvents and petroleum products which have impacted the subject property.

  This finding is a recognized environmental condition because it constitutes evidence of a past release of petroleum products and/or hazardous chemicals onto the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

- As of the date of this assessment, the south adjacent property was developed as a British Petroleum (BP) automotive fueling station. Aerial photographs dating from 1954 through 2006 and

fire insurance maps dating from 1951 and 1980 through 2007 depicted an automotive fueling station on the south adjacent property. The station was listed in the NYSDEC Spills database with an associated closure date, indicating that onsite leak-related contamination was remediated to the satisfaction of the NYSDEC. The spill involved the release of 52 gallons of gasoline. According to the spill description, soil and groundwater contamination had been detected onsite and continued to be detected through the last noted sampling event in 2010. The fueling station was also listed in the Leaking Storage Tank Incident Reports (LTANKS) database. The LTANKS incident was classified as a "known release that creates potential for fire or hazard," and had no associated closure date.

This finding is a recognized environmental condition because it constitutes evidence of a release of petroleum products and/or hazardous chemicals which have impacted the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

- Fire insurance maps dating from 1944 through 2007 depicted automotive fueling and repair facilities on a northeastern property, upgradient from the subject property. The property was associated with an unresolved NYSDEC Spills incident. The spill was called in on October 11, 1999 in connection with an abandoned gas station. The spill description notes that bedrock was located between one and six feet below ground surface (bgs) across the site and that significant contamination was detected.

  This finding is a recognized environmental condition because it constitutes evidence of a release of petroleum products and/or hazardous chemicals which have likely impacted the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

- An automotive fueling station was depicted on the east adjacent property in a 1935 fire insurance map. A plastics manufacturing facility was depicted on the east adjacent property in fire insurance maps dating from 1947 through 1951. Fire insurance maps dating from 1935 through 1951 depicted the north adjacent property as a large fur processing facility. These previous uses indicate the potential usage, storage, and release of petroleum products, solvents, and heavy metals which have impacted the subject property.

  This finding is a recognized environmental condition because it constitutes evidence of a release of petroleum products and/or hazardous chemicals which have likely impacted the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

The following environmental conditions, which are not considered to be *recognized environmental conditions* as defined by ASTM E1527-00, or part of the scope of "all appropriate inquiry" as defined by CERCLA, were revealed during this assessment:

- During a December 7, 2011 site visit, Airtek observed petroleum staining beneath elevator equipment located in the basement. NYCDOB Environmental Control Board (ECB) violations were issued in connection with elevator-related infractions on the subject property. Specifically, the violations noted that excessive oil had been applied to the elevator drum (Violation 38059770J) and that the elevator pit was dirty and full of standing water (Violations 38075316J and 38088853H). These findings constitute an environmental concern because of the potential for oil to pool in elevator pit and/or infiltrate the subsurface from cracks or fissures located therein.

  This finding is not considered a recognized environmental condition because it does not constitute evidence of a release of petroleum products or hazardous chemicals to the subject property. Airtek recommends conducting regular monitoring and maintenance of the elevator machinery and pit. The elevator pit should be cleaned and inspected for any cracks or fissures through which petroleum products or other contaminants could infiltrate the subsurface of the subject property.

- At the time of Airtek's December 7, 2011 site visit, Airtek observed visible mold growth (VMG) in the basement beneath the subject property's western two-story addition.

  This finding is not considered a recognized environmental condition because mold is not an ASTM E1527-00/CERCLA issue. Airtek recommends abating visible mold growth and identifying the sources of any onsite water intrusion which may have cause onsite mold growth and sealing them in such a way as to prevent future intrusion.

- Records reviewed by Airtek indicated that structures on the subject property were constructed in approximately 1931 (see Section 3.2.2). Airtek noted the presence of visible suspect asbestos-containing materials (ACM) during the course of the site walkthrough. Materials noted during the walkthrough were limited to those observable materials (*i.e.*, materials that are readily accessible and visible without dismantling elements of the structure, such as carpet, wallboard, or ceiling panels) which may contain asbestos and do not represent the entirety of total suspect ACM onsite. Visible suspect ACM within the subject property included vinyl floor tiles and associated mastic, wood flooring subfloor, cementitious skim coating, gypsum wallboard, joint compound, brick mortar, door caulking, window caulking, and roofing material.

  This finding is not considered a recognized environmental condition because asbestos is not an ASTM E1527-00/CERCLA issue. However, Airtek recommends that, prior to any planned demolition or disturbance of suspect onsite materials an ACM study should be conducted by licensed professionals to determine whether and where ACM is present onsite.

- Lead-based paint (LBP) was commonly used for corrosion protection in the 1960s, and in prime, intermediate, and finish coats well into the 1970s. Records reviewed by Airtek indicated that structures on the subject property were constructed in approximately 1931 (see Section 3.2.2). Therefore, LBP may exist on subject property surfaces.

  This finding is not considered a recognized environmental condition because LBP is not an ASTM E1527-00/CERCLA issue. Airtek recommends that, prior to any planned demolition or disturbance of painted materials, an LBP study should be conducted by licensed professionals to determine whether and where LBP is present onsite. Any renovation, repair, or painting of surfaces containing LBP must be conducted by firms certified under the EPA's Lead-Safe Renovation, Repairs, and Painting (RRP) program. In addition, Airtek recommends that painted surfaces on the subject property be maintained in good condition.

- Structures on the subject property were improved with fluorescent lighting. Records reviewed by Airtek indicated that buildings on the subject property were constructed in approximately 1931 (see Section 3.2.2). Many fluorescent light ballasts manufactured prior to 1980 may contain PCBs. Fluorescent light bulbs also often contain relatively small amounts of mercury.

  This finding is not considered a recognized environmental condition because PCB light ballasts are considered a *de minimis* environmental issue. However, Airtek recommends that the ballasts be inspected for "No PCBs" labels prior to planned renovation/demolition activities involving the removal of fluorescent light fixtures. According to the NYSDEC, mercury-containing items including but not limited to fluorescent light bulbs and thermostats must be disposed of following guidelines established by either New York's state Universal Waste Rule or the Resource Conservation and Recovery Act (RCRA).

Phase I Environmental Site Assessment for
261 Walton Avenue
Block 2344, Lot 60
Bronx, NY 10451

1.0 INTRODUCTION

This report presents the findings of the Phase I Environmental Site Assessment (ESA) of the property located at 261 Walton Avenue, (Block 2344, Lot 60), Bronx, NY 10451 (the subject property). The site reconnaissance was conducted by Mr. Judah Lebow, Project Manager with Airtek, on December 7, 2011 in accordance with the United States Environmental Protection Agency (USEPA)'s "All Appropriate Inquiries" Standard and the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Environmental Site Assessment Process (ASTM Standard E-1527-00) and the scope of work provided to M & T Bank (client) by Airtek. During the site visit, all accessible spaces were accessed for inspection purposes.

1.1 Purposes

The purposes of this Phase I Environmental Site Assessment were:

1. To identify the presence or release of any hazardous substances, hazardous wastes, or petroleum products affecting the subject property;

2. To determine the level of compliance with current environmental standards, laws, regulations and permits (if any) with respect to the subject property;

3. To provide information pertinent to the valuation of the subject property;

4. To evaluate any risk to the health and well-being of the Client's agents, employees, and contractors, as well as to the general public;

5. To identify whether any hazardous substances, hazardous wastes, or petroleum products have been stored, released or disposed of on the subject property; and

6. To identify the need for additional testing to evaluate the scope, location, source and nature of any release of hazardous substances, hazardous wastes, or petroleum products affecting the subject property.

1.2 Detailed Scope of Work

The scope of work for the ESA is in general accordance with the requirements of ASTM Standard E 1527-00. Airtek warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in Airtek's Master Services Agreement (MSA) with M & T Bank, dated April 9, 2007. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying Recognized Environmental Conditions (RECs). No other warranties are implied or expressed.

1.3 Significant Assumptions

Environmental conditions may exist on the subject property that were not evident based on the available information. Airtek cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. Airtek is not responsible for the quality or content of information

from these sources. This assessment employs methodologies intended to provide M & T Bank with information relating to the subject property, and does not represent all-inclusive or comprehensive results.

1.4 Limitations and Exceptions

The findings and conclusions contain all of the limitations inherent in these methodologies referred to in ASTM 1527-00. Specific limitations and exceptions to this ESA are more specifically set forth below, if applicable.

1.4.1 Unavailable Documentation

At the time of this assessment, all requested documents regarding the subject property were made available for review, except for the following:

- Airtek contacted the Fire Department of New York (FDNY) on December 7, 2011 regarding records of storage tanks or releases of hazardous substances at the subject property. As of the date of this report, the FDNY has not responded to Airtek's request. Airtek will forward any responses from the FDNY as an addendum should they significantly change the findings of this report.

- Airtek contacted the NYSDEC on December 7, 2011 regarding records of storage tanks or releases of hazardous substances at the subject property. As of the date of this report, the NYSDEC has not responded to Airtek's request. Airtek will forward any responses from the NYSDEC as an addendum should they significantly change the findings of this report.

- Airtek contacted the NYCDEP on December 7, 2011 regarding records of storage tanks or releases of hazardous substances at the subject property. As of the date of this report, the NYCDEP has not responded to Airtek's request. Airtek will forward any responses from the NYCDEP as an addendum should they significantly change the findings of this report.

The unavailability of these documents did not prevent an evaluation of recognized environmental conditions with regards to the subject property.

1.4.2 Data Gaps

Historical subject property use information was obtained for the time period, 1891 to 2011. Several gaps in use information exceeding five years were encountered during this assessment. Several documents requested as part of this assessment were not available as of the date of this report (see Section 1.4.1). Based on general knowledge of the area and known past uses of the subject property, Airtek did not consider these gaps to be significant.

1.5 Special Terms and Conditions

The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the client. No subsurface exploratory drilling or sampling was done under the scope of this work. Unless specifically stated otherwise in the report, no chemical analyses have been performed during the course of this ESA.

Some of the information provided in this report is based on personal interviews, research of available documents, records, and maps held by the appropriate government and private agencies. This information is subject to the limits of historical documentation, availability, and accuracy of pertinent records and the personal recollections of those persons contacted.

The scope of work for this investigation consists of a subject property reconnaissance and a review of available information regarding the Site obtained from relevant regulatory agencies. This report

summarizes the results of the Site reconnaissance and includes a summary of pertinent regulatory files searched with regard to hazardous materials, hazardous wastes or petroleum products. Data gaps if any are identified and mentioned (see Section 1.4.2).

The field investigation included a Site assessment, observation of neighboring properties and verification of permits and building records as necessary. The review and inspection were performed by Mr. Judah Lebow, Project Manager with Airtek.

Airtek has made a reasonable effort, using commonly accepted industry standards, i.e., ASTM Standard E-1527-00, to perform this Phase I ESA. Airtek's inquiry was limited to interviews, review of available documents and visual observations of readily accessible areas of the subject property. Airtek's findings and recommendations regarding the subject property can be found in Section 7.0 of this report.

1.6 Use Reliance

All reports, both verbal and written, are for the benefit of M & T Bank, its affiliates and subsidiaries and all successors and assigns thereof. This report has no other purpose and may not be relied upon by any other person or entity without the written consent of Airtek Environmental Corporation.

2.0 SUBJECT PROPERTY DESCRIPTION

This section describes the location of the subject property, description of the adjacent properties, and subject property area overview.

2.1 Subject Property Location and Legal Description

The subject property comprises a 27,454 square foot (ft^2) lot of land developed with a six-story building, two-story addition, and one-story addition currently owned by Tuck-it-away Associates. The subject property was bounded by Gerard Avenue to the west and Walton Avenue to the east. The subject property was located within a commercial and light industrial setting.

The subject property is further described as Block 2344, Lot 60. As of the date of this assessment, the subject property appeared in the New York City Department of City Planning's (NYCDCP's) City Environmental Quality Review (CEQR) Environmental Designations list. The property was designated as e-designation E-227, referring to properties which fall under the CEQR Hazardous Materials Phase I and II Testing Protocol, air quality concerns, and exhaust stack location limitations. According to records maintained by the New York City Department of Buildings (NYCDOB), the land comprising the subject property was zoned for manufacturing and residential use.

2.2 Subject/Adjacent Property General Characteristics

The area surrounding the subject property consisted primarily of commercial and light industrial properties. Adjoining properties were observed (from the subject property or from public access areas) for signs of recognized environmental conditions and their potential to pose an environmental concern to the subject property (Figure 2, Appendix B). The uses and features of adjoining properties are described below.

North: Warehouse

East: Walton Avenue followed by offices, rental storage facility

South: British Petroleum (BP) automotive fueling station

West: Gerard Avenue, followed by the William F. Deegan Expressway

Current visible uses of adjoining properties do not appear to present an environmental concern to the subject property, with the exception of the south adjacent automotive fueling station. Use as an automotive fueling station indicates the potential usage, storage, and release of petroleum products which have impacted the subject property.

2.3 Current Use of the Property

The subject property comprises a 27,454 ft^2 lot of land developed with a rental storage facility, commercial tenant space in use as a sign making facility, and paved yard. The subject property's main entrance was located along Gerard Avenue, on the property's western border.

Based on observations made during Airtek' site visit, the following information was ascertained:

- Stormwater runoff from the subject property flows into storm drains located along Gerard and Walton Avenues. Stormwater falling on the roof of structures on the subject property flow through drains into a basement sump and is pumped into the municipal sewer.
- The subject property utilizes electricity provided by Con Edison Company.
- The subject property utilizes electrical heaters.
- The subject property utilizes water services provided by the New York City Department of Environmental Protection (NYCDEP).
- Sewerage generated on the subject property is discharged to the municipal sewer system.
- Waste is removed from the subject property on an as-needed basis by private carting company George Demolition Company (GDC).

3.0 RECORD REVIEW

3.1 Standard Environmental Records Sources

Environmental Data Resources, Inc. (EDR) was subcontracted for the task of performing the record search for the subject Site. The following records were reviewed in the EDR Radius Map™ Report:

3.1.1 National Priority List (NPL)
3.1.2 Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)
3.1.3 CORRACTS (Corrective Action Report)
3.1.4 Resource Conservation and Recovery Information System (RCRIS)
- Treatment, storage and disposal sites (TSD Facilities)
- Large quantity generators
- Small quantity generators
- Conditionally exempt small quantity generator

3.1.5 Emergency Response Notification System (ERNS)
3.1.6 State Hazardous Waste Sites (SHWS)
3.1.7 Leaking Underground Storage Tank Incident Reports LTANKS
3.1.8 Petroleum Bulk Storage (PBS) Database
3.1.9 Chemical Bulk Storage (CBS) Database
3.1.10 Major Oil Storage Facilities Database (MOSF)
3.1.11 Hazardous Substance Waste Disposal Site Inventory (HSWDS)
3.1.12 Spills Information Database
3.1.13 Drycleaners
3.1.14 Voluntary Cleanup Program (VCP)
3.1.15 Manufactured Gas Plants

3.1.16 Manifest
3.1.17 INST Control
3.1.18 Formerly Used Defense Sites (FUDS)
3.1.19 Vapor Reopened

The subject property was designated as e-designation E-227, referring to properties which fall under the CEQR Hazardous Materials Phase I and II Testing Protocol, air quality concerns, and exhaust stack location limitations.

3.1.1 National Priority List (NPL)

NPL is EPA's subset of Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. A review of this list did not reveal any NPL sites located within one mile of the subject property.

3.1.2 Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)

CERCLIS contains data on potentially hazardous waste sites that have been reported to the EPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). A review of this list did not reveal any CERCLIS sites located within one-half mile of the subject property.

3.1.3 CORRACTS (Corrective Action Report)

CORRACTS identifies hazardous waste handlers with the Resource Conservation and Recovery Act (RCRA) corrective action activity. A review of this database did not reveal any CORRACTS sites located within one mile of the subject property.

3.1.4 Resource Conservation and Recovery Information System (RCRIS)

- ***Treatment, storage and disposal sites (TSD Facilities)***
- ***Large quantity generators***
- ***Small quantity generators***
- ***Conditionally exempt small quantity generator***

RCRIS includes selective information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by RCRA. A review of the database did not reveal any RCRA-TSD Facilities located within one-half mile of the subject property.

A large quantity generator (LQG) facility is defined as one that generates at least 1,000 kilograms per month (kg/mo) of non-acutely hazardous waste or 1 kg/mo of acutely hazardous waste. A review of the database revealed no LQG facilities within one-quarter mile of the subject property.

A small quantity generator (SQG) facility is defined as one that generates between 100 and 1,000 kg/mo of nonacutely hazardous waste. A review of the database revealed two SQG facilities within one-eighth mile of the subject property. One of the facilities, identified as BP fueling station #48374, is an automotive fuelling station located south adjacent to the subject property. This facility's use and its proximity to the subject property indicates the potential usage, storage, and release of petroleum products and solvents which have impacted the subject property. Based on its distance to the subject property and lack of associated violations, the remaining SQG facility is thought to pose a low risk of adversely impacting the subject property.

A conditionally exempt small quantity generator (CESQG) facility is defined as one that generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. A review of the database revealed one CESQG facility within one-eighth mile of the subject property. Airtek observed no violations associated with the CESQG facilities in the databases reviewed. Therefore, this facility is thought to pose a low risk of adversely impacting the subject property.

3.1.5 Emergency Response Notification System (ERNS)

ERNS records and stores information on reported releases of oil and hazardous substances. A review of this database did not reveal any ERNS records associated with the subject property

3.1.5.1 State Hazardous Waste Sites (SHWS)

SHWS records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. A review of this database did not reveal any SHWS sites within one-quarter mile of the subject property.

3.1.6 State Solid Waste Facilities/Landfill Sites (SWF/LF)

The SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites. A review of this database revealed one SWF/LF sites located within one-eighth mile of the subject property. The facility is located downgradient from the subject property, and is therefore thought to pose a low threat of adversely impacting the subject property.

3.1.7 Leaking Storage Tank Incident Reports (LTANKS)

LTANKS records contain an inventory of reported leaking storage tank incidents reported from April 1, 1986 through the most recent update. These tanks can be either underground storage tanks or aboveground storage tanks. A review of this database revealed three LTANKS sites within one-eighth mile of the subject property.

Two of the LTANKS incidents were classified as "known release[s] with minimal potential for fire or hazard," and were listed with associated closure dates, indicating that remediation at these sites has satisfied the NYSDEC. The remaining incident was located at an automotive fueling station south adjacent to the subject property, was classified as a "known release that creates potential for fire or hazard," and had no associated closure date. Based on its proximity and unresolved nature, this incident constitutes evidence of an environmental concern.

3.1.9 Petroleum Bulk Storage (PBS) Database

The PBS database contains registered facilities that have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons, including above ground storage tanks (ASTs) and underground storage tanks (USTs). A review of this data revealed 10 UST sites within one-eighth mile from the subject property. Leaking USTs (LUSTs) are listed in Section 3.1.8.

Records reviewed by EDR revealed four AST sites within one-eighth of a mile from the subject property. Three of the AST facilities were also listed as e-designated properties, indicating the presence of an environmental requirement pertaining to potential hazardous materials contamination, Window/Wall noise attenuation, or air quality impacts on a particular tax lot. Of these three facilities, one was also listed in the NYSDEC Spills database (see Section 3.1.13). Airtek observed no environmental violations listed in association with the remaining AST facility, indicating a low likelihood of adversely impacting the subject property.

3.1.10 Chemical Bulk Storage (CBS) Database

This database contains facilities that store regulated hazardous substances in above ground storage tanks (ASTs) with capacities of 185 gallons or greater and in underground tanks of any size (USTs). A review of this database did not reveal any CBS UST or CBS AST sites located within one-eighth mile of the subject property.

3.1.11 Major Oil Storage Facilities Database (MOSF)

This database contains facilities that may be on shore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater. A review of this database did not reveal any MOSF sites located within one-half mile of the subject property.

3.1.12 Hazardous Substance Waste Disposal Site Inventory (HSWDS)

This list includes any known or suspected hazardous substance waste disposal sites. Also included are sites delisted from the Registry of Inactive Hazardous Waste Disposal Sites and non-registry sites that U.S. EPA Preliminary Assessment (PA) reports or Site Investigation (SI) reports were prepared. The database did not reveal any HSWDS sites within one-half mile of the subject property.

3.1.13 Spills Information Database

The NYSDEC Spills and Historical Spills databases contains data collected on spills, which are reported to the NYSDEC as required by one or more of the following: Article 12 of the Navigation Law, 6NYCRR Section 613.8 (from PBS sources), or 6NYCRR Section 595.2 (from CBS sources). It includes spills active as of April 1, 1986, as well as spills occurring since this date.

A review of this list revealed 19 spills reported within one eighth-mile of the subject property. 16 of these were listed with associated closure dates, indicating that onsite leak-related contamination was remediated to the satisfaction of the NYSDEC. Of these, 10 incidents were classified as either “known release[s] with minimal potential for fire or hazard,” or “Possible release with minimal potential for fire or hazard or known release with no damage.” An additional closed incident was classified as “No spill occured. (Not Possible).” Two additional closed incidents were located cross-gradient from the subject property, and an additional closed incident occurred across the Harlem River from the subject property. These closed incidents are thought to pose a low likelihood of impacting the subject property.

The final closed spill incident was located at the automotive fuelling station south adjacent to the subject property. The spill was called in on September 14, 1994, closed on October 28, 2003, and involved the release of 52 gallons of gasoline. According to the spill description, soil and groundwater contamination had been detected onsite and continued to be detected through the last noted sampling event in 2010. This finding constitutes evidence of a likely release of petroleum products which have impacted the subject property.

Of the three unresolved spill incidents, two were located east of the subject property, past a subway line. The likelihood that contamination originating from these incidents facilities would pass through the area of significant subsurface disturbance represented by a buried light rail line is thought to be low.

The final unresolved spill incident, at 315 Grand Concourse, was located northeast and upgradient of the subject property. The spill was called in on October 11, 1999 in connection with an abandoned gas station. The spill description notes that bedrock was located between one and six feet below ground surface (bgs) across the site and that significant contamination was detected. This finding constitutes evidence of a likely release of petroleum products which have impacted the subject property.

3.1.14 Drycleaners

A review of the EDR report revealed no drycleaner sites within one-quarter mile from the subject property.

3.1.15 Voluntary Cleanup Program (VCP)

A review of the EDR report revealed no VCP sites located within one-half mile of the subject property.

3.1.16 Manufactured Gas Plants

A review of the EDR report did not reveal any Manufactured Gas Plants within one mile of the subject property.

3.1.17 Manifest

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to the Treatment Storage and Disposal (TSD) facility. A review of the Manifest database revealed 10 Manifest sites within one-eighth mile of the subject property. Five of the manifests sites were also listed in the Spills, LTANKS, and/or SWF/LF databases (see Sections 3.1.13, 3.1.7, and 3.1.6, respectively). Airtek observed no unresolved violations with the remaining five sites.

3.1.18 INST Control

INST Control sites are sites where institutional controls are present in relation to known contamination on-site. A review of the EDR report did not reveal any institutional controls sites within one-half mile of the subject property.

3.1.19 Formerly Used Defense Sites (FUDS)

Formerly Used Defense Sites (FUDS) are sites where the US Army Corps of Engineers are actively working or planning remediation. No FUDS sites were noted within 1 mile of the subject property.

3.1.20 Vapor Reopened

Vapor Reopened sites are sites which were previously closed by New York State, but which have been reopened as the threat of vapor infiltration has been reevaluated in recent years. No Vapor Reopened sites were located within one-quarter mile of the subject property.

The other listed sites are not expected to present an environmental concern to the subject property because they only hold an operating permit (which does not imply a problem), require no further action, exhibit no evidence of regulatory action, or based upon Airtek' review, are too distant and/or topographically downgradient or crossgradient relative to the subject property to reasonably affect it. For more information regarding the above-mentioned sites, please refer to the EDR-Radius Map with GeoCheck® Report included as Appendix 10.5 of this report.

3.2 Additional Environmental Record Sources

3.2.1 *Building Department*

The NYCDOB maintains records on all properties in the City of New York. According to NYCDOB records, 34 NYCDOB violations were listed for the subject property, 15 of which were open at the time of this assessment. The open NYCDOB violations referred to boiler, construction, and elevator-related infractions onsite.

NYCDOB records indicated that 17 NYCDOB Environmental Control Board (ECB) violations were listed for the subject property, 9 of which were open as of the date of this assessment. The violations were issued in connection with certificate of occupancy, sprinkler, façade, and elevator-related infractions. Specifically, the elevator-related infractions noted that excessive oil had been applied to the elevator drum (Violation 38059770J) and that the elevator pit was dirty and full of standing water (Violations 38075316J and 38088853H). These findings constitute an environmental concern because of the potential for oil to pool in elevator pit and/or infiltrate the subsurface from cracks or fissures located therein.

According to the NYCDOB, the subject property is zoned as MX-13 mixed use.

Airtek did not observe evidence of onsite recognized environmental conditions among the NYCDOB violations reviewed. Copies of the NYCDOB information can be found in Appendix D-3.

3.2.2 *NYC Oasis*

The website NYC Oasis (http://www.oasisnyc.net/map.aspx) maintains records assembled from various public data sources. According to the records reviewed by Airtek, the structures improving the subject property were constructed in approximately 1931.

A copy of the NYC Oasis report is included in Appendix D-3.

3.2.3 *Fire Department*

Airtek contacted the Fire Department of New York (FDNY) on December 7, 2011 regarding records of storage tanks or releases of hazardous substances at the subject property. As of the date of this report, the FDNY has not responded to Airtek's request. Airtek will forward any responses from the FDNY as an addendum should they significantly change the findings of this report.

3.2.4 *New York State Department of Environmental Conservation*

Airtek contacted the NYSDEC on December 7, 2011 regarding records of storage tanks or releases of hazardous substances at the subject property. As of the date of this report, the NYSDEC has not responded to Airtek's request. Airtek will forward any responses from the NYSDEC as an addendum should they significantly change the findings of this report.

3.2.5 *New York City Department of Environmental Protection*

Airtek contacted the NYCDEP on December 7, 2011 regarding records of storage tanks or releases of hazardous substances at the subject property. As of the date of this report, the NYCDEP has not responded to Airtek's request. Airtek will forward any responses from the NYCDEP as an addendum should they significantly change the findings of this report.

3.3 Physical Setting Sources

3.3.1 *Topography*

The EDR Historical Topographic Map of Central Park, New York, dated 1995 was reviewed for this ESA. According to the contour lines on the map, the property slopes gently from the east to west. The property is located at approximately 25 feet above mean sea level (amsl). The subject property is located approximately 500 feet east of the Harlem River. Only significant landmarks are included on the map. No specific topographic attributes, such as retaining walls, creeks, slopes, etc. are shown. No surface water is depicted as present on or adjacent to the property, nor are production wells or other significant surface features depicted on the topographic maps.

3.3.2 *Soils/Geology*

According to the Geocheck addendum to the EDR Report, silt loam, loamy sand, sandy loam, and fine sandy loam may be present beneath the subject property, and may be composed of Paleozoic rock of the Ordovician age. Soils in the vicinity of the site are similar in composition and age.

3.3.3 *Hydrology*

No information was available regarding groundwater quality in the immediate vicinity of the site. However, groundwater in the vicinity of the subject property is assumed to follow the topographic gradient to the west towards the Harlem River.

3.3.4 *Flood Zone Information*

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map was reviewed to determine if the subject property is located in a flood hazard area. According to the map, the subject property is located in Zone X, which denotes areas determined to be outside of the 500-year floodplain (FEMA Panel #360497-0083F, revised September 5, 2007).

3.3.5 *Wetlands*

The United States Fish and Wildlife Service (USFWS) Wetlands Online Mapper was reviewed to determine if wetlands are located in the vicinity of the subject property. According to the map, no wetlands are located in the vicinity of the subject property.

3.3.6 *Oil and Gas Exploration*

No oil or gas exploration is known to occur in the region.

3.4 Historical Information on the Property

3.4.1 *Aerial Photographs*

Aerial photographs, which include the subject and adjoining properties, were reviewed for this report. Photographs from the years 1954, 1966, 1975, 1984, 1995, and 2006, were available for review and are summarized as follows:

Date: February 23, 1954 Scale: 1"=250' Source: EDR

- The subject property was developed with several structures of indeterminate use and arranged in an “L” configuration. The northern portion of the subject property appeared occupied by numerous cars. Walton and Gerard Avenues appeared in their current configuration, bounding the subject property to the east and west, respectively. North, northeast, and southeast adjacent properties were visibly developed with warehouses of indeterminate use. East and west adjacent properties appeared as vacant properties. The eastern side of the south adjacent property was developed with a structure of indeterminate use. Canopies consistent with use as automotive fuelling stations were visible on the south adjacent and northeastern properties.

Date: February 23, 1966 Scale: 1"=500' Source: EDR

- The northern section of the subject property appeared as a paved lot. The west adjacent property appeared developed with the Major F. Deegan Expressway. No other significant changes from the 1954 aerial photograph were observed.

Date: April 1, 1975 Scale: 1"=750' Source: EDR

- No significant changes from the 1966 aerial photograph were observed.

Date: April 27, 1984 Scale: 1"=500' Source: EDR

- The south adjacent property was cleared of all structures except for a canopy consistent with use as an automotive fuelling station. No other significant changes from the 1975 aerial photograph were observed.

Date: March 13, 1995 Scale: 1"=500' Source: EDR

- No significant changes from the 1984 aerial photograph were observed.

Date: 2006 Scale: 1"=500' Source: EDR

- The northeastern canopy was no longer visible. The east adjacent property appeared developed with a warehouse of indeterminate use. No other significant changes from the 1995 aerial photograph were observed.

Airtek observed no readily apparent evidence of potential recognized environmental conditions at the subject or adjoining properties based on the aerial photographs reviewed, with the following exceptions:

- A canopy consistent with the visual appearance of an automotive fueling station was visible on a northeastern property in aerial photographs dating from 1954 through 1984. A similar canopy was visible on the south adjacent property in aerial photographs dating from 1954 through 2006. Based on their proximity, the presence of these structures indicates the potential usage, storage, and release of petroleum products and/or solvents which have impacted the subject property.

3.4.2 *Fire Insurance Maps*

Fire insurance maps typically depict either the locations of manufacturing and industrial facilities within the city limits or potential hazards existing within individual building structures. In many cases, evidence of environmental concern, such as locations of USTs, can be found by reviewing fire insurance maps.

Airtek reviewed fire insurance map depicting the subject and adjacent properties from the complete Sanborn Library collection. Fire insurance maps dated 1891, 1908, 1935, 1944, 1946, 1947, 1951, 1977, 1978, 1980, 1981, 1984, 1986, 1989, 1991-96, 1998, and 2001-07 were available for review and depicted the following:

Date: 1891

- The subject and adjacent properties were depicted as undeveloped.

Date: 1908

- The southern third of the subject property was developed as an “electrical specialties” facility. The subject property’s northern two-thirds were developed as a lumber yard and lumber storage facility. The north adjacent properties were developed as a lumber storage facility with associated yard, wood working facility, and an “electrical specialties” facility. Walton Avenue appeared in its current configuration, bounding the subject property to the east. The southeast adjacent property was developed as several offices. The south adjacent property was developed as a lumber storage facility and a piano factory. The east adjacent property was developed as a lumber storage yard. No other significant changes from the 1891 fire insurance map were observed.

Date: 1935

- The subject property was developed as an automotive wrecking yard. The north adjacent property was depicted as a fur dressing and dyeing facility. The southeastern adjacent property was developed as an automotive fuelling station. The south adjacent property was developed as a lumber storage facility. The east adjacent properties were developed as an automotive wrecking yard and brick, cement, and lime factory. No other significant changes from the 1908 fire insurance map were observed.

Date: 1944

- The southern half of the subject property was developed with a card and paper warehouse. The northern half of the subject property was developed as an automotive wrecking yard and several associated storage structures. The property immediately north adjacent to the subject property

was undeveloped, with properties further north developed as fur dressing and dyeing facilities. The northeast adjacent property was developed as an automotive fuelling station. The south adjacent property was developed with a structure of indeterminate use. Major William F. Deegan Boulevard appeared in the configuration of the current Gerard Avenue, bounding the subject property to the west. No other significant changes from the 1935 fire insurance map were observed.

Date: 1946

- No significant changes from the 1944 fire insurance map were observed.

Date: 1947

- The east adjacent property was developed with a plastics manufacturing facility. The south adjacent property was labeled as "MFG [Manufacturing] Cleansers." No other significant changes from the 1946 fire insurance map were observed.

Date: 1951

- One of the structures on the northern half of the subject property previously identified labeled as "storage" was depicted as an automotive repair facility. The western side of the south adjacent property was depicted as an automotive fuelling station. No other significant changes from the 1947 fire insurance map were observed.

Date: 1977

- The subject property was developed with a furniture warehouse and showroom. The north adjacent property previously identified as a fur dressing facility was depicted as a furniture manufacturing facility. A portion of the northeast adjacent property was depicted as an automotive repair facility. The east adjacent property previously identified as a plastics manufacturing facility was shown as a warehouse. The south adjacent property was depicted as vacant. No other significant changes from the 1951 fire insurance map were observed.

Date: 1978

- No significant changes from the 1977 fire insurance map were observed.

Date: 1980

- The south adjacent property was depicted as an automotive fuelling station. No other significant changes from the 1978 fire insurance map were observed.

Date: 1981

- No significant changes from the 1980 fire insurance map were observed.

Date: 1984

- No significant changes from the 1981 fire insurance map were observed.

Date: 1986

- No significant changes from the 1984 fire insurance map were observed.

Date: 1989

- No significant changes from the 1986 fire insurance map were observed.

Date: 1991

- No significant changes from the 1989 fire insurance map were observed.

Date: 1992

- No significant changes from the 1991 fire insurance map were observed.

Date: 1993

- No significant changes from the 1992 fire insurance map were observed.

Date: 1994

- No significant changes from the 1993 fire insurance map were observed.

Date: 1995

- No significant changes from the 1994 fire insurance map were observed.

Date: 1996

- No significant changes from the 1995 fire insurance map were observed.

Date: 1998

- No significant changes from the 1996 fire insurance map were observed.

Date: 2001

- No significant changes from the 1998 fire insurance map were observed.

Date: 2002

- No significant changes from the 2001 fire insurance map were observed.

Date: 2003

- The northeastern property previously identified as an automotive fuelling station was depicted as a car washing facility. No other significant changes from the 2002 fire insurance map were observed.

Date: 2004

- No significant changes from the 2003 fire insurance map were observed.

Date: 2005

- No significant changes from the 2004 fire insurance map were observed.

Date: 2006

- No significant changes from the 2005 fire insurance map were observed.

Date: 2007

- No significant changes from the 2006 fire insurance map were observed.

The following readily apparent evidence of potential recognized environmental conditions at the subject or adjoining properties was noted in the fire insurance maps:

- Fire insurance maps dating from 1935 through 1951 depicted an automotive wrecking yard on the subject property. A 1951 fire insurance map showed an automotive repair facility on the subject property. Based on the dates of available fire insurance maps, the onsite automotive wrecking yard could have existed onsite from as early as 1909 until as late as 1976. Automotive repair could have existed onsite from as early as 1936 until as late as 1976. These previous uses indicate the potential usage, storage, and release of petroleum products and solvents which have impacted the subject property.

- Fire insurance maps dating from 1935 through 1951 depicted the north adjacent property as a large fur processing facility. This previous use indicates the potential usage, storage, and release of solvents which have impacted the subject property.

- Fire insurance maps dating from 1944 through 2007 depicted automotive fueling and repair facilities on a northeastern property. The uses and location of these facilities indicates the potential usage, storage, and release of petroleum products and solvents which have impacted the subject property.

- An automotive fueling station was depicted on the east adjacent property in a 1935 fire insurance map. A plastics manufacturing facility was depicted on the east adjacent property in fire insurance maps dating from 1947 through 1951. This previous use indicates the potential usage, storage, and release of petroleum products, solvents, and heavy metals which have impacted the subject property.

- The south adjacent property was depicted as an automotive fueling station in fire insurance maps dating from 1951 and 1980 through 2007. This use indicates the potential usage, storage, and release of petroleum products and solvents which have impacted the subject property.

3.4.3 *City Directories*

The EDR City Directory Abstract included information from city telephone listings from the following years: 1927, 1931, 1940, 1949, 1956, 1961, 1965, 1971, 1976, 1983, 1993, and 2005.

261 Walton Avenue was listed in city directory records dating from 1927, 1940, 1949, 1956, 1961, 1965, 1971, 1976, 1983, 1993, and 2005. Listings dating from 1927 through 1956 described the subject property as a paper and card factory. Records from 1961 through 1993 depicted the subject property as a furniture facility. A 2005 city directory record listed Tuck-it-away and Yonkers Contracting Inc. at the subject property.

Adjacent properties were listed in city directory records dating from 1927, 1931, 1940, 1949, 1956, 1961, 1965, and 2005 as a number of residential and commercial tenants. Readily apparent evidence of environmental concerns at the adjoining properties was not noted in the city directories reviewed.

3.4.4 *Historical Topographic Maps*

Airtek reviewed historic topographic maps for the subject property and vicinity. Historic topographic maps were provided by EDR and are included in Appendix C-3. Maps dated 1897, 1947, 1966, 1979, and 1995

were available for review and depicted the following:

Date: 1897 USGS Quadrangle: Harlem, New York Scale: 1:62,500

- The subject and adjacent properties appeared undeveloped. Walton Avenue appeared in its current configuration, bounding the subject property to the east.

Date: 1947 USGS Quadrangle: Central Park, New York Scale: 1:25,000

- The subject, north, and west adjacent property were improved with development of an indeterminate nature. No other significant changes from the 1897 topographic map were observed.

Date: 1966 USGS Quadrangle: Central Park, New York Scale: 1:24,000

- The subject and adjacent properties were shaded red to indicate the presence of unspecified development. Gerard Avenue appeared in its current configuration, bounding the subject property to the west. No other significant changes from the 1947 topographic map were observed.

Date: 1979 USGS Quadrangle: Central Park, New York Scale: 1:24,000

- No significant changes from the 1966 topographic map were observed.

Date: 1995 USGS Quadrangle: Central Park, New York Scale: 1:24,000

- No significant changes from the 1979 topographic map were observed.

No readily apparent evidence of environmental concerns at the subject property or adjoining properties was noted in the topographic maps reviewed.

3.4.5 *Additional Historical Record Sources*

No additional historical sources were reviewed.

3.4.6 *Prior Assessment Reports*

No other environmental reports or assessments were available for review at the time of this assessment.

4.0 SITE RECONNAISSANCE

4.1 Methodology and Limitations

At the time of the site visit, Airtek was accompanied by Mr. Mark Soroka, general manager of Tuck-it-away. Photographs taken at the time of the ESA are included in Appendix A.

4.2 General Observations

During Airtek's December 7, 2011 site visit, the subject property was developed as a six-story rental storage facility Tuck-it-away. A two-story addition in use for rental storage was attached to the west of the six-story structure. A one-story structure was attached to north of the six-story structure, and was in use as Tuck-it-away's office and a commercial tenant space occupied by Harlem Village Digital Signs, a sign-making facility. A cable-driven elevator improved the southeastern section of the onsite structure. At the time of Airtek's site visit, the basement of the onsite building was used to house telecommunications equipment and a defunct combination natural gas/fuel oil-powered boiler. An elevator machine room was also located in the basement. The remainder of the basement was not in use. The basement area beneath the two-story addition appeared to have been previously developed as offices. The roof of six-

story structure was improved with a water tank, a pressure tank, telecommunications equipment, and a chimney that lead to the defunct basement boiler. The remainder of the subject property was developed as a parking lot, the northwestern portion of which was occupied by several shipping containers for rent by Tuck-it-away.

4.3 Hazardous Substances and Petroleum Products

The subject property was assessed for signs of storage, use, or disposal of hazardous materials. The assessment consisted of noting evidence (e.g., drums, unusual vegetation patterns, staining) indicating that hazardous materials are currently or were previously located on the subject property.

Airtek observed no evidence of onsite storage of hazardous substances or petroleum products during the December 7, 2011 site visit, with the exception of petroleum staining beneath the elevator equipment located in the basement.

4.4 Storage Tanks

4.4.1 Underground Storage Tanks (USTs)

The subject property was inspected for evidence of underground storage tanks (USTs) (e.g., vent piping, dispensing equipment, pavement variations).

At the time of the site visit, Airtek observed no evidence of USTs on the subject property.

4.4.2 Aboveground Storage Tanks (ASTs)

The subject property was inspected for evidence of ASTs (e.g. concrete foundations or saddles, pedestals or steel support structures).

Airtek observed a defunct combination natural gas/fuel oil-powered boiler in the basement at the subject property. However, Airtek observed no footings or saddles indicating the location of an onsite AST. Airtek observed a metal plate level with the sidewalk along Walton Avenue which had two holes approximately the size and shape of AST vent and fill piping.

4.5 In-Ground Hydraulic Equipment

The subject property was inspected for evidence of in-ground hydraulic equipment (e.g. hydraulic elevators or lifts that have hydraulic fluid-containing reservoirs or jacks below ground surface). Although not regulated as USTs, hydraulic equipment of this type can be of concern due to the potential for oil leaks from the hydraulic cylinders. Hydraulic fluid in equipment installed in 1978 or before may contain PCBs.

Airtek observed no evidence of in-ground hydraulic equipment at the subject property at the time of the site visit.

4.6 Polychlorinated Biphenyls (PCBs)

The subject property was inspected for the presence of liquid-cooled electrical units (transformers, light ballasts, and capacitors), and major sources of hydraulic fluid (elevators and lifts). Such units are notable because they are potential PCB sources.

The subject property was improved with fluorescent lighting. According to historical records reviewed by Airtek, structures improving the subject property were constructed in approximately 1931 (see Section 3.2.2). Many fluorescent light ballasts manufactured prior to 1980 may contain PCBs. Fluorescent light bulbs also often contain relatively small amounts of mercury.

4.7 Wastewater and Storm Water Discharge

The subject property utilizes water services provided by the NYCDEP. Sewerage generated on the subject property is discharged to the municipal sewer system. Stormwater runoff from the subject property flows into storm drains located along Gerard and Walton Avenues. Stormwater falling on the roof of structures on the subject property flow through drains into a basement sump and is pumped into the municipal sewer.

4.8 Discharge Sources / Waste sources

Evidence of industrial, process or other discharge sources (i.e. other than domestic waste water from sinks and toilets) was not observed on the subject property.

Waste is removed from the subject property on an as-needed basis by private carting company George Demolition Company (GDC).

4.9 Oil/Water Separators, Clarifiers, Sumps, and Trenches

The subject property was inspected for evidence of oil/water separators, clarifiers, sumps and trenches (e.g. hatches, manholes, patches on the floor slabs). Although not regulated as USTs, these features can be of concern due to the potential for leaks into the subsurface.

Airtek observed no evidence of oil/water separators, clarifiers, sumps, or trenches on the subject property.

4.10 Radiological Hazards

Airtek observed no evidence of radiological substances or equipment on the subject property.

4.11 Septic Systems

The subject property was inspected for evidence of current or former septic systems (e.g. clean out manhole, records, interviews).

Airtek observed no evidence of septic systems during the course of the site walkthrough.

4.12 Wells

Airtek observed no evidence of wells or cisterns on the subject property.

4.13 Dry Cleaning Operations

Airtek observed no dry cleaners on the subject property, and records reviewed indicate no past use of the subject property as a dry cleaning facility.

5.0 NON-ASTM ISSUES

5.1 Asbestos-Containing Materials

Airtek noted the presence of visible suspect asbestos-containing materials (ACM) during the course of the site walkthrough. Materials noted during the walkthrough were limited to those observable materials (*i.e.*, materials that are readily accessible and visible without dismantling elements of the structure, such as carpet, wallboard, or ceiling panels) which may contain asbestos and do not represent the entirety of total suspect ACM onsite. Visible suspect ACM within the subject property included vinyl floor tiles and associated mastic, wood flooring subfloor, cementitious skim coating, gypsum wallboard, joint compound, brick mortar, door caulking, window caulking, and roofing material.

According to historical records reviewed by Airtek, structures improving the subject property were initially constructed in 1931 (see Section 3.2.2). Therefore, Airtek recommends that, prior to any planned demolition or disturbance onsite materials, an ACM study should be conducted by licensed professionals to determine whether and where ACM is present onsite.

5.2 Radon

Radon is a naturally occurring radioactive gas formed by the decay of uranium in bedrock and soil. The potential adverse health effects associated with radon gas depend on various factors, such as the concentration of the gas and duration of exposure. The concentration of radon gas in a building depends on subsurface soil conditions, the integrity of the building's foundation, and the building's ventilation system.

No formal radon study was conducted on the subject property. However, the New York State Department of Health (NYSDOH) "Measured Basement Screening Radon Levels," dated October, 2008 provides information regarding the general radon levels in the area of the subject property. The report surveyed a total of 91 homes within Bronx County. Of those homes that were tested, 7.70% were found to have radon level of 4 pico curies per liter (pCi/l) or above. According to U.S. Environmental Protection Agency (EPA) guidance document entitled "A Citizen's Guide to Radon" (August 1986), radon exposures in the range of 4.0 pCi/l "are considered average or slightly above average for residential structures. The report results indicate that Bronx County is categorized as having a minor potential for indoor radon problems.

5.3 Lead-Based Paint (LBP)

Lead-based paint (was commonly used for corrosion protection in the 1960s, and in prime, intermediate, and finish coats well into the 1970s. Regulations specifically addressing lead-based paint include Housing and Urban Development (HUD) (1995) guidelines and the Consumer Product Safety Act (1977). These regulations define lead-based paint as containing 0.5% lead by weight (5,000 ppm), and 0.06% lead by weight (600 ppm), respectively, for housing and consumer products. There is no industrial definition. There are specific testing methods for sampling and analyzing lead in paint.

Records reviewed by Airtek indicated that the structures improving the subject property were constructed in approximately 1931 (see Section 3.2.2). Therefore, LBP may exist on subject property surfaces. Prior to any planned demolition or disturbance of painted materials, an LBP study should be conducted by licensed professionals to determine whether and where LBP is present onsite. Any renovation, repair, or painting of surfaces containing LBP must be conducted by firms certified under the EPA's Lead-Safe Renovation, Repairs, and Painting (RRP) program.

5.4 Mold Evaluation

A limited visual inspection for mold growth was performed as part of this investigation. Airtek observed visible mold growth (VMG) in the basement beneath the subject property's western two-story addition. Mold growth may be present in additional areas surveyed on the subject property even if mold is not visible, and Airtek makes no warranty that there is no mold elsewhere on the subject property.

6.0 INTERVIEWS

6.1 Interview with Owner

On December 7, 2011, Airtek conducted an in-person interview with Mr. Mark Soroka, General Manager of Tuck-it-away for approximately 3 years. Mr. Soroka was forthcoming with information with which he had knowledge. According to Mr. Soroka, the subject property was previously used as a furniture store for at least 15 years. Mr. Soroka stated that it was against company policy to allow rental tenants to store hazardous chemicals onsite.

Mr. Soroka was not aware of any hazardous chemicals or petroleum products currently stored on the subject or adjacent properties with the exception of the south adjacent automotive fuelling station. In

addition, Mr. Soroka was not aware of any petroleum products or hazardous chemicals which had been released to the subject or adjacent properties.

Mr. Soroka was asked if he was aware of any of the following:

Any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property.	Yes _____	No **X**
Any pending, threatened or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property.	Yes _____	No **X**
Any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.	Yes _____	No **X**

6.2 Interview with Site Manager

As of the date of this assessment, Mr. Soroka acted in the capacity of site manager.

6.3 Interviews with Occupants

On December 7, 2011, Airtek conducted an in-person interview with Mr. Eric Ludlum, Manager of Harlem Village Digital Signs for approximately 1.5 years. Mr. Ludlum was forthcoming with information with which he had knowledge. According to Mr. Ludlum, seven years ago the commercial tenant space occupied by Harlem Village Digital Signs had been in use as an office. In the intervening period, the space had been used as a single storage unit. Mr. Ludlum was not aware of any hazardous chemicals or petroleum products stored on the subject property with the exception of a small amount of supplies used during the sign-making process. Mr. Ludlum was not aware of any hazardous chemicals or petroleum products which had been released to the subject or adjacent properties.

Mr. Ludlum was asked if he was aware of any of the following:

Any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the property.	Yes _____	No **X**
Any pending, threatened or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the property.	Yes _____	No **X**
Any notices from any governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.	Yes _____	No **X**

6.4 Interviews with Others

No other interviews were conducted as part of this assessment

7.0 FINDINGS, OPINIONS, CONCLUSIONS, AND RECOMMENDATIONS

Airtek has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E 1527-00 of the property located at 261 Walton Avenue (Block 2344, Lot 60), Bronx, New York, 10451, the subject property. Any exceptions to, or deletions from, this practice are described in Section 1 of this report.

This assessment has revealed the following evidence of the *recognized environmental condition* as defined by ASTM E1527-00, or part of the scope of "all appropriate inquiry" as defined by CERCLA, in connection with the subject property:

- As of the date of this assessment, the subject property appeared in the New York City Department of City Planning's (NYCDCP's) City Environmental Quality Review (CEQR) Environmental Designations list. The property was designated as e-designation E-227, referring to properties which fall under the CEQR Hazardous Materials Phase I and II Testing Protocol, air quality concerns, and exhaust stack location limitations. Fire insurance maps dating from 1935 through 1951 depicted an automotive wrecking yard on the subject property. A 1951 fire insurance map showed an automotive repair facility on the subject property. Based on the availability of historical records, the onsite automotive wrecking yard could have existed onsite from as early as 1909 until as late as 1965—a 1966 aerial photograph showed the subject property in its current configuration. These previous uses indicate the potential usage, storage, and release of solvents and petroleum products which have impacted the subject property.

  This finding is a recognized environmental condition because it constitutes evidence of a past release of petroleum products and/or hazardous chemicals onto the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

- As of the date of this assessment, the south adjacent property was developed as a British Petroleum (BP) automotive fueling station. Aerial photographs dating from 1954 through 2006 and fire insurance maps dating from 1951 and 1980 through 2007 depicted an automotive fueling station on the south adjacent property. The station was listed in the NYSDEC Spills database with an associated closure date, indicating that onsite leak-related contamination was remediated to the satisfaction of the NYSDEC. The spill involved the release of 52 gallons of gasoline. According to the spill description, soil and groundwater contamination had been detected onsite and continued to be detected through the last noted sampling event in 2010. The fueling station was also listed in the Leaking Storage Tank Incident Reports (LTANKS) database. The LTANKS incident was classified as a "known release that creates potential for fire or hazard," and had no associated closure date.

  This finding is a recognized environmental condition because it constitutes evidence of a release of petroleum products and/or hazardous chemicals which have impacted the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

- Fire insurance maps dating from 1944 through 2007 depicted automotive fueling and repair facilities on a northeastern property, upgradient from the subject property. The property was associated with an unresolved NYSDEC Spills incident. The spill was called in on October 11, 1999 in connection with an abandoned gas station. The spill description notes that bedrock was located between one and six feet below ground surface (bgs) across the site and that significant contamination was detected.

  This finding is a recognized environmental condition because it constitutes evidence of a release of petroleum products and/or hazardous chemicals which have likely impacted the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to

determine the presence and extent of any onsite contamination related to these previous property uses.

- An automotive fueling station was depicted on the east adjacent property in a 1935 fire insurance map. A plastics manufacturing facility was depicted on the east adjacent property in fire insurance maps dating from 1947 through 1951. Fire insurance maps dating from 1935 through 1951 depicted the north adjacent property as a large fur processing facility. These previous uses indicate the potential usage, storage, and release of petroleum products, solvents, and heavy metals which have impacted the subject property.

  This finding is a recognized environmental condition because it constitutes evidence of a release of petroleum products and/or hazardous chemicals which have likely impacted the subject property. Therefore, Airtek recommends conducting additional onsite analytical investigation in order to determine the presence and extent of any onsite contamination related to these previous property uses.

The following environmental conditions, which are not considered to be *recognized environmental conditions* as defined by ASTM E1527-00, or part of the scope of "all appropriate inquiry" as defined by CERCLA, were revealed during this assessment:

- During a December 7, 2011 site visit, Airtek observed petroleum staining beneath elevator equipment located in the basement. NYCDOB Environmental Control Board (ECB) violations were issued in connection with elevator-related infractions on the subject property. Specifically, the violations noted that excessive oil had been applied to the elevator drum (Violation 38059770J) and that the elevator pit was dirty and full of standing water (Violations 38075316J and 38088853H). These findings constitute an environmental concern because of the potential for oil to pool in elevator pit and/or infiltrate the subsurface from cracks or fissures located therein.

  This finding is not considered a recognized environmental condition because it does not constitute evidence of a release of petroleum products or hazardous chemicals to the subject property. Airtek recommends conducting regular monitoring and maintenance of the elevator machinery and pit. The elevator pit should be cleaned and inspected for any cracks or fissures through which petroleum products or other contaminants could infiltrate the subsurface of the subject property.

- At the time of Airtek's December 7, 2011 site visit, Airtek observed visible mold growth (VMG) in the basement beneath the subject property's western two-story addition.

  This finding is not considered a recognized environmental condition because mold is not an ASTM E1527-00/CERCLA issue. Airtek recommends abating visible mold growth and identifying the sources of any onsite water intrusion which may have cause onsite mold growth and sealing them in such a way as to prevent future intrusion.

- Records reviewed by Airtek indicated that structures on the subject property were constructed in approximately 1931 (see Section 3.2.2). Airtek noted the presence of visible suspect asbestos-containing materials (ACM) during the course of the site walkthrough. Materials noted during the walkthrough were limited to those observable materials (*i.e.*, materials that are readily accessible and visible without dismantling elements of the structure, such as carpet, wallboard, or ceiling panels) which may contain asbestos and do not represent the entirety of total suspect ACM onsite. Visible suspect ACM within the subject property included vinyl floor tiles and associated mastic, wood flooring subfloor, cementitious skim coating, gypsum wallboard, joint compound, brick mortar, door caulking, window caulking, and roofing material.

  This finding is not considered a recognized environmental condition because asbestos is not an ASTM E1527-00/CERCLA issue. However, Airtek recommends that, prior to any planned demolition or disturbance of suspect onsite materials an ACM study should be conducted by licensed professionals to determine whether and where ACM is present onsite.

- Lead-based paint (LBP) was commonly used for corrosion protection in the 1960s, and in prime, intermediate, and finish coats well into the 1970s. Records reviewed by Airtek indicated that structures on the subject property were constructed in approximately 1931 (see Section 3.2.2). Therefore, LBP may exist on subject property surfaces.

  This finding is not considered a recognized environmental condition because LBP is not an ASTM E1527-00/CERCLA issue. Airtek recommends that, prior to any planned demolition or disturbance of painted materials, an LBP study should be conducted by licensed professionals to determine whether and where LBP is present onsite. Any renovation, repair, or painting of surfaces containing LBP must be conducted by firms certified under the EPA's Lead-Safe Renovation, Repairs, and Painting (RRP) program. In addition, Airtek recommends that painted surfaces on the subject property be maintained in good condition.

- Structures on the subject property were improved with fluorescent lighting. Records reviewed by Airtek indicated that buildings on the subject property were constructed in approximately 1931 (see Section 3.2.2). Many fluorescent light ballasts manufactured prior to 1980 may contain PCBs. Fluorescent light bulbs also often contain relatively small amounts of mercury.

  This finding is not considered a recognized environmental condition because PCB light ballasts are considered a *de minimis* environmental issue. However, Airtek recommends that the ballasts be inspected for "No PCBs" labels prior to planned renovation/demolition activities involving the removal of fluorescent light fixtures. According to the NYSDEC, mercury-containing items including but not limited to fluorescent light bulbs and thermostats must be disposed of following guidelines established by either New York's state Universal Waste Rule or the Resource Conservation and Recovery Act (RCRA).

8.0 REFERENCES

SOURCES

Agency and division/source:	Tuck-it-away
Name/title of representative:	Mr. Mark Soroka
Location of Agency:	3261 Broadway, New York, NY 10027
Agency Telephone Number:	(212) 368-1717

Agency and division/source:	Harlem Village Digital Signs
Name/title of representative:	Mr. Eric Ludlum / Manager
Location of Agency:	261 Walton Avenue, Bronx, NY 10451
Agency Telephone Number:	N/A

REFERENCES

Physical Setting

- *EDR Radius Map™ Report*, Environmental Data Resources, Inc., November 28, 2011
- *EDR Historical Topographic Maps*, Environmental Data Resources, Inc., November 28, 2011
- *Federal Emergency Management Agency (FEMA), Flood Insurance Rate Map (FIRM) Map No. #360497-0083F*, revised September 5, 2007, prepared by FEMA

State and County Agencies

- *EDR Radius Map™ Report*, Environmental Data Resources, Inc., November 28, 2011
- NYC Oasis (http://www.oasisnyc.net/map.aspx)
- *The EDR City Directory Abstract*, Environmental Data Resources, Inc., November 28, 2011

Aerial Photographs

- *The EDR Aerial Photo Decade Package*, Environmental Data Resources, Inc., November 28, 2011

Topographic Maps

- *The EDR Historical Topographic Map Report*, Environmental Data Resources, Inc., November 28, 2011

APPENDIX A: SITE PHOTOGRAPHS



Photo No.:	Photo Description: View of subject property, facing northwest from Walton Avenue, with portion of south adjacent British Petroleum (BP) automotive fueling station visible	Photo Date: 12/7/2011
1	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of commercial tenant space Harlem Village Digital Signs, facing east-northeast from Gerard Avenue	Photo Date: 12/7/2011
2	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of northern portion of subject property yard, with rental shipping containers visible	Photo Date: 12/7/2011
3	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of Harlem Village Digital Signs interior, with sign-making equipment visible	Photo Date: 12/7/2011
4	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244

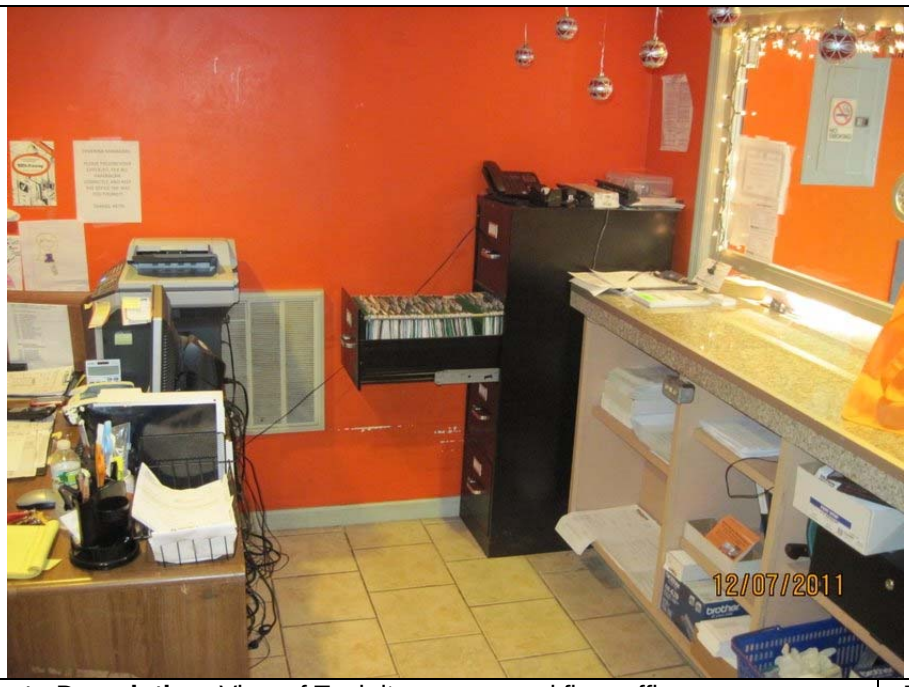


Photo No.:	Photo Description: View of Tuck-it-away ground floor office	Photo Date: 12/7/2011
5	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of telecommunications equipment located in subject property office	Photo Date: 12/7/2011
6	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244

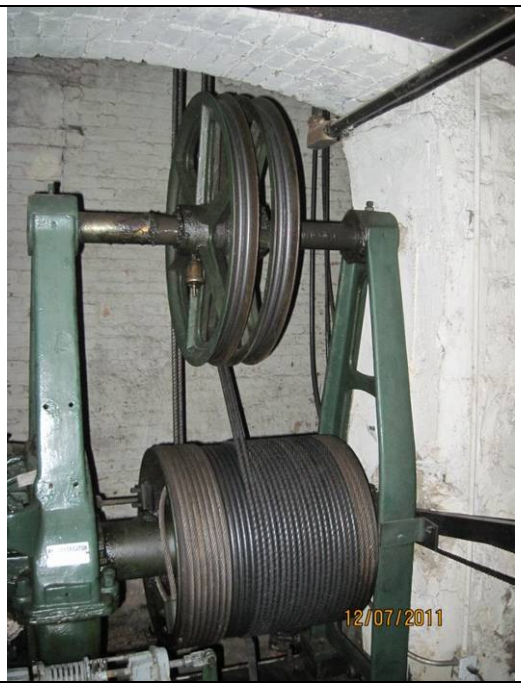


Photo No.:	Photo Description: View of elevator equipment located in basement	Photo Date: 12/7/2011
7	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of elevator shaft, with debris visible	Photo Date: 12/7/2011
8	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of defunct combination natural gas/fuel oil-powered boiler, located in basement	Photo Date: 12/7/2011
9	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of mold growth visible in basement	Photo Date: 12/7/2011
10	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: Representative view of storage units (ground floor)	Photo Date: 12/7/2011
11	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: Representative view of storage unit interior	Photo Date: 12/7/2011
12	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of subject property roof, with pressure tank room visible	Photo Date: 12/7/2011
13	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of rooftop telecommunications equipment (left) and elevator machine room (right)	Photo Date: 12/7/2011
14	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View rooftop elevator machine room interior	Photo Date: 12/7/2011
15	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244

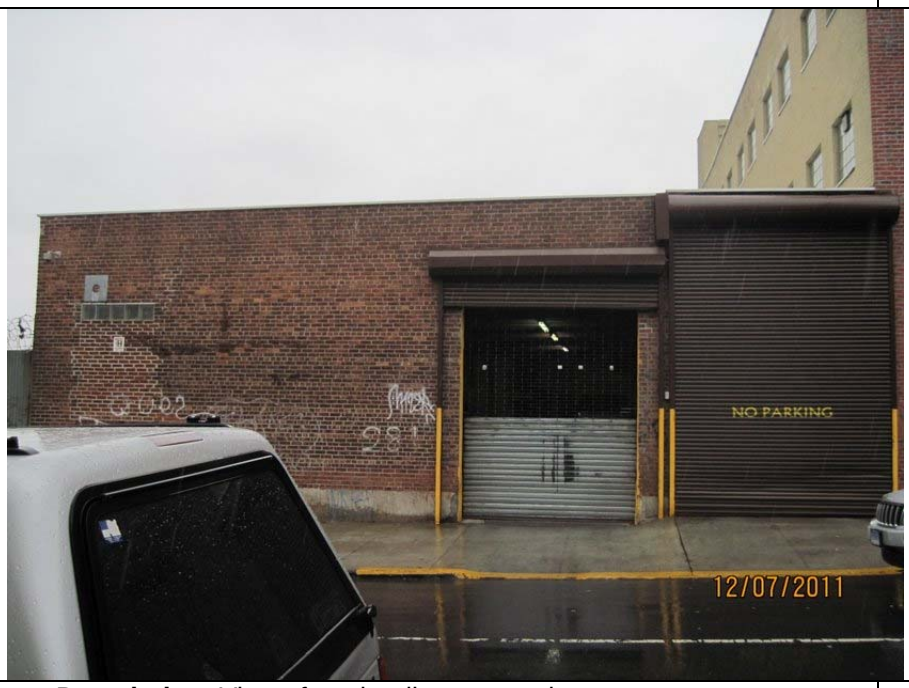


Photo No.:	Photo Description: View of north adjacent warehouse	Photo Date: 12/7/2011
16	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of northeast adjacent offices and rental storage facility	Photo Date: 12/7/2011
17	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of east adjacent rental storage facility	Photo Date: 12/7/2011
18	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of south adjacent BP automotive fueling station	Photo Date: 12/7/2011
19	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244



Photo No.:	Photo Description: View of west adjacent William F. Deegan Expressway	Photo Date: 12/7/2011
20	**Site:** 261 Walton Avenue, Bronx, NY 10451 **Client:** M & T Bank	**Project No.:** 11-1244

APPENDIX B: FIGURES

AIRTEK ENVIRONMENTAL CORP.

39 – 37 29th Street, Long Island City, New York, 11101
Phone (718) 937-3720 Fax (718) 937-3721
www.airtekenv.com

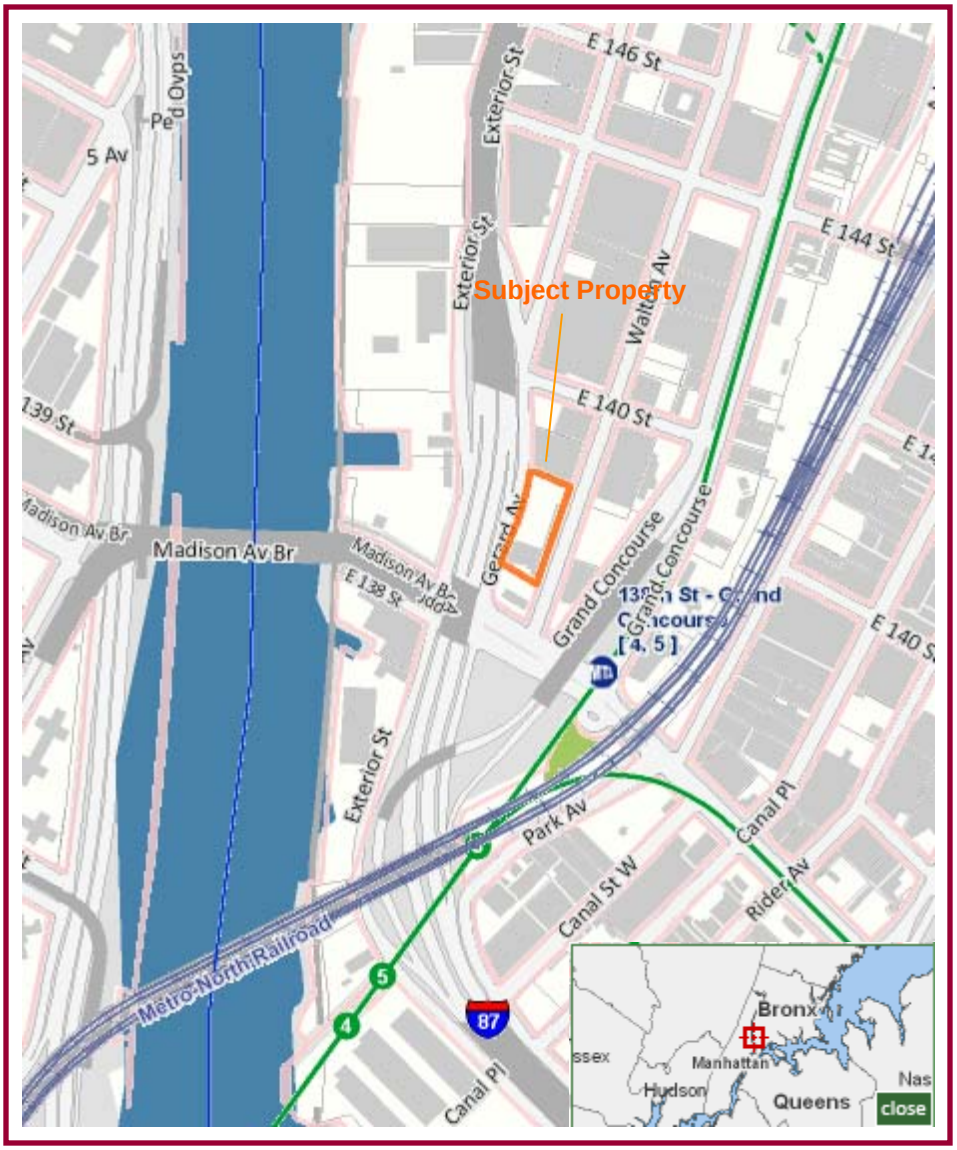


FIGURE 1: SUBJECT PROPERTY OVERVIEW	
Block: 2344	**Lot:** 60
Address: 261 Walton Avenue Bronx, NY 10451	
Airtek Project Number: 11-1244	**Date:** 12/12/2011

AIRTEK ENVIRONMENTAL CORP.

39 – 37 29th Street, Long Island City, New York, 11101
Phone (718) 937-3720 Fax (718) 937-3721
www.airtekenv.com

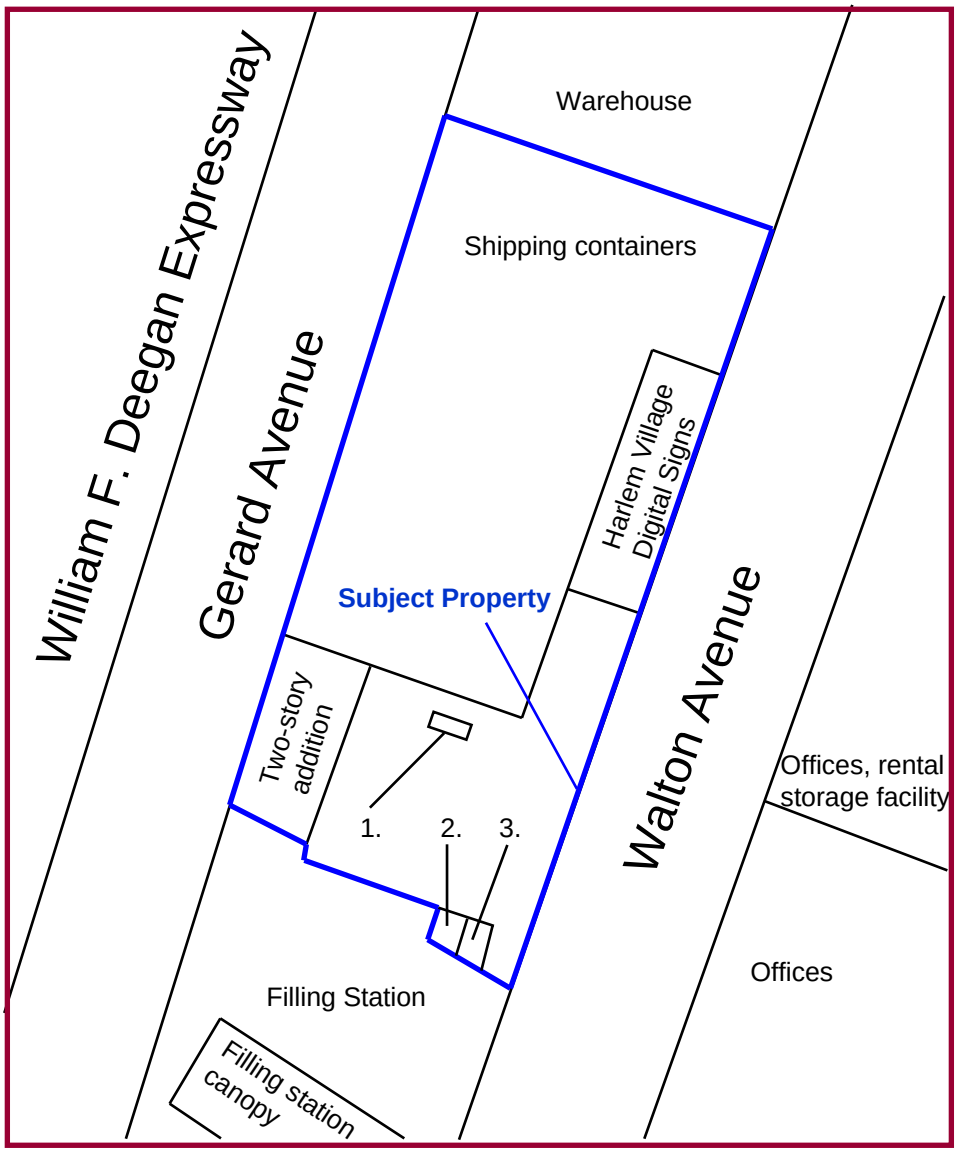


FIGURE 2: SUBJECT PROPERTY DETAIL	
Block: 2344	**Lot:** 60
Address: 261 Walton Avenue Bronx, NY 10451	
Airtek Project Number: 11-1244	**Date:** 12/12/2011

APPENDIX C: HISTORICAL RESEARCH DOCUMENTATION

Tuck It Away Associates
261 Walton Avenue
Bronx, NY 10451

Inquiry Number: 3213671.5
November 28, 2011

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Date EDR Searched Historical Sources:

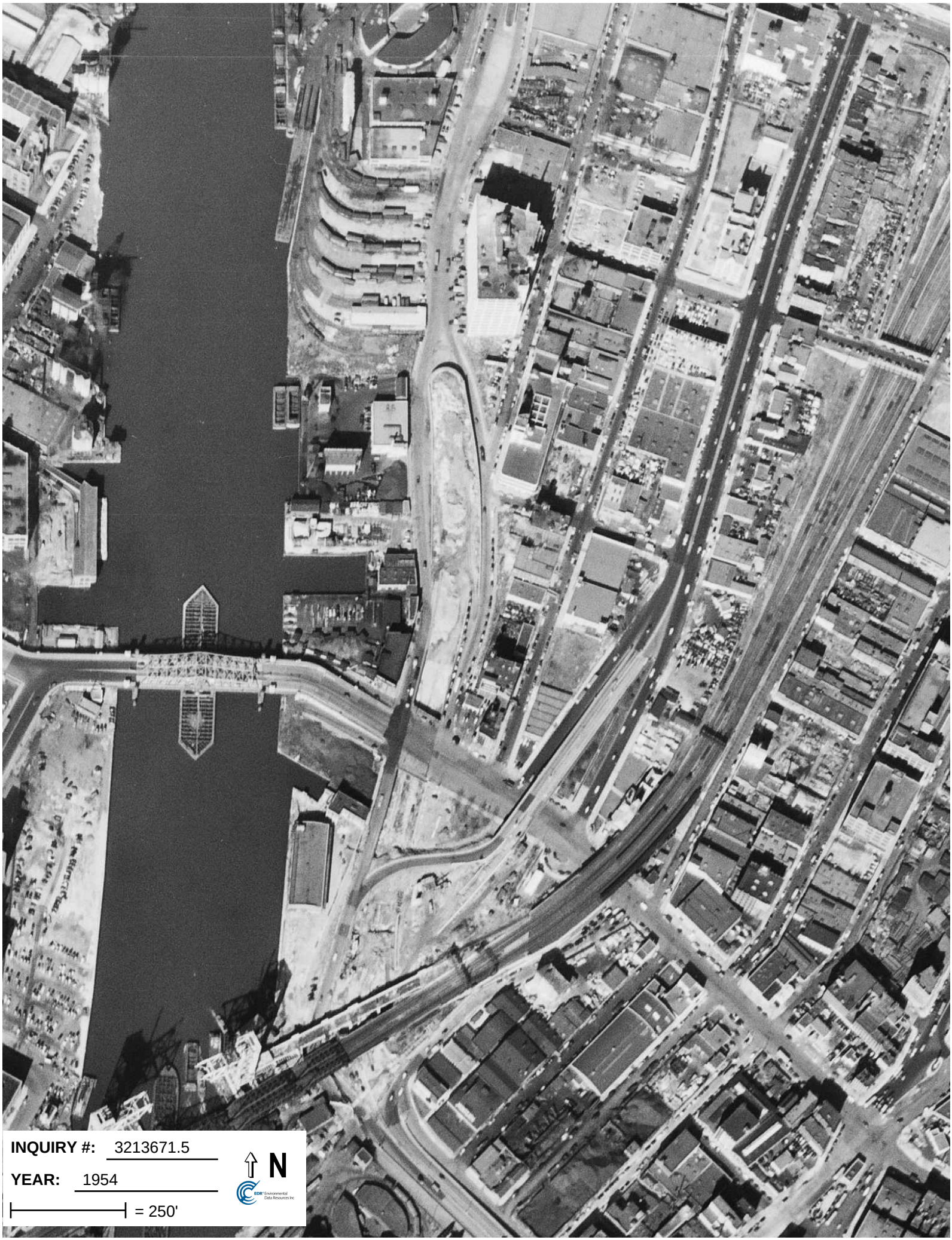
Aerial Photography November 28, 2011

Target Property:

261 Walton Avenue

Bronx, NY 10451

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1966	Aerial Photograph. Scale: 1"=500'	Panel #: 40073-G8, Central Park, NY;/Flight Date: February 23, 1966	EDR
1975	Aerial Photograph. Scale: 1"=750'	Panel #: 40073-G8, Central Park, NY;/Flight Date: April 01, 1975	EDR
1984	Aerial Photograph. Scale: 1"=500'	Panel #: 40073-G8, Central Park, NY;/Flight Date: April 27, 1984	EDR
1995	Aerial Photograph. Scale: 1"=500'	Panel #: 40073-G8, Central Park, NY;/Composite DOQQ - acquisition dates: March 13, 1995	EDR
2006	Aerial Photograph. Scale: 1"=500'	Panel #: 40073-G8, Central Park, NY;/Flight Year: 2006	EDR


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YEAR: 1954
= 250'
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INQUIRY #: 3213671.5
YEAR: 1966
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EDR Environmental Data Resources Inc

INQUIRY #: 3213671.5

YEAR: 1975

= 750'

N





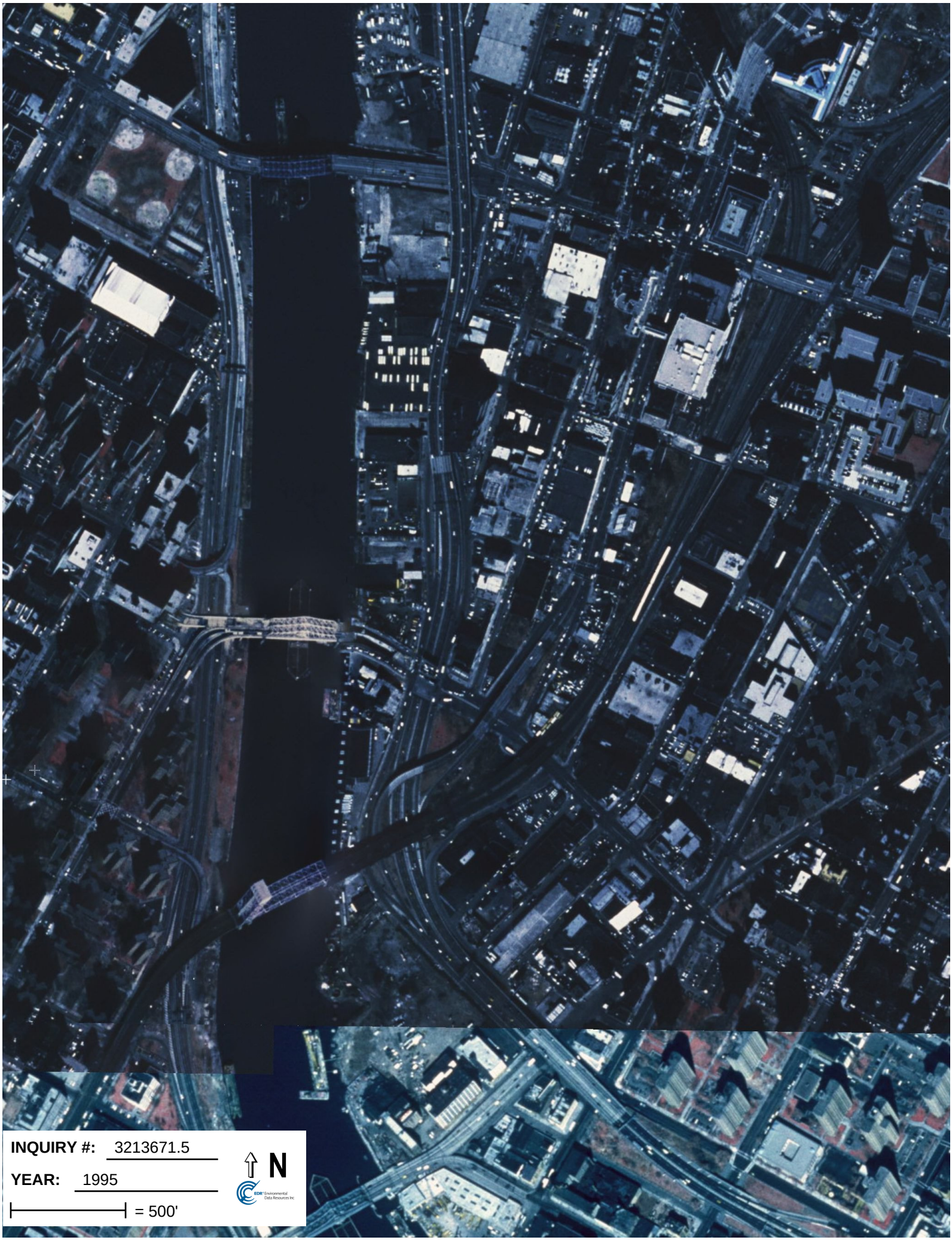
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YEAR: 1984

= 500'

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EDR Environmental Data Resources Inc



INQUIRY #: 3213671.5

YEAR: 1995

= 500'

N

EDR Environmental Data Resources Inc


INQUIRY #: 3213671.5
YEAR: 2006
= 500'
N

C-1: Aerial Photographs

C-2: Fire Insurance Maps

Tuck It Away Associates
261 Walton Avenue
Bronx, NY 10451

Inquiry Number: 3213671.3
November 28, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

11/28/11

Site Name:
Tuck It Away Associates
261 Walton Avenue
Bronx, NY 10451

Client Name:
Airtek Env. Corp.
3937 29th Street
Long Island City, NY 11101

EDR Inquiry # 3213671.3

Contact: Judah Lebow

EDR® Environmental Data Resources Inc

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Certified Sanborn Results:

Site Name: Tuck It Away Associates
Address: 261 Walton Avenue
City, State, Zip: Bronx, NY 10451
Cross Street:
P.O. # NA
Project: 11-1244
Certification # BF57-4325-88E8

Maps Provided:

2007	2001	1992	1980	1944
2006	1998	1991	1978	1935
2005	1996	1989	1977	1908
2004	1995	1986	1951	1891
2003	1994	1984	1947	
2002	1993	1981	1946	

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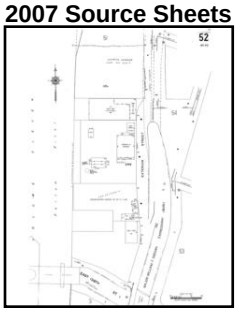
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Sanborn Sheet Thumbnails

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2007 Source Sheets



Volume 9N, Sheet 52



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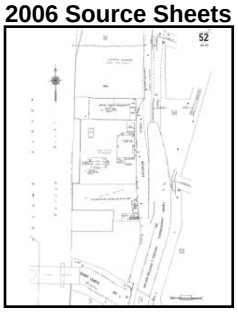


Volume 9N, Sheet 54



Volume 9S, Sheet 3

2006 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53

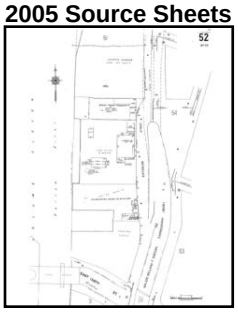


Volume 9N, Sheet 54



Volume 9S, Sheet 3

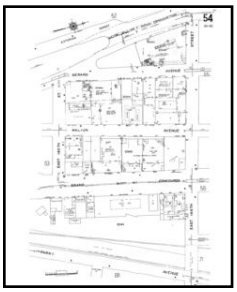
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Volume 9N, Sheet 52



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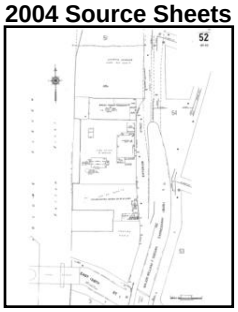


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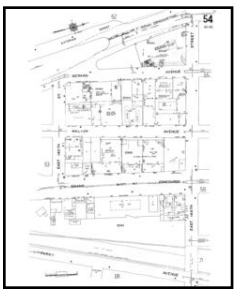
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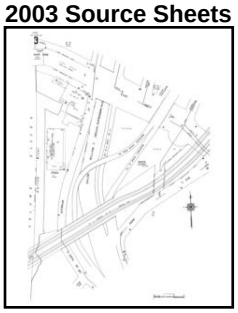


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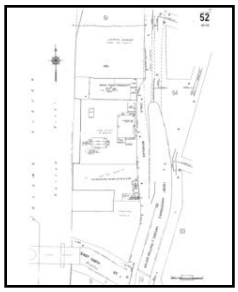


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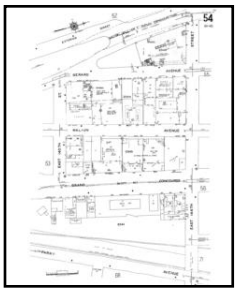
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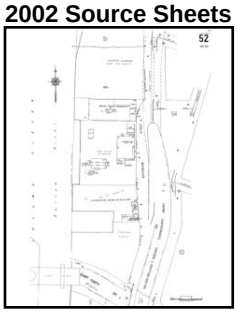


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2002 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53

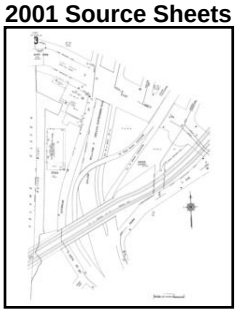


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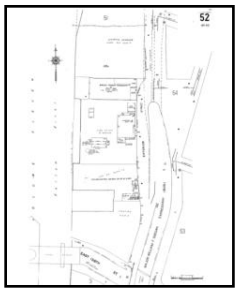


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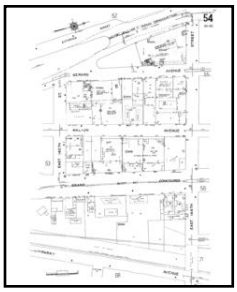
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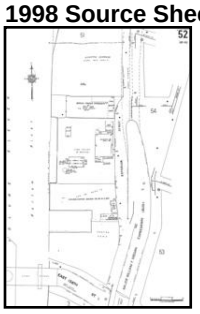


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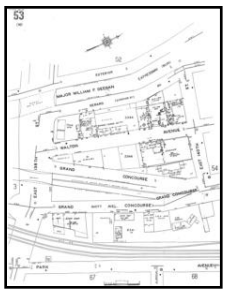


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1998 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53



Volume 9N, Sheet 54



Volume 9S, Sheet 3

1996 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53



Volume 9N, Sheet 54

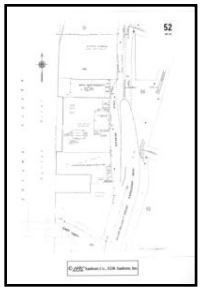


Volume 9S, Sheet 3

1995 Source Sheets



Volume 9S, Sheet 3



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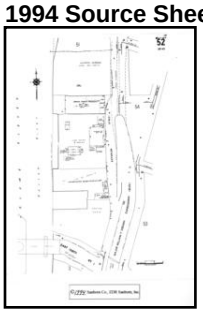


Volume 9N, Sheet 53



Volume 9N, Sheet 54

1994 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53



Volume 9N, Sheet 54



Volume 9S, Sheet 3

1993 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53

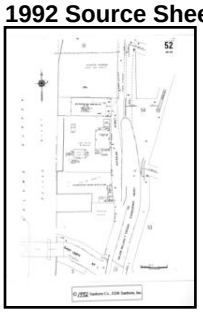


Volume 9N, Sheet 54



Volume 9S, Sheet 3

1992 Source Sheets



Volume 9N, Sheet 52



Volume 9N, Sheet 53



Volume 9N, Sheet 54

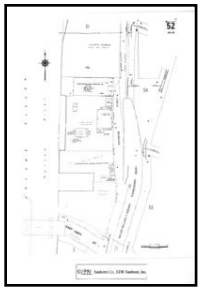


Volume 9S, Sheet 3

1991 Source Sheets



Volume 9S, Sheet 3



Volume 9N, Sheet 52



Volume 9N, Sheet 53

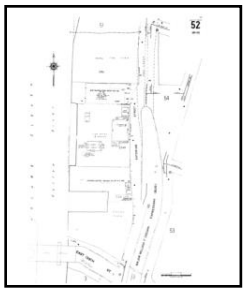


Volume 9N, Sheet 54

1989 Source Sheets



Volume 9S, Sheet 3



Volume 9N, Sheet 52

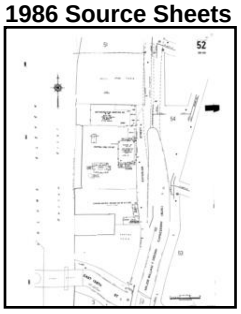


Volume 9N, Sheet 53



Volume 9N, Sheet 54

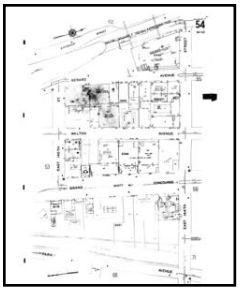
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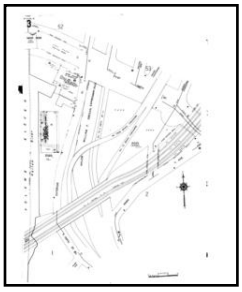
Volume 9N, Sheet 52



Volume 9N, Sheet 53



Volume 9N, Sheet 54



Volume 9S, Sheet 3

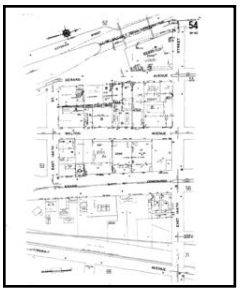
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Volume 9N, Sheet 53

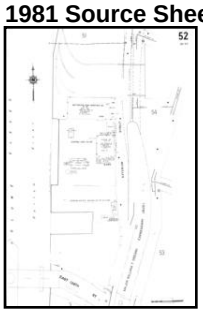


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Volume 9S, Sheet 3

1981 Source Sheets



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Volume 9N, Sheet 53

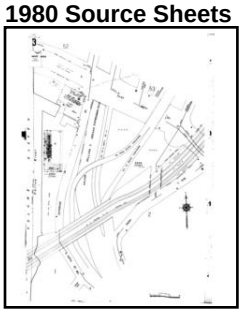


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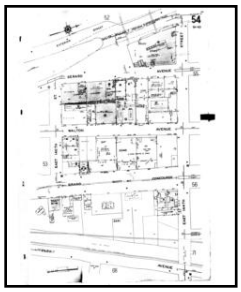


Volume 9S, Sheet 3

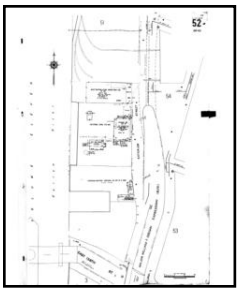
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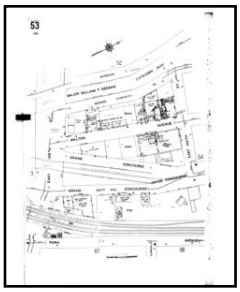
Volume 9S, Sheet 3



Volume 9N, Sheet 54

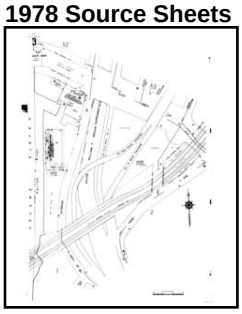


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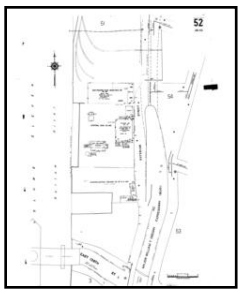


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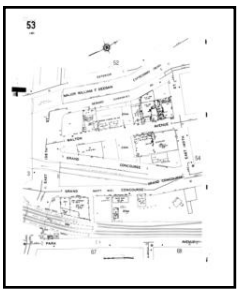
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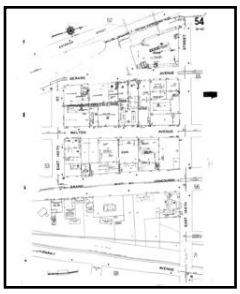
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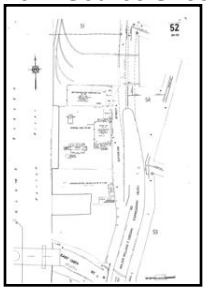


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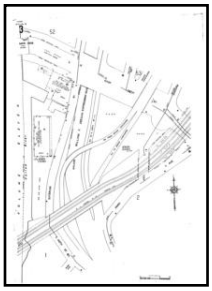
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Volume 9N, Sheet 53

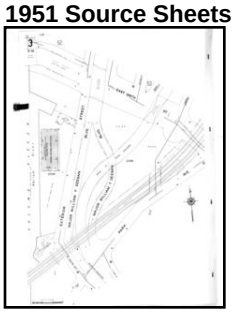


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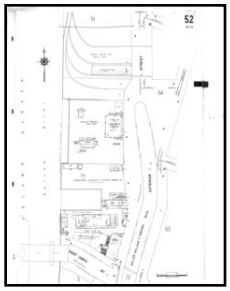


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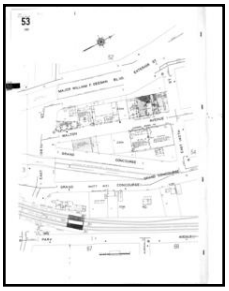
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Volume 9N, Sheet 52

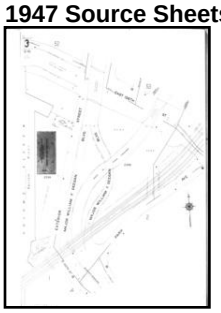


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Volume 9N, Sheet 54

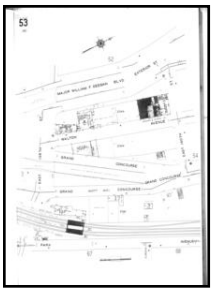
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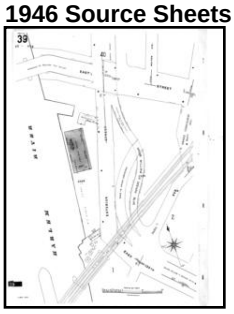


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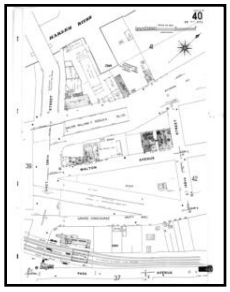


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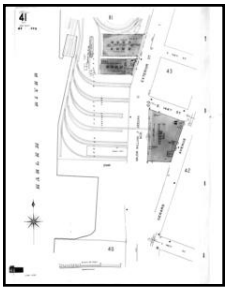
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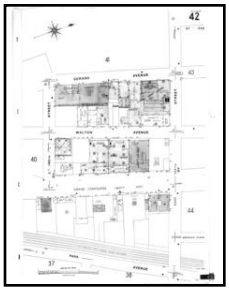
Volume 9, Sheet 39



Volume 9, Sheet 40

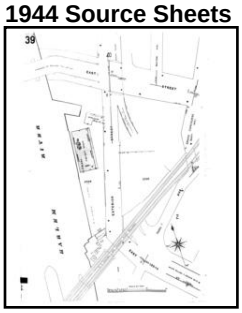


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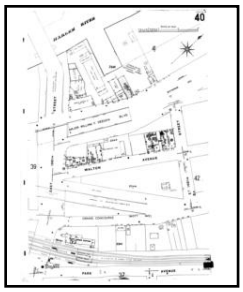


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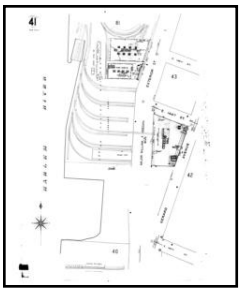
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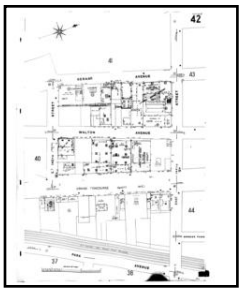
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Volume 9, Sheet 40



Volume 9, Sheet 41



Volume 9, Sheet 42

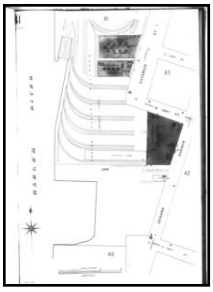
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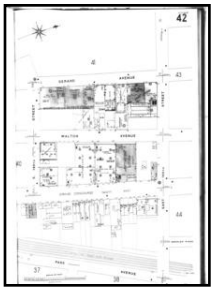
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Volume 9, Sheet 40



Volume 9, Sheet 41

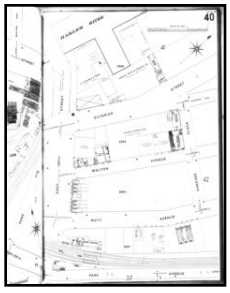


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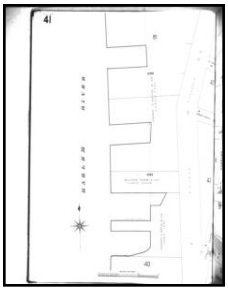
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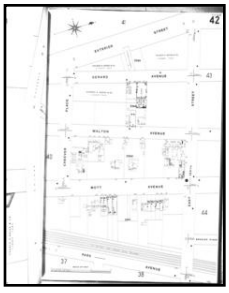
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Volume 9, Sheet 41



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1891 Source Sheets



Volume 9, Sheet 193



Volume 9, Sheet 194

2007 Certified Sanborn Map



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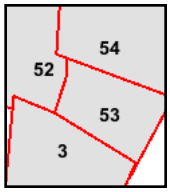
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Client: Airtek Env. Corp.
EDR Inquiry: 3213671.3
Order Date: 11/28/2011 3:08:02 PM
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Volume 9N, Sheet 54
Volume 9S, Sheet 3

N

1935 Certified Sanborn Map



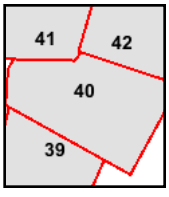
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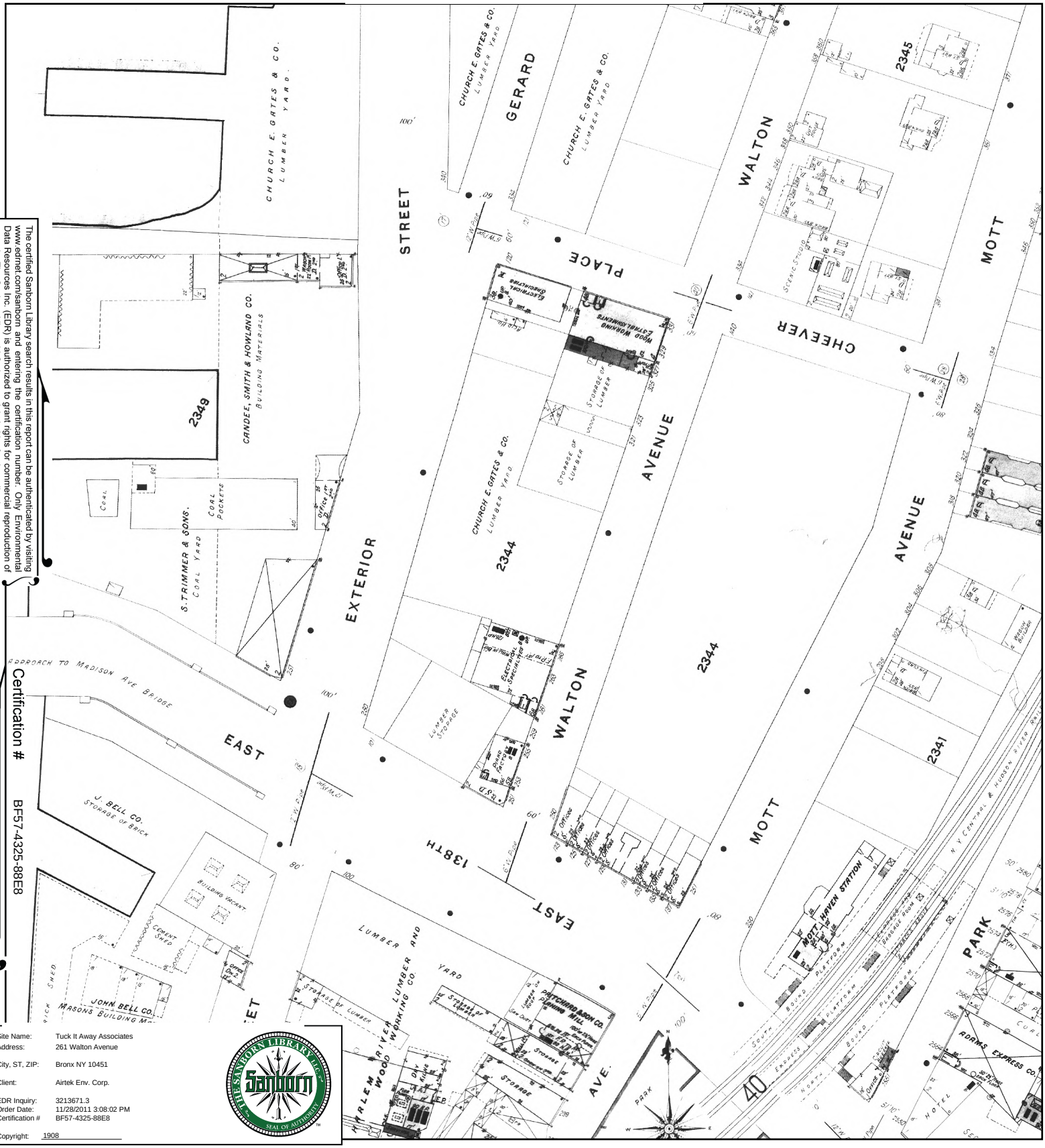


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1908 Certified Sanborn Map



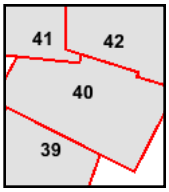
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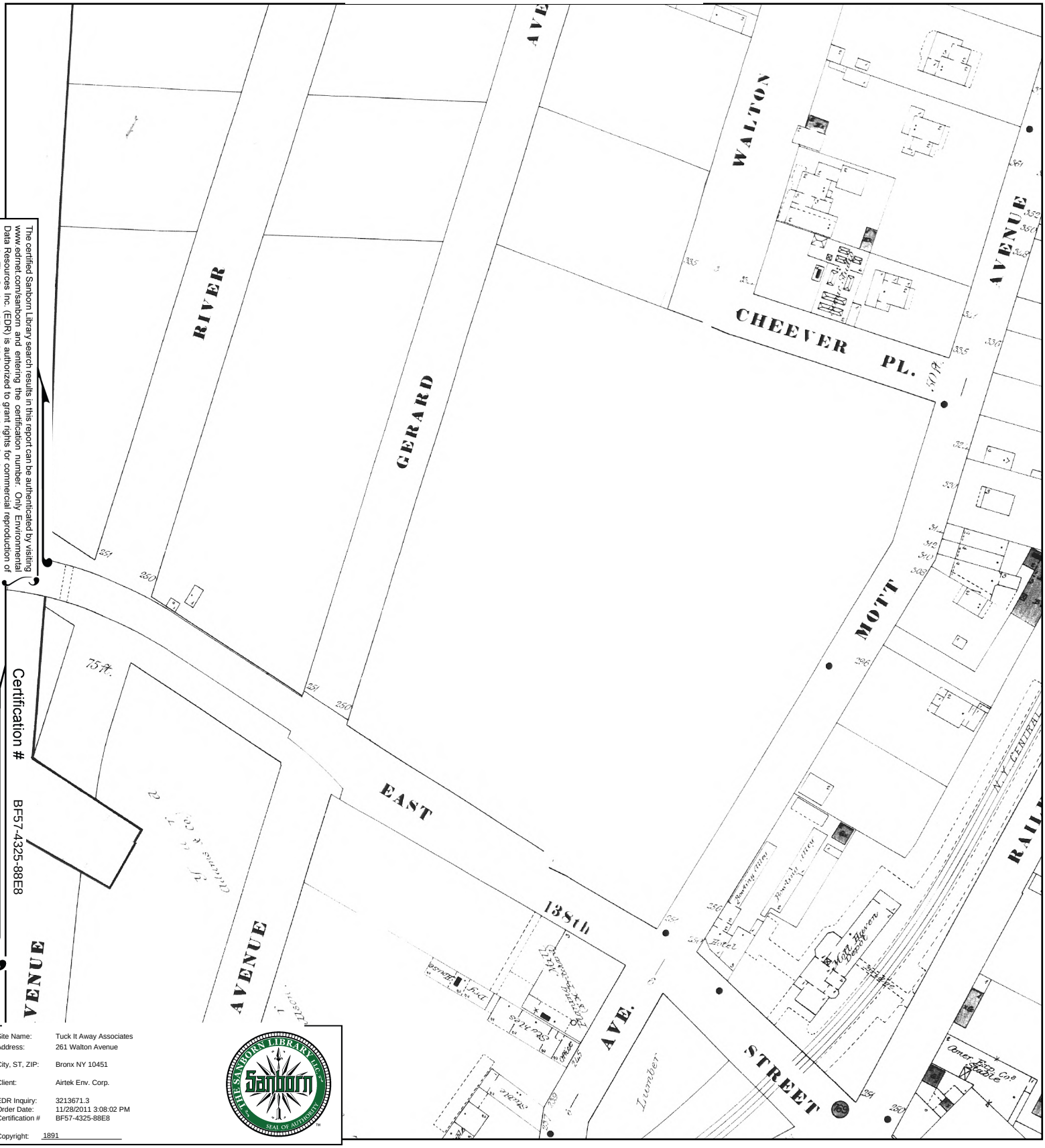


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1891 Certified Sanborn Map



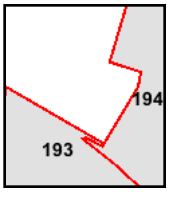
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0 Feet 150 300 600

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C-3: Historical Topographic Maps

Tuck It Away Associates
261 Walton Avenue
Bronx, NY 10451

Inquiry Number: 3213671.4
November 28, 2011

EDR Historical Topographic Map Report

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Milford, CT 06461
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EDR Historical Topographic Map Report

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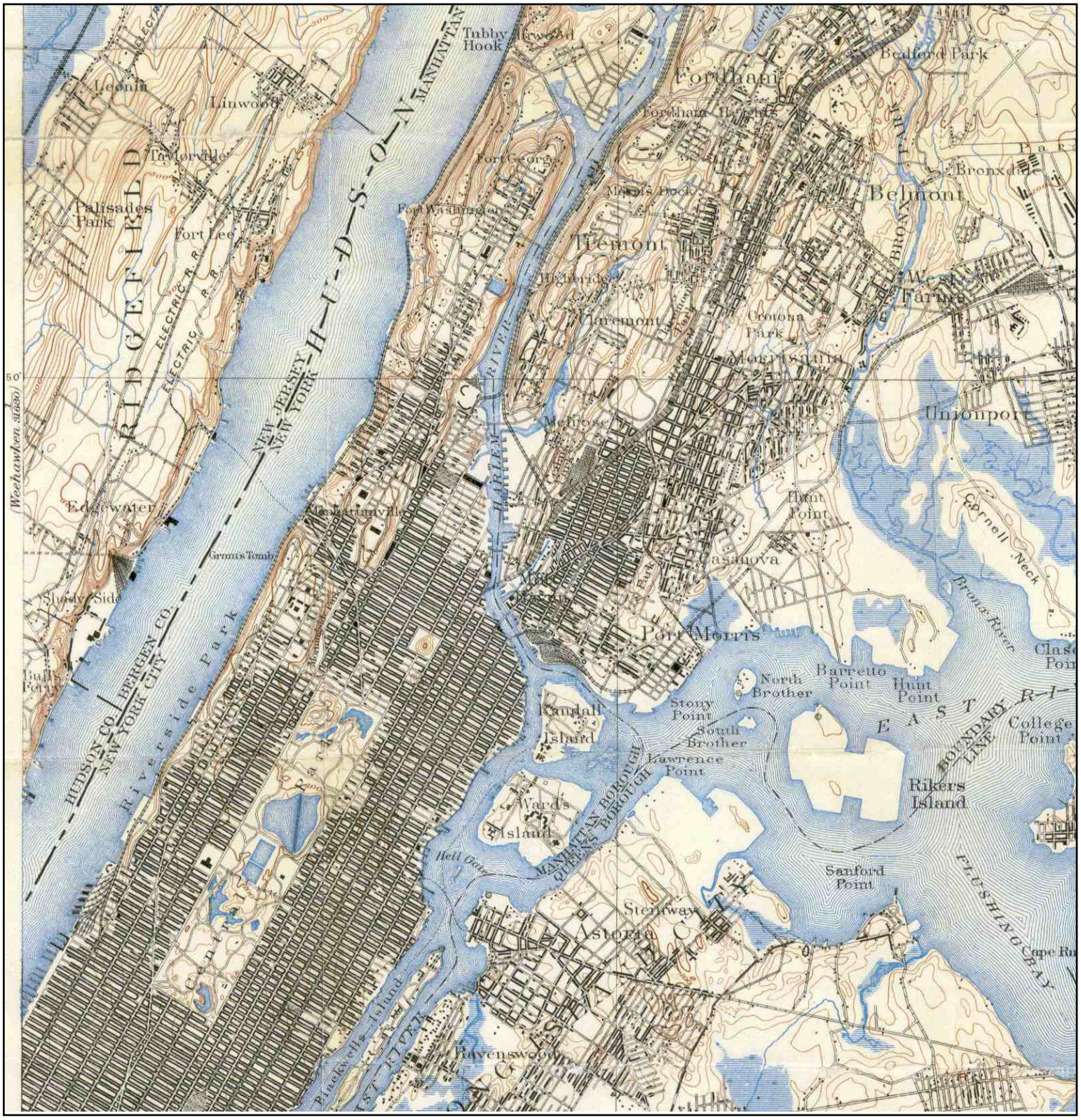
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Historical Topographic Map



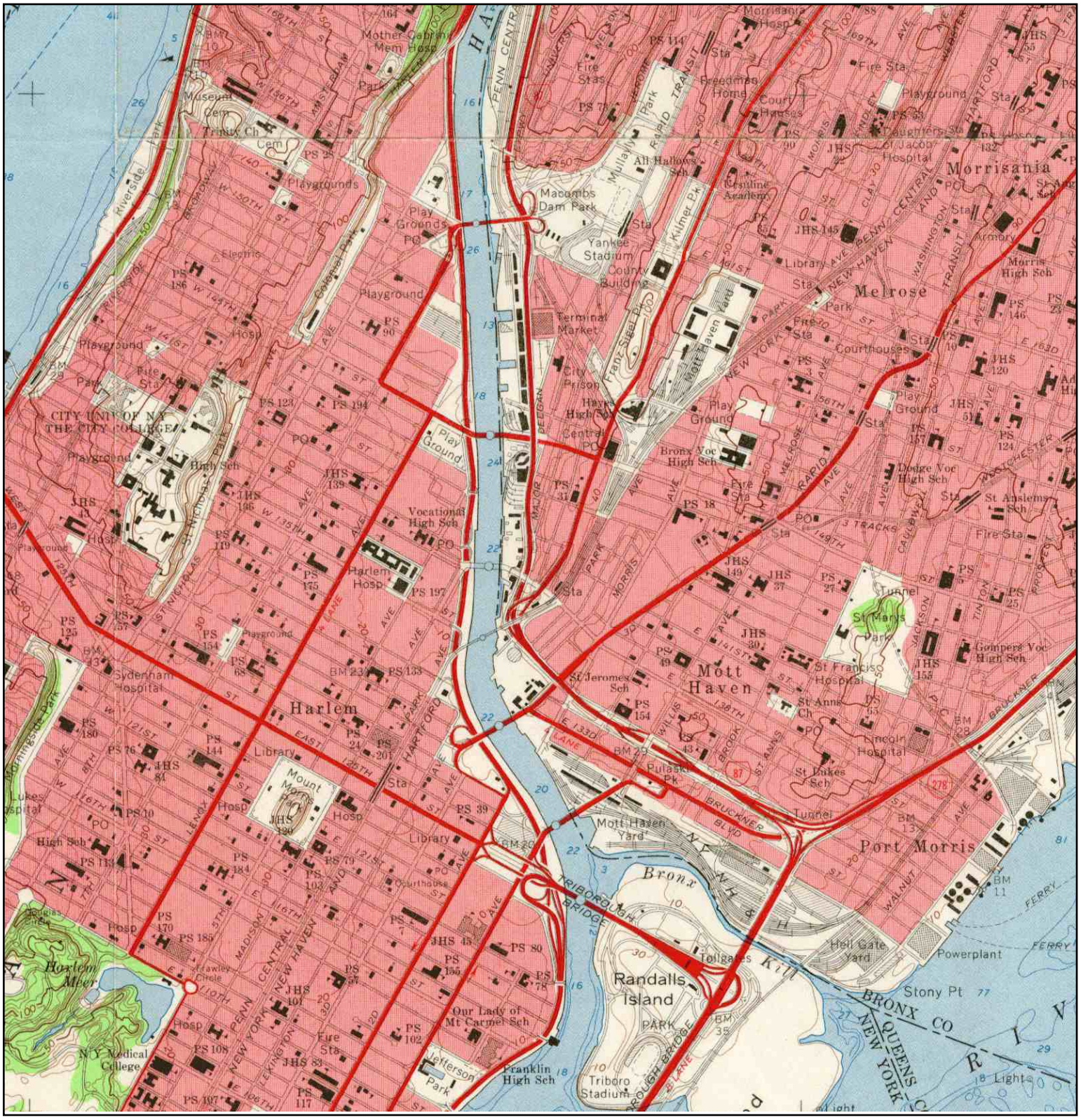
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Historical Topographic Map



N	TARGET QUAD NAME: CENTRAL PARK MAP YEAR: 1947 SERIES: 7.5 SCALE: 1:25000	SITE NAME: Tuck It Away Associates ADDRESS: 261 Walton Avenue Bronx, NY 10451 LAT/LONG: 40.8143 / -73.9305	CLIENT: Airtek Env. Corp. CONTACT: Judah Lebow INQUIRY#: 3213671.4 RESEARCH DATE: 11/28/2011

Historical Topographic Map



N	TARGET QUAD NAME: CENTRAL PARK MAP YEAR: 1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tuck It Away Associates ADDRESS: 261 Walton Avenue Bronx, NY 10451 LAT/LONG: 40.8143 / -73.9305	CLIENT: Airtek Env. Corp. CONTACT: Judah Lebow INQUIRY#: 3213671.4 RESEARCH DATE: 11/28/2011

Historical Topographic Map



N	TARGET QUAD NAME: CENTRAL PARK MAP YEAR: 1979 PHOTOREVISED:1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tuck It Away Associates ADDRESS: 261 Walton Avenue Bronx, NY 10451 LAT/LONG: 40.8143 / -73.9305	CLIENT: Airtek Env. Corp. CONTACT: Judah Lebow INQUIRY#: 3213671.4 RESEARCH DATE: 11/28/2011

Historical Topographic Map



N	TARGET QUAD NAME: CENTRAL PARK MAP YEAR: 1995 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tuck It Away Associates ADDRESS: 261 Walton Avenue Bronx, NY 10451 LAT/LONG: 40.8143 / -73.9305	CLIENT: Airtek Env. Corp. CONTACT: Judah Lebow INQUIRY#: 3213671.4 RESEARCH DATE: 11/28/2011

APPENDIX D: REGULATORY RECORDS DOCUMENTATION

D-1: The EDR Radius^{TM} Mapped Database Report

Tuck It Away Associates
261 Walton Avenue
Bronx, NY 10451

Inquiry Number: 3213671.2s
November 28, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

261 WALTON AVENUE
BRONX, NY 10451

COORDINATES

Latitude (North):	40.814300 - 40° 48' 51.5''
Longitude (West):	73.930500 - 73° 55' 49.8''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	590201.8
UTM Y (Meters):	4518481.5

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	40073-G8 CENTRAL PARK, NY
Most Recent Revision:	1995

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	2009, 2010
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 7 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
LOT 60,TAXBLOCK 2344 261 WALTON AVENUE BRONX, NY 10451	E DESIGNATION	N/A

EXECUTIVE SUMMARY

DATABASES WITH NO MAPPED SITES

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

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ---------- Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators

Federal institutional controls / engineering controls registries

US ENG CONTROLS ---------- Engineering Controls Sites List
US INST CONTROL ---------- Sites with Institutional Controls

Federal ERNS list

ERNS ---------- Emergency Response Notification System

State and tribal leaking storage tank lists

INDIAN LUST ---------- Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

CBS UST ---------- Chemical Bulk Storage Database

MOSF UST ---- Major Oil Storage Facilities Database
MOSF AST ---- Major Oil Storage Facilities Database
MOSF ---- Major Oil Storage Facility Site Listing
INDIAN UST ---- Underground Storage Tanks on Indian Land
FEMA UST ---- Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS ---- Registry of Engineering Controls
INST CONTROL ---- Registry of Institutional Controls
RES DECL ---- Restrictive Declarations Listing

State and tribal voluntary cleanup sites

INDIAN VCP ---- Voluntary Cleanup Priority Listing
VCP ---- Voluntary Cleanup Agreements

State and tribal Brownfields sites

ERP ---- Environmental Restoration Program Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ---- A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ---- Open Dump Inventory
DEBRIS REGION 9 ---- Torres Martinez Reservation Illegal Dump Site Locations
SWTIRE ---- Registered Waste Tire Storage & Facility List
INDIAN ODI ---- Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ---- Clandestine Drug Labs
DEL SHWS ---- Delisted Registry Sites
US HIST CDL ---- National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

HIST AST ---- Historical Petroleum Bulk Storage Database

Local Land Records

LIENS 2 ---- CERCLA Lien Information
LUCIS ---- Land Use Control Information System

Records of Emergency Release Reports

HMIRS ---- Hazardous Materials Information Reporting System

Other Ascertainable Records

DOT OPS ---- Incident and Accident Data

DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
HSWDS	Hazardous Substance Waste Disposal Site Inventory
UIC	Underground Injection Control Wells
DRYCLEANERS	Registered Drycleaners
NPDES	State Pollutant Discharge Elimination System
AIRS	Air Emissions Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
PCB TRANSFORMER	PCB Transformer Registration Database
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
COAL ASH	Coal Ash Disposal Site Listing
FINANCIAL ASSURANCE	Financial Assurance Information Listing
COAL ASH DOE	Sleam-Electric Plan Operation Data

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

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

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

STANDARD ENVIRONMENTAL RECORDS

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting

the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/15/2011 has revealed that there are 4 RCRA-SQG sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
B P PRODUCTS NORTH AMERICA #48	***115 E 138TH ST***	***0 - 1/8 (0.028 mi.) SSW***	***B10***	***48***
MERIT OIL CORP	***370 GRAND CONCOURSE AVE***	***0 - 1/8 (0.111 mi.) NE***	***J87***	***356***
UNITED PARCEL SERVICE	***180 CANAL PL***	***1/8 - 1/4 (0.172 mi.) SSE***	***M109***	***438***
GRAND SILVER CO	***289 MORRIS AVE***	***1/8 - 1/4 (0.242 mi.) ESE***	***Z158***	***637***

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

A review of the RCRA-CESQG list, as provided by EDR, and dated 06/15/2011 has revealed that there are 3 RCRA-CESQG sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
CON EDISON	E 138TH ST & GRAND CONC	0 - 1/8 (0.067 mi.) SSE	B53	209
HOSTOS COMMUNITY COLLEGE - TRA	***427 WALTON AVE***	***1/8 - 1/4 (0.180 mi.) NNE***	***O117***	***481***
HOSTOS COMMUNITY COLLEGE	***475 GRAND CONCOURSE***	***1/8 - 1/4 (0.246 mi.) NNE***	***X160***	***653***

State- and tribal - equivalent CERCLIS

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

A review of the SHWS list, as provided by EDR, and dated 09/27/2011 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
2350 FIFTH AVENUE CORP	***2350 5TH AVE***	***1/4 - 1/2 (0.267 mi.) NW***	***165***	***689***

Class Code: Significant threat to the public health or environment - action required.

VAPOR REOPENED: "Vapor intrusion" refers to the process by which volatile chemicals move from a subsurface source into the indoor air of overlying or adjacent buildings. The subsurface source can either be contaminated groundwater or contaminated soil which releases vapors into the pore spaces in the soil. Improvements in analytical techniques and knowledge gained from site investigations in New York and other states has led to an increased awareness of soil vapor as a medium of concern and of the potential for exposures from the soil vapor intrusion pathway. Based on this additional information, New York is currently re-evaluating previous assumptions and decisions regarding the potential for soil vapor intrusion exposures at sites. As a result, all past, current, and future contaminated sites will be evaluated to determine whether these sites have the potential for exposures related to soil vapor intrusion.

A review of the VAPOR REOPENED list, as provided by EDR, and dated 08/01/2011 has revealed that there is 1 VAPOR REOPENED site within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
2350 FIFTH AVENUE CORP	***2350 5TH AVE***	***1/4 - 1/2 (0.267 mi.) NW***	***165***	***689***

State and tribal landfill and/or solid waste disposal site lists

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

A review of the SWF/LF list, as provided by EDR, and dated 10/11/2011 has revealed that there are 4 SWF/LF sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
CON-EDISON @ SERVICE CENTER	281 EXTERIOR STREET	0 - 1/8 (0.042 mi.) WNW	E25	99
EQUINOX X 149 ST OF DEGAN	***475 EXTERIOR STREET***	***1/8 - 1/4 (0.234 mi.) N***	***Y156***	***632***
YOUNG CONTRACTING CORP.	2501 THIRD AVENUE	1/4 - 1/2 (0.273 mi.) SSE	AA166	707
TRANSFER STATION	***98 LINCOLN AVE***	***1/4 - 1/2 (0.443 mi.) S***	***192***	***823***

State and tribal leaking storage tank lists

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

A review of the LTANKS list, as provided by EDR, and dated 09/27/2011 has revealed that there are 41 LTANKS sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
GASETERIA	115 EAST 138TH STREET	0 - 1/8 (0.028 mi.) SSW	B11	53
310 WALTON AVENUE	***310 WALTON AVENUE***	***0 - 1/8 (0.035 mi.) NNE***	***C22***	***94***
Date Closed: 2/2/1994				
GRAND CONCOUR/CARROLL PL.	***118 GRAND CONCOURSE***	***0 - 1/8 (0.053 mi.) SE***	***B32***	***121***
Date Closed: 3/20/2003				
Not reported	***75 CANAL ST***	***1/8 - 1/4 (0.181 mi.) S***	***M120***	***493***
Date Closed: 10/15/1998				
138TH AVE. / RYDER AVE. /	***138TH ST./ RYDER AVE.***	***1/8 - 1/4 (0.195 mi.) SSE***	***N132***	***536***
Date Closed: 3/7/1987				

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
242 EAST 138TH STREET, INC.	***242 EAST 138TH STREET***	***1/8 - 1/4 (0.197 mi.) SE***	***N136***	***544***
Date Closed: 2/2/2007				
318 GRAND CONCOURSE/BX	***318 GRAND CONCOURSE***	***1/8 - 1/4 (0.199 mi.) NE***	***S137***	***553***
Date Closed: 9/6/1989				
PREMIER METAL PRODUCTS CO DIV	***381 CANAL PL***	***1/8 - 1/4 (0.211 mi.) ENE***	***T144***	***583***
Date Closed: 3/21/1995				
PREMIER METALS	***381 CANAL PLACE***	***1/8 - 1/4 (0.211 mi.) ENE***	***T145***	***602***
101-165 W 146TH ST/BX	***1010165 WEST 146TH STRE***	***1/8 - 1/4 (0.211 mi.) N***	***Q146***	***605***
Date Closed: 12/27/2000				
471 WALTON AV/WIRELESS	***471 WALTON AVE***	***1/8 - 1/4 (0.234 mi.) NNE***	***X151***	***619***
Date Closed: 3/4/2003				
COMMERCAIL BUILD	200 EAST 146TH STREET	1/4 - 1/2 (0.256 mi.) NE	164	687
Date Closed: 9/13/2010				
P & R FIXTURES CORP	***271 E 139TH ST***	***1/4 - 1/2 (0.278 mi.) SE***	***Z167***	***708***
Date Closed: 1/23/2004				
Not reported	***225 EAST 134TH ST***	***1/4 - 1/2 (0.329 mi.) S***	***AB170***	***714***
Date Closed: 3/29/2004				
99 E 149 ST	***99 E 149 ST***	***1/4 - 1/2 (0.336 mi.) N***	***AC171***	***716***
Date Closed: 3/4/2003				
AMOCO	***99 EAST 149TH ST***	***1/4 - 1/2 (0.336 mi.) N***	***AC172***	***719***
Date Closed: 11/13/2008				
LINCOLN	***2142 MADISON AVENUE***	***1/4 - 1/2 (0.340 mi.) WSW***	***AD173***	***728***
Date Closed: 8/2/1991				
RIVERTON APARTMENTS	2225-2237 5TH AVE	1/4 - 1/2 (0.345 mi.) W	AE174	730
Date Closed: 6/19/2006				
PATTERSON HOUSES -NYCHA	***301 EAST 143RD STREET***	***1/4 - 1/2 (0.347 mi.) E***	***AF175***	***732***
Date Closed: 12/2/2005				
Date Closed: 3/31/1995				
GRAND CONCOURSE REALTY CO	***557 GRAND CONCOURSE***	***1/4 - 1/2 (0.349 mi.) NNE***	***176***	***740***
Date Closed: 10/1/2004				
AMES MEDICAL EQUIPMENT	***2417 3RD AV***	***1/4 - 1/2 (0.360 mi.) S***	***AB177***	***743***
Date Closed: 12/4/2001				
PATTERSON HOUSES	***314 E 143RD ST***	***1/4 - 1/2 (0.362 mi.) E***	***AF178***	***745***
Date Closed: 11/17/1994				
LINCOLN	***2132 MADISON AVENUE***	***1/4 - 1/2 (0.362 mi.) WSW***	***AD179***	***753***
Date Closed: 10/26/2005				
JOHN GEUIBES	262 ALEXANDER AVENUE	1/4 - 1/2 (0.377 mi.) SE	AG182	773
Date Closed: 7/16/2003				
138 EAST 150TH STREET	***138 EAST 150TH STREET***	***1/4 - 1/2 (0.377 mi.) NNE***	***183***	***774***
Date Closed: 12/10/1993				
LINCOLN HOUSES	***2130 MADISON AV***	***1/4 - 1/2 (0.379 mi.) WSW***	***AD184***	***777***
Date Closed: 10/26/2005				
234 EAST 149TH STREET	***234 EAST 149TH STREET***	***1/4 - 1/2 (0.380 mi.) NE***	***AH185***	***784***
Date Closed: 11/27/1993				
LINCOLN MEDICAL CENTER	234 EAST 149TH ST	1/4 - 1/2 (0.380 mi.) NE	AH186	789
Date Closed: 1/6/2006				
CLOSED-LACKOF RECENT INFO	***230 ALEXANDER AVE.***	***1/4 - 1/2 (0.390 mi.) SE***	***AG187***	***791***
Date Closed: 3/4/2003				

Site	Address	Dist / Dir	Map ID	Page
10 W 135TH ST Date Closed: 2/27/1989	***10 W 135TH ST***	***1/4 - 1/2 (0.392 mi.) WSW***	***AE188***	***793***
MITCHELL HOUSES -NYCHA Date Closed: 6/1/1998	***205-207 ALEXANDER AVE***	***1/4 - 1/2 (0.403 mi.) SE***	***189***	***796***
3 BROTHERS CLEANERS Date Closed: 6/15/2004	***347 E 138TH ST***	***1/4 - 1/2 (0.416 mi.) SE***	***AG190***	***808***
500 GRAND CONCOURSE Date Closed: 9/30/1992	***500 GRAND CONCOURSE***	***1/4 - 1/2 (0.417 mi.) NNE***	***AI191***	***821***
556 MORRIS AVE Date Closed: 1/22/1996	***556 MORRIS AVE***	***1/4 - 1/2 (0.449 mi.) ENE***	***193***	***828***
110 EAST 130ST STREET	***MANHATTAN 10 GARAGE***	***1/4 - 1/2 (0.453 mi.) SSW***	***194***	***831***
CARMEL HAYS HIGH SCHOOL Date Closed: 3/3/2003	***650 GRAND CONCORSE***	***1/4 - 1/2 (0.462 mi.) NNE***	***AI195***	***840***
101 W 140TH ST Date Closed: 11/22/1996	***101 W 140TH ST***	***1/4 - 1/2 (0.463 mi.) WNW***	***AJ196***	***843***
APT COMPLEX Date Closed: 11/19/2003	101 W.140TH ST	1/4 - 1/2 (0.463 mi.) WNW	AJ197	846
Not reported Date Closed: 11/10/2005	***106 WEST 139TH ST***	***1/4 - 1/2 (0.480 mi.) WNW***	***198***	***847***
RESIDENCE Date Closed: 7/18/2005	4 E. 132ND ST.	1/4 - 1/2 (0.481 mi.) WSW	199	850
120 W 140TH ST Date Closed: 4/10/2006	120 W 140TH ST	1/4 - 1/2 (0.495 mi.) WNW	AJ200	852

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

A review of the HIST LTANKS list, as provided by EDR, and dated 01/01/2002 has revealed that there are 36 HIST LTANKS sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
310 WALTON AVENUE Date Closed: 02/02/94	***310 WALTON AVENUE***	***0 - 1/8 (0.035 mi.) NNE***	***C22***	***94***
GRAND CONCOUR/CARROLL PL. Date Closed: / /	***118 GRAND CONCOURSE***	***0 - 1/8 (0.053 mi.) SE***	***B32***	***121***
Not reported Date Closed: 10/15/98	***75 CANAL ST***	***1/8 - 1/4 (0.181 mi.) S***	***M120***	***493***
138TH AVE. / RYDER AVE. / Date Closed: 03/07/87	***138TH ST./ RYDER AVE.***	***1/8 - 1/4 (0.195 mi.) SSE***	***N132***	***536***
242 EAST 138TH STREET, INC. Date Closed: / /	***242 EAST 138TH STREET***	***1/8 - 1/4 (0.197 mi.) SE***	***N136***	***544***
318 GRAND CONCOURSE/BX Date Closed: 09/06/89	***318 GRAND CONCOURSE***	***1/8 - 1/4 (0.199 mi.) NE***	***S137***	***553***
PREMIER METAL PRODUCTS CO DIV Date Closed: 03/21/95	***381 CANAL PL***	***1/8 - 1/4 (0.211 mi.) ENE***	***T144***	***583***

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
PREMIER METALS Date Closed: / /	***381 CANAL PLACE***	***1/8 - 1/4 (0.211 mi.) ENE***	***T145***	***602***
101-165 W 146TH ST/BX Date Closed: 12/27/00	***1010165 WEST 146TH STRE***	***1/8 - 1/4 (0.211 mi.) N***	***Q146***	***605***
471 WALTON AV/WIRELESS Date Closed: / /	***471 WALTON AVE***	***1/8 - 1/4 (0.234 mi.) NNE***	***X151***	***619***
138 ST & 3RD AVE.- EFFCO Date Closed: 06/13/86	138TH ST / 3RD AVE	1/4 - 1/2 (0.253 mi.) SE	V163	686
P & R FIXTURES CORP Date Closed: / /	***271 E 139TH ST***	***1/4 - 1/2 (0.278 mi.) SE***	***Z167***	***708***
Not reported Date Closed: / /	***225 EAST 134TH ST***	***1/4 - 1/2 (0.329 mi.) S***	***AB170***	***714***
99 E 149 ST Date Closed: / /	***99 E 149 ST***	***1/4 - 1/2 (0.336 mi.) N***	***AC171***	***716***
AMOCO Date Closed: / /	***99 EAST 149TH ST***	***1/4 - 1/2 (0.336 mi.) N***	***AC172***	***719***
LINCOLN Date Closed: 08/02/91	***2142 MADISON AVENUE***	***1/4 - 1/2 (0.340 mi.) WSW***	***AD173***	***728***
PATTERSON HOUSES -NYCHA Date Closed: 03/31/95 Date Closed: / /	***301 EAST 143RD STREET***	***1/4 - 1/2 (0.347 mi.) E***	***AF175***	***732***
GRAND CONCOURSE REALTY CO Date Closed: / /	***557 GRAND CONCOURSE***	***1/4 - 1/2 (0.349 mi.) NNE***	***176***	***740***
AMES MEDICAL EQUIPMENT Date Closed: 12/04/01	***2417 3RD AV***	***1/4 - 1/2 (0.360 mi.) S***	***AB177***	***743***
PATTERSON HOUSES Date Closed: 11/17/94	***314 E 143RD ST***	***1/4 - 1/2 (0.362 mi.) E***	***AF178***	***745***
LINCOLN Date Closed: / /	***2132 MADISON AVENUE***	***1/4 - 1/2 (0.362 mi.) WSW***	***AD179***	***753***
143RD STREET ASSOCIATES Date Closed: / /	***44-58 WEST 143RD ST.***	***1/4 - 1/2 (0.370 mi.) NW***	***180***	***756***
257 ALEXANDER AVE Date Closed: / /	***257 ALEXANDER AVE***	***1/4 - 1/2 (0.377 mi.) SE***	***AG181***	***764***
138 EAST 150TH STREET Date Closed: 12/10/93	***138 EAST 150TH STREET***	***1/4 - 1/2 (0.377 mi.) NNE***	***183***	***774***
LINCOLN HOUSES Date Closed: / / Date Closed: / /	***2130 MADISON AV***	***1/4 - 1/2 (0.379 mi.) WSW***	***AD184***	***777***
234 EAST 149TH STREET Date Closed: 11/27/93	***234 EAST 149TH STREET***	***1/4 - 1/2 (0.380 mi.) NE***	***AH185***	***784***
CLOSED-LACKOF RECENT INFO Date Closed: / /	***230 ALEXANDER AVE.***	***1/4 - 1/2 (0.390 mi.) SE***	***AG187***	***791***
10 W 135TH ST Date Closed: 02/27/89	***10 W 135TH ST***	***1/4 - 1/2 (0.392 mi.) WSW***	***AE188***	***793***
MITCHELL HOUSES -NYCHA Date Closed: / / Date Closed: 06/01/98	***205-207 ALEXANDER AVE***	***1/4 - 1/2 (0.403 mi.) SE***	***189***	***796***

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
3 BROTHERS CLEANERS Date Closed: / /	***347 E 138TH ST***	***1/4 - 1/2 (0.416 mi.) SE***	***AG190***	***808***
500 GRAND CONCOURSE Date Closed: 09/30/92	***500 GRAND CONCOURSE***	***1/4 - 1/2 (0.417 mi.) NNE***	***AI191***	***821***
556 MORRIS AVE Date Closed: 01/22/96	***556 MORRIS AVE***	***1/4 - 1/2 (0.449 mi.) ENE***	***193***	***828***
110 EAST 130ST STREET Date Closed: / /	***MANHATTAN 10 GARAGE***	***1/4 - 1/2 (0.453 mi.) SSW***	***194***	***831***
CARMEL HAYS HIGH SCHOOL Date Closed: / /	***650 GRAND CONCORSE***	***1/4 - 1/2 (0.462 mi.) NNE***	***AI195***	***840***
101 W 140TH ST Date Closed: 11/22/96	***101 W 140TH ST***	***1/4 - 1/2 (0.463 mi.) WNW***	***AJ196***	***843***
Not reported Date Closed: / /	***106 WEST 139TH ST***	***1/4 - 1/2 (0.480 mi.) WNW***	***198***	***847***

State and tribal registered storage tank lists

TANKS: This database contains records of facilities that are or have been regulated under Bulk Storage Program. Tank information for these facilities may not be releasable by the state agency.

A review of the TANKS list, as provided by EDR, and dated 10/04/2011 has revealed that there are 2 TANKS sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
VERIZON NEW YORK INC-NY-90596	325 EXTERIOR STREET	0 - 1/8 (0.087 mi.) NNW	I64	259
PAY TV OF GREATER NY	140 E 146TH ST	1/8 - 1/4 (0.211 mi.) NNE	U142	581

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

A review of the UST list, as provided by EDR, and dated 10/04/2011 has revealed that there are 27 UST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
METROPOLITAN ROOFING SUPPS CO	***355 MAJOR DEEGAN BLVD***	***0 - 1/8 (0.000 mi.)***	***A2***	***11***
287 WALTON AVE.	287 WALTON AVENUE	0 - 1/8 (0.019 mi.) NNE	A7	35
138 PETROLEUM, LLC	***115 EAST 138TH STREET***	***0 - 1/8 (0.028 mi.) SSW***	***B13***	***58***
255 EXTERIOR STREET, LLC	255 EXTERIOR STREET	0 - 1/8 (0.032 mi.) WSW	D18	80
310 WALTON AVENUE	***310 WALTON AVENUE***	***0 - 1/8 (0.035 mi.) NNE***	***C21***	***91***
BOULEVARD CAR WASH OF N.Y. INC	315 GRAND CONCOURSE	0 - 1/8 (0.063 mi.) ENE	C39	153
350 GERARD CORPORATION	***350 GERARD AVENUE***	***0 - 1/8 (0.089 mi.) N***	***I65***	***259***
GRAND CONCOURSE PETROLEUM, LLC	***350 GRAND CONCOURSE***	***0 - 1/8 (0.089 mi.) ENE***	***J68***	***267***
U-HAUL CO OF METRO NY	***368 WALTON AVENUE***	***0 - 1/8 (0.106 mi.) NNE***	***H78***	***325***
MERIT GRAND CONCOURSE	***370 GRAND CONCOURSE***	***0 - 1/8 (0.111 mi.) NE***	***J86***	***348***
LOS PEGUERO REPAIR SHOP	***209 EAST 138TH STREET***	***1/8 - 1/4 (0.130 mi.) SE***	***K91***	***371***

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
220 E 138 ST	***220 EAST 138TH STREET***	***1/8 - 1/4 (0.161 mi.) SE***	***N100***	***410***
ROCKET JEWELRY BOX INC	125 EAST 144TH STREET	1/8 - 1/4 (0.164 mi.) NNE	O104	421
PANORAMIC INDUSTRIES INC	120 E 144TH ST	1/8 - 1/4 (0.164 mi.) N	O106	425
UNITED PARCEL SERVICE	***180 CANAL PL***	***1/8 - 1/4 (0.172 mi.) SSE***	***M109***	***438***
METRO AFFILIATES	399 EXTERIOR STREET	1/8 - 1/4 (0.177 mi.) N	Q110	456
138TH STREET INC	75 CANAL STREET WEST	1/8 - 1/4 (0.179 mi.) S	M114	473
HOSTOS COMMUNITY COLLEGE	427 WALTON AVENUE	1/8 - 1/4 (0.180 mi.) NNE	O118	488
PUBLIC SCHOOL 31 - BRONX	425 GRAND CONCOURSE	1/8 - 1/4 (0.184 mi.) NNE	O121	495
GRAPA, INC.	236 EAST 138TH STREET	1/8 - 1/4 (0.186 mi.) SE	N125	506
242 EAST 138TH STREET, INC.	***242 EAST 138TH STREET***	***1/8 - 1/4 (0.197 mi.) SE***	***N136***	***544***
GETTY 00111	***245 E 138TH STREET***	***1/8 - 1/4 (0.211 mi.) SE***	***V140***	***559***
FORMER KENTUCKY FRIED CHICHEN	2551 3RD AVENUE	1/8 - 1/4 (0.211 mi.) SE	V141	573
PREMIER METAL PRODUCTS CO DIV	***381 CANAL PL***	***1/8 - 1/4 (0.211 mi.) ENE***	***T144***	***583***
BRONX COUNTY RECYCLING LLC	475 EXTERIOR STREET	1/8 - 1/4 (0.234 mi.) N	Y152	622
HOSTOS COMMUNITY COLLEGE	***475 GRAND CONCOURSE***	***1/8 - 1/4 (0.246 mi.) NNE***	***X160***	***653***
POWER TEST00129	***475 GRAND CONCOURSE***	***1/8 - 1/4 (0.246 mi.) NNE***	***X162***	***672***

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

A review of the AST list, as provided by EDR, and dated 10/04/2011 has revealed that there are 22 AST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
BEN-GOMO REALTY, INC.	301 WALTON AVENUE	0 - 1/8 (0.029 mi.) NNE	C15	73
BOULEVARD CAR WASH OF N.Y. INC	315 GRAND CONCOURSE	0 - 1/8 (0.063 mi.) ENE	C44	174
PEGUERO BROTHERS REPAIR SHOP	338 GRAND CONCOURSE	0 - 1/8 (0.078 mi.) ENE	G57	228
EAGLE AUTO REPAIR CORP	341 GRAND CONCOURSE	0 - 1/8 (0.081 mi.) ENE	G58	230
LOS PEGUERO REPAIR SHOP	***209 EAST 138TH STREET***	***1/8 - 1/4 (0.130 mi.) SE***	***K91***	***371***
385 GERARD AVE	385 GERARD AVENUE	1/8 - 1/4 (0.131 mi.) N	L92	377
388-390 GRAND CONCOURSE	388-390 GRAND CONCOURSE	1/8 - 1/4 (0.136 mi.) NE	97	396
UNITED PARCEL SERVICE	***180 CANAL PLACE***	***1/8 - 1/4 (0.155 mi.) SSE***	***M99***	***400***
BARBOUR THREADS, INC.	***135 EAST 144TH STREET***	***1/8 - 1/4 (0.163 mi.) NNE***	***O102***	***416***
METRO AFFILIATES	***399 EXTERIOR STREET***	***1/8 - 1/4 (0.177 mi.) N***	***Q111***	***461***
138TH STREET INC	75 CANAL STREET WEST	1/8 - 1/4 (0.179 mi.) S	M115	477
A J GRIFFEN CORP	***424 GRAND CONCOURSE***	***1/8 - 1/4 (0.185 mi.) NE***	***S123***	***499***
424-430 GRAND CONCOURSE	***424-430 GRAND CONCOURSE***	***1/8 - 1/4 (0.185 mi.) NE***	***S124***	***502***
GRAPA, INC.	***236 EAST 138TH STREET***	***1/8 - 1/4 (0.186 mi.) SE***	***N126***	***511***
CANAL-RIDER REALTY LLC	321 RIDER AVENUE	1/8 - 1/4 (0.196 mi.) ESE	P134	541
376 CANAL PLACE	376 CANAL PLACE	1/8 - 1/4 (0.206 mi.) E	T139	557
GETTY 00111	***245 E 138TH STREET***	***1/8 - 1/4 (0.211 mi.) SE***	***V140***	***559***
1908-12 PROSPECT HOLDING CORP.	320 EAST 141ST STREET	1/8 - 1/4 (0.217 mi.) E	T147	608
DENCO DISTRIBUTORS INC.	***388 CANAL PLACE***	***1/8 - 1/4 (0.221 mi.) ENE***	***W148***	***610***
A.C. AUTO WRECKING CO. INC	***475 GERARD AVE***	***1/8 - 1/4 (0.227 mi.) N***	***U149***	***613***
BRONX COUNTY RECYCLING LLC	475 EXTERIOR STREET	1/8 - 1/4 (0.234 mi.) N	Y153	625
250 E 139 ST LLC	250-258 EAST 139TH STRE	1/8 - 1/4 (0.237 mi.) SE	Z157	635

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

A review of the CBS AST list, as provided by EDR, and dated 01/01/2002 has revealed that there is 1 CBS AST site within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
POWER CHEM. CO. INC.	***375 RIDER AVE.***	***1/8 - 1/4 (0.233 mi.) E***	***T150***	***618***

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

A review of the CBS list, as provided by EDR, and dated 10/04/2011 has revealed that there is 1 CBS site within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
POWER CHEM. CO. INC.	***375 RIDER AVE.***	***1/8 - 1/4 (0.233 mi.) E***	***T150***	***618***

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Site List

A review of the BROWNFIELDS list, as provided by EDR, and dated 09/27/2011 has revealed that there are 2 BROWNFIELDS sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
2477 THIRD AVENUE PROPERTY	2477 THIRD AVENUE	1/4 - 1/2 (0.295 mi.) SSE	AA168	710
BORINQUEN COURT	***285 E. 138TH ST***	***1/4 - 1/2 (0.296 mi.) SE***	***169***	***712***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

Registered Recycling Facility List from the Department of Environmental Conservation.

A review of the SWRCY list, as provided by EDR, and dated 10/11/2011 has revealed that there are 2 SWRCY sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
IESI NY CORP - CANAL PLACE REC	246 - 266 CANAL PLACE	1/8 - 1/4 (0.163 mi.) SE	N101	416
ECOLOGY RECYCLING PLANT	321 CANAL PLACE	1/8 - 1/4 (0.167 mi.) ESE	P107	428

Local Lists of Registered Storage Tanks

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

A review of the HIST UST list, as provided by EDR, and dated 01/01/2002 has revealed that there are 25 HIST UST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
METROPOLITAN ROOFING SUPPS CO	***355 MAJOR DEEGAN BLVD***	***0 - 1/8 (0.000 mi.)***	***A2***	***11***
287 WALTON AVE.	287 WALTON AVENUE	0 - 1/8 (0.019 mi.) NNE	A5	29
138 PETROLEUM, LLC	***115 EAST 138TH STREET***	***0 - 1/8 (0.028 mi.) SSW***	***B13***	***58***
310 WALTON AVENUE	***310 WALTON AVENUE***	***0 - 1/8 (0.035 mi.) NNE***	***C21***	***91***
315 GRAND CONCOURSE	315 GRAND CONCOURSE	0 - 1/8 (0.063 mi.) ENE	C42	167
GAINES LEASING CORP	***325 EXTERIA ST***	***0 - 1/8 (0.066 mi.) NW***	***E49***	***198***
350 GERARD CORPORATION	***350 GERARD AVENUE***	***0 - 1/8 (0.089 mi.) N***	***I65***	***259***
GRAND CONCOURSE PETROLEUM, LLC	***350 GRAND CONCOURSE***	***0 - 1/8 (0.089 mi.) ENE***	***J68***	***267***
U-HAUL CO OF METRO NY	***368 WALTON AVENUE***	***0 - 1/8 (0.106 mi.) NNE***	***H78***	***325***
MERIT GRAND CONCOURSE	***370 GRAND CONCOURSE***	***0 - 1/8 (0.111 mi.) NE***	***J86***	***348***
UNITED PARCEL SERVICE	***180 CANAL PLACE***	***1/8 - 1/4 (0.155 mi.) SSE***	***M99***	***400***
220 E 138 ST	***220 EAST 138TH STREET***	***1/8 - 1/4 (0.161 mi.) SE***	***N100***	***410***
ROCKET JEWELRY BOX INC	125 EAST 144TH STREET	1/8 - 1/4 (0.164 mi.) NNE	O103	420
PANORAMIC INDUSTRIES INC	120 E 144TH ST	1/8 - 1/4 (0.164 mi.) N	O105	423
METRO AFFILIATES	***399 EXTERIOR STREET***	***1/8 - 1/4 (0.177 mi.) N***	***Q111***	***461***
DOVER GARAGE CORP.	75 CANAL STREET WEST	1/8 - 1/4 (0.179 mi.) S	M116	481
P.S. 31	425 GRAND CONCOURSE	1/8 - 1/4 (0.184 mi.) NNE	O122	498
GRAPA, INC.	***236 EAST 138TH STREET***	***1/8 - 1/4 (0.186 mi.) SE***	***N126***	***511***
242 EAST 138TH STREET, INC.	***242 EAST 138TH STREET***	***1/8 - 1/4 (0.197 mi.) SE***	***N136***	***544***
GETTY 00111	***245 E 138TH STREET***	***1/8 - 1/4 (0.211 mi.) SE***	***V140***	***559***
PAY TV OF GREATER NY	140 E 146TH ST	1/8 - 1/4 (0.211 mi.) NNE	U143	581
PREMIER METAL PRODUCTS CO DIV	***381 CANAL PL***	***1/8 - 1/4 (0.211 mi.) ENE***	***T144***	***583***
UNIVERSAL DEMOLITION & RCYCLNG	475 EXTERIOR ST	1/8 - 1/4 (0.234 mi.) N	Y154	628
HOSTOS COMMUNITY COLLEGE	475 GRAND CONCOURSE	1/8 - 1/4 (0.246 mi.) NNE	X161	670
POWER TEST00129	***475 GRAND CONCOURSE***	***1/8 - 1/4 (0.246 mi.) NNE***	***X162***	***672***

Records of Emergency Release Reports

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

A review of the NY Spills list, as provided by EDR, and dated 09/27/2011 has revealed that there are 19 NY Spills sites within approximately 0.125 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
APARTMENT BUILDING Date Closed: 3/3/2003	***250 WALTON AVE***	***0 - 1/8 (0.006 mi.) ESE***	***A3***	***20***
GASETERIA Date Closed: 10/28/2003	***115 EAST 138TH STREET***	***0 - 1/8 (0.028 mi.) SSW***	***B12***	***56***
MANHOLE #9476 Date Closed: 11/27/2002	WALTON AV & E 138TH ST	0 - 1/8 (0.031 mi.) S	B16	76

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
STAINED SOIL FOUND IN EXCAVATI Date Closed: 12/28/2007	EAST 138 STREET & EXTER	0 - 1/8 (0.041 mi.) SW	B24	98
MAJOR DEEGAN EXPWY/BX Date Closed: 7/5/1989	***MAJOR DEEGAN EXPWY/E 13***	***0 - 1/8 (0.045 mi.) SW***	***B30***	***116***
725 EXTERIOR ST Date Closed: 2/28/2003	***725 EXTERIOR ST***	***0 - 1/8 (0.045 mi.) NW***	***E31***	***119***
Not reported Date Closed: 2/13/2003	***745 EXTERIOR ST***	***0 - 1/8 (0.053 mi.) NW***	***E33***	***124***
WALTON AVE-138 & 140TH ST Date Closed: 7/18/1994	***WALTON AVE-138 & 140TH***	***0 - 1/8 (0.063 mi.) NE***	***C37***	***145***
ABANDONED GAS STATION Date Closed: 12/31/2001	***315 GRAND CONCOURSE***	***0 - 1/8 (0.063 mi.) ENE***	***C40***	***160***
FORMER CITYGAS/LAGE CAR WASH	***315 GRAND CONCOURSE***	***0 - 1/8 (0.063 mi.) ENE***	***C41***	***163***
310 GRAND CONCOURSE Date Closed: 7/14/2003	***310 GRAND CONCOURSE***	***0 - 1/8 (0.065 mi.) E***	***G46***	***183***
VERIZON BUILDING Date Closed: 2/21/2007	325 EXTERIOR STREET	0 - 1/8 (0.066 mi.) NW	E52	207
141ST ST& GRAND CONCOURSE Date Closed: 1/1/1989	***141ST ST &GRAND CONCOUR***	***0 - 1/8 (0.084 mi.) NE***	***H62***	***250***
BP AMOCO STATION #17782	350 GRAND CONCOURSE	0 - 1/8 (0.089 mi.) ENE	J70	284
368 WALTON AVENUE Date Closed: 4/10/2002	***368 WALTON AVENUE***	***0 - 1/8 (0.106 mi.) NNE***	***H76***	***320***
U HAUL #803-68 Date Closed: 6/30/2003	***368 WALTON AVE***	***0 - 1/8 (0.106 mi.) NNE***	***H77***	***322***
233 MAJOR DEGAN EXPWY Date Closed: 11/22/1996	***233 MAJOR DEEGAN EXPWY***	***0 - 1/8 (0.107 mi.) SSW***	***80***	***330***
ON THE STREET Date Closed: 6/28/2004	EAST 138TH ST./ PARK AV	0 - 1/8 (0.109 mi.) SE	K82	333
MERRITT STATION	***370 GRAND CONCORSE AVE***	***0 - 1/8 (0.111 mi.) NE***	***J85***	***342***

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

A review of the NY Hist Spills list, as provided by EDR, and dated 01/01/2002 has revealed that there are 14 NY Hist Spills sites within approximately 0.125 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
APARTMENT BUILDING	***250 WALTON AVE***	***0 - 1/8 (0.006 mi.) ESE***	***A3***	***20***
GASETERIA	***115 EAST 138TH STREET***	***0 - 1/8 (0.028 mi.) SSW***	***B12***	***56***
MAJOR DEEGAN EXPWY/BX	***MAJOR DEEGAN EXPWY/E 13***	***0 - 1/8 (0.045 mi.) SW***	***B30***	***116***
725 EXTERIOR ST	***725 EXTERIOR ST***	***0 - 1/8 (0.045 mi.) NW***	***E31***	***119***
Not reported	***745 EXTERIOR ST***	***0 - 1/8 (0.053 mi.) NW***	***E33***	***124***
WALTON AVE-138 & 140TH ST	***WALTON AVE-138 & 140TH***	***0 - 1/8 (0.063 mi.) NE***	***C37***	***145***
ABANDONED GAS STATION	***315 GRAND CONCOURSE***	***0 - 1/8 (0.063 mi.) ENE***	***C40***	***160***

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
FORMER CITYGAS/LAGE CAR WASH	***315 GRAND CONCOURSE***	***0 - 1/8 (0.063 mi.) ENE***	***C41***	***163***
310 GRAND CONCOURSE	***310 GRAND CONCOURSE***	***0 - 1/8 (0.065 mi.) E***	***G46***	***183***
141ST ST& GRAND CONCOURSE	***141ST ST &GRAND CONCOUR***	***0 - 1/8 (0.084 mi.) NE***	***H62***	***250***
368 WALTON AVENUE	***368 WALTON AVENUE***	***0 - 1/8 (0.106 mi.) NNE***	***H76***	***320***
U HAUL #803-68	***368 WALTON AVE***	***0 - 1/8 (0.106 mi.) NNE***	***H77***	***322***
233 MAJOR DEGAN EXPWY	***233 MAJOR DEEGAN EXPWY***	***0 - 1/8 (0.107 mi.) SSW***	***80***	***330***
MERRITT STATION	***370 GRAND CONCORSE AVE***	***0 - 1/8 (0.111 mi.) NE***	***J85***	***342***

Other Ascertainable Records

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

A review of the RCRA-NonGen list, as provided by EDR, and dated 06/15/2011 has revealed that there are 28 RCRA-NonGen sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
B & M LINEN CORP	***310 WALTON AVE***	***0 - 1/8 (0.035 mi.) NNE***	***C20***	***87***
CON ED - EXTERIOR ST STORAGE Y	***281 EXTERIOR ST***	***0 - 1/8 (0.042 mi.) WNW***	***E26***	***100***
CON EDISON	E 140TH ST & WALTON AVE	0 - 1/8 (0.043 mi.) NNE	C28	109
GRAND OPERATING CORP	***315 GRAND CONCOURSE***	***0 - 1/8 (0.063 mi.) ENE***	***C43***	***172***
GAINES LEASING CORP	***325 EXTERIA ST***	***0 - 1/8 (0.066 mi.) NW***	***E49***	***198***
LUIGI RENALDO AUTO CENTER	325 EXTERIOR ST	0 - 1/8 (0.066 mi.) NW	E51	206
U HAUL CENTER	***350 WALTON AVE***	***0 - 1/8 (0.084 mi.) NNE***	***H61***	***239***
WEDTECH CORP	***350 GERARD AVE***	***0 - 1/8 (0.089 mi.) N***	***I66***	***263***
A C A AMOCO #594	***350 GRAND CONCOURSE BLV***	***0 - 1/8 (0.089 mi.) ENE***	***J67***	***266***
BARKLEY BUILDING	***385 GERARD AVE - 5TH &***	***1/8 - 1/4 (0.129 mi.) N***	***L90***	***369***
SPORT SCREEN INC	***385 GERARD AVE***	***1/8 - 1/4 (0.131 mi.) N***	***L93***	***379***
NORTHEAST LAMP RECYCLING INC	385 GERARD AVE - MAIN F	1/8 - 1/4 (0.131 mi.) N	L94	381
SPORT SCREEN INC	385 GERARD AVE 2ND FLOO	1/8 - 1/4 (0.131 mi.) N	L95	382
S & S INDUSTRIES INC-385 GERAR	***385 GERARD AVENUE***	***1/8 - 1/4 (0.131 mi.) N***	***L96***	***384***
U S A PORTABLE SERVICE	180 CANAL ST W	1/8 - 1/4 (0.155 mi.) SSE	M98	398
AJAX AUTOMOTIVE	***329 CANAL PL***	***1/8 - 1/4 (0.170 mi.) E***	***P108***	***428***
GLENTIES LEASING CO	***75 CANAL ST W***	***1/8 - 1/4 (0.179 mi.) S***	***M113***	***472***
NYSDOT CONTRACT D500792	***EXTERIOR ST & 135TH ST***	***1/8 - 1/4 (0.181 mi.) SSW***	***R119***	***491***
UNITED STATES NAVY DEPT TRANSP	***138TH ST & MADISON AVE***	***1/8 - 1/4 (0.188 mi.) W***	***127***	***518***
CON ED - V 2380	***E 141 ST & CANAL PL***	***1/8 - 1/4 (0.189 mi.) E***	***T128***	***520***
CON EDISON - VS 2380	***CANAL & 141ST ST***	***1/8 - 1/4 (0.189 mi.) E***	***T129***	***522***
CON EDISON	234 RIDER AVE	1/8 - 1/4 (0.194 mi.) SE	N130	524
STONE SERVICES INC	***445 GERARD AVE***	***1/8 - 1/4 (0.195 mi.) N***	***U131***	***525***
RAB ELECTRIC MANUFACTURING CO	***321 RIDER AVE***	***1/8 - 1/4 (0.196 mi.) ESE***	***P133***	***538***
PPG INDUSTRIES INC LOC #1834	***441 EXTERIOR ST***	***1/8 - 1/4 (0.202 mi.) N***	***Q138***	***556***
PREMIER METAL PRODUCTS CO DIV	***381 CANAL PL***	***1/8 - 1/4 (0.211 mi.) ENE***	***T144***	***583***
COPAKE VALLEY FARM LLC	***475 EXTERIOR ST***	***1/8 - 1/4 (0.234 mi.) N***	***Y155***	***630***
POWER CHEMICAL CO INC	***387 RIDER AVE***	***1/8 - 1/4 (0.243 mi.) E***	***W159***	***650***

EXECUTIVE SUMMARY

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

A review of the MANIFEST list, as provided by EDR, and dated 08/01/2011 has revealed that there are 26 MANIFEST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
B P PRODUCTS NORTH AMERICA #48	***115 E 138TH ST***	***0 - 1/8 (0.028 mi.) SSW***	***B10***	***48***
B & M LINEN CORP	***310 WALTON AVE***	***0 - 1/8 (0.035 mi.) NNE***	***C20***	***87***
HIPPODROME SVCS	310 WALTON AVE	0 - 1/8 (0.035 mi.) NNE	C23	97
CON ED - EXTERIOR ST STORAGE Y	***281 EXTERIOR ST***	***0 - 1/8 (0.042 mi.) WNW***	***E26***	***100***
GAINES LEASING CORP	***325 EXTERIA ST***	***0 - 1/8 (0.066 mi.) NW***	***E49***	***198***
U HAUL CENTER	***350 WALTON AVE***	***0 - 1/8 (0.084 mi.) NNE***	***H61***	***239***
WEDTECH CORP	***350 GERARD AVE***	***0 - 1/8 (0.089 mi.) N***	***I66***	***263***
NYCDEP	PARK AVE & E 138TH ST	0 - 1/8 (0.109 mi.) SE	K81	332
MERIT OIL CORP	***370 GRAND CONCOURSE AVE***	***0 - 1/8 (0.111 mi.) NE***	***J87***	***356***
CONSOLIDATED EDISON	355 EXTERIOR ST OPEXCAV	1/8 - 1/4 (0.125 mi.) N	I89	368
S & S INDUSTRIES INC-385 GERAR	***385 GERARD AVENUE***	***1/8 - 1/4 (0.131 mi.) N***	***L96***	***384***
AJAX AUTOMOTIVE	***329 CANAL PL***	***1/8 - 1/4 (0.170 mi.) E***	***P108***	***428***
UNITED PARCEL SERVICE	***180 CANAL PL***	***1/8 - 1/4 (0.172 mi.) SSE***	***M109***	***438***
CONSOLIDATED EDISON	42 EXTERIOR ST	1/8 - 1/4 (0.179 mi.) SSW	R112	471
HOSTOS COMMUNITY COLLEGE - TRA	***427 WALTON AVE***	***1/8 - 1/4 (0.180 mi.) NNE***	***O117***	***481***
NYSDOT CONTRACT D500792	***EXTERIOR ST & 135TH ST***	***1/8 - 1/4 (0.181 mi.) SSW***	***R119***	***491***
UNITED STATES NAVY DEPT TRANSP	***138TH ST & MADISON AVE***	***1/8 - 1/4 (0.188 mi.) W***	***127***	***518***
CON ED - V 2380	***E 141 ST & CANAL PL***	***1/8 - 1/4 (0.189 mi.) E***	***T128***	***520***
CON EDISON - VS 2380	***CANAL & 141ST ST***	***1/8 - 1/4 (0.189 mi.) E***	***T129***	***522***
STONE SERVICES INC	***445 GERARD AVE***	***1/8 - 1/4 (0.195 mi.) N***	***U131***	***525***
RAB ELECTRIC MANUFACTURING CO	***321 RIDER AVE***	***1/8 - 1/4 (0.196 mi.) ESE***	***P133***	***538***
G S D GASOLINE CORPORATION	242 EAST 138TH STREET	1/8 - 1/4 (0.197 mi.) SE	N135	544
PREMIER METAL PRODUCTS CO DIV	***381 CANAL PL***	***1/8 - 1/4 (0.211 mi.) ENE***	***T144***	***583***
GRAND SILVER CO	***289 MORRIS AVE***	***1/8 - 1/4 (0.242 mi.) ESE***	***Z158***	***637***
POWER CHEMICAL CO INC	***387 RIDER AVE***	***1/8 - 1/4 (0.243 mi.) E***	***W159***	***650***
HOSTOS COMMUNITY COLLEGE	***475 GRAND CONCOURSE***	***1/8 - 1/4 (0.246 mi.) NNE***	***X160***	***653***

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

A review of the E DESIGNATION list, as provided by EDR, and dated 09/08/2011 has revealed that there are 32 E DESIGNATION sites within approximately 0.125 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
LOT 11,TAXBLOCK 2344	270 WALTON AVENUE	0 - 1/8 (0.009 mi.) ENE	A4	23
LOT 83,TAXBLOCK 2344	287 WALTON AVENUE	0 - 1/8 (0.019 mi.) NNE	A6	30
LOT 17,TAXBLOCK 2344	288 WALTON AVENUE	0 - 1/8 (0.020 mi.) NE	A8	37
LOT 16,TAXBLOCK 2350	135 WALTON AVENUE	0 - 1/8 (0.027 mi.) SSW	B9	43
LOT 75,TAXBLOCK 2344	301 WALTON AVENUE	0 - 1/8 (0.029 mi.) NNE	C14	69
LOT 52,TAXBLOCK 2344	109 EAST 138 STREET	0 - 1/8 (0.032 mi.) WSW	D17	77
LOT 3,TAXBLOCK 2349	255 EXTERIOR STREET	0 - 1/8 (0.032 mi.) WSW	D19	84
LOT 15,TAXBLOCK 2349	281 EXTERIOR STREET	0 - 1/8 (0.042 mi.) WNW	E27	103
LOT 1,TAXBLOCK 2344	261 GRAND CONCOURSE	0 - 1/8 (0.044 mi.) ESE	C29	110
LOT 43,TAXBLOCK 2323	110 EAST 138 STREET	0 - 1/8 (0.053 mi.) WSW	D34	127
LOT 6,TAXBLOCK 2341	250 GRAND CONCOURSE	0 - 1/8 (0.056 mi.) ESE	F35	133
LOT 10,TAXBLOCK 2341	276 GRAND CONCOURSE	0 - 1/8 (0.060 mi.) ESE	F36	139
LOT 27,TAXBLOCK 2344	315 GRAND CONCOURSE	0 - 1/8 (0.063 mi.) ENE	C38	147
LOT 23,TAXBLOCK 2341	304 GRAND CONCOURSE	0 - 1/8 (0.063 mi.) E	G45	180

EXECUTIVE SUMMARY

Site	Address	Dist / Dir	Map ID	Page
LOT 28,TAXBLOCK 2341	310 GRAND CONCOURSE	0 - 1/8 (0.065 mi.) E	G47	186
LOT 5,TAXBLOCK 2345	334 WALTON AVENUE	0 - 1/8 (0.065 mi.) NNE	C48	192
LOT 38,TAXBLOCK 2349	325 EXTERIOR STREET	0 - 1/8 (0.066 mi.) NW	E50	203
LOT 31,TAXBLOCK 2341	334 GRAND CONCOURSE	0 - 1/8 (0.075 mi.) ENE	G54	210
LOT 1,TAXBLOCK 2345	335 GRAND CONCOURSE	0 - 1/8 (0.075 mi.) ENE	G55	216
LOT 34,TAXBLOCK 2341	338 GRAND CONCOURSE	0 - 1/8 (0.078 mi.) ENE	G56	222
LOT 37,TAXBLOCK 2341	344 GRAND CONCOURSE	0 - 1/8 (0.083 mi.) ENE	G59	232
LOT 40,TAXBLOCK 2341	346 GRAND CONCOURSE	0 - 1/8 (0.085 mi.) ENE	G63	253
LOT 42,TAXBLOCK 2341	350 GRAND CONCOURSE	0 - 1/8 (0.089 mi.) ENE	J69	278
LOT 49,TAXBLOCK 2345	349 GRAND CONCOURSE	0 - 1/8 (0.089 mi.) NE	H71	290
LOT 14,TAXBLOCK 2345	356 WALTON AVENUE	0 - 1/8 (0.091 mi.) NNE	H72	297
LOT 46,TAXBLOCK 2349	329 EXTERIOR STREET	0 - 1/8 (0.092 mi.) NNW	I73	303
LOT 100,TAXBLOCK 2349	333 EXTERIOR STREET	0 - 1/8 (0.097 mi.) NNW	I74	309
LOT 11,TAXBLOCK 2340	2564 PARK AVENUE	0 - 1/8 (0.104 mi.) SE	K75	315
LOT 28,TAXBLOCK 2322	2522 PARK AVENUE	0 - 1/8 (0.107 mi.) SSE	K79	328
LOT 18,TAXBLOCK 2345	367 GRAND CONCOURSE	0 - 1/8 (0.109 mi.) NE	H83	334
LOT 8,TAXBLOCK 2340	201 EAST 138 STREET	0 - 1/8 (0.110 mi.) SE	K84	340
LOT 110,TAXBLOCK 2344	370 GERARD AVENUE	0 - 1/8 (0.112 mi.) N	L88	367

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 507 records.

Site Name	Database(s)
GATEWAY CENTER AT BRONX TERMINAL M	ENG CONTROLS, INST CONTROL, BROWNFIELDS
CONSOLIDTED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYSDOT BIN 1066790	MANIFEST
CONSOLIDATED EDISON CO OF NY	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
NYCDEP	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
METRO NORTH COMMUTER RAIL ROAD, MO	MANIFEST
METRO NORTH COMMUTER RAILROAD	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, FINDS, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYSDOT BIN 106666B	MANIFEST
NYSDOT BIN 106666C	MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYSDOT	RCRA-SQG, MANIFEST, MANIFEST
NYCDEP	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
HESS SERVICE STATION/ISLAND TRANSP	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON CO OF NEW YORK	MANIFEST
CONSOLIDATED EDISON	MANIFEST
BELL ATLANTIC-NY	MANIFEST
EMPIRE CITY SUBWAY	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
NYSDOT CONTRACT D254247	RCRA-NonGen, FINDS, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST

CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
BJS WHOLESALE CLUB BJ0176	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CON EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
NYSDOT	RCRA-NonGen, FINDS, MANIFEST
SHELL OIL COMPANY	RCRA-NonGen, FINDS, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON MH156	MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYCDEP	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON - MH 67	MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYCTA CPM ENVIRO ENG	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST

CONSOLIDATED EDISON	MANIFEST
CONED	MANIFEST
CON EDISON CO OF NY	MANIFEST
CON EDISON CO OF NY	MANIFEST
CON EDISON CO OF NY,INC.	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYC DOT	MANIFEST
BELL ATLANTIC-NY	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYC TRANSIT AUTHORITY	RCRA-CESQG, FINDS, MANIFEST, MANIFEST
CONSOLIDATED EDISON - MH 18229	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CON ED	MANIFEST
CON ED	MANIFEST
CON ED	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
NYCHA - RANGEL HOUSES	RCRA-NonGen, FINDS, MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	MANIFEST
CONSOLIDATED EDISON	RCRA-NonGen, MANIFEST
CONSOLIDATED EDISON	MANIFEST
LOT 47,TAXBLOCK 2349	E DESIGNATION
LOT 2,TAXBLOCK 2418	E DESIGNATION
LOT 10,TAXBLOCK 2345	E DESIGNATION
LOT 12,TAXBLOCK 2345	E DESIGNATION
LOT 3,TAXBLOCK 1998	E DESIGNATION
LOT 61,TAXBLOCK 1997	E DESIGNATION
NYCDOS SOUTH BRONX MARINE TRAN	SWF/LF

NY CITY PARKS	LTANKS
BRONX WHITESTONE BRIDGE	LTANKS, HIST LTANKS
2521	LTANKS
MAJOR DEEGAN EXPRESSWAY	LTANKS, HIST LTANKS, NY Spills
4 PARK HILL AVE	LTANKS, HIST LTANKS
PELHAM BAY LANDFILL	LTANKS
HOSTOS COMMUNITY COLLEGE	LTANKS
CITY COLLEGE OF NEW YORK	UST
RALPH J. RANGEL HOUSES	UST
HARLEM RIVER PARK BIKEWAY	UST
SUN GOLD ASSOCIATES	AST, HIST AST
610 RIVERSIDE DRIVE	AST
CITY COLLEGE OF NEW YORK	AST
RALPH J. RANGEL HOUSES	AST
NYCDOT BRIDGE BIN 2241409	RCRA-SQG, FINDS
NYSDOT BIN 106666A	RCRA-LQG
NYSDOT BIN 1066790	RCRA-LQG
NYSDOT BIN 124009D	RCRA-LQG
NYSDOT BIN 106745A	RCRA-LQG
NYSDOT BIN 1076879	RCRA-LQG
NYSDOT BIN 1066780	RCRA-LQG
NYSDOT BIN 124009C	RCRA-LQG
NYSDOT BIN 106680B	RCRA-LQG
NYSDOT BIN 106680C	RCRA-LQG
NYSDOT BIN 106666C	RCRA-LQG
NYSDOT BIN 106666D	RCRA-LQG
NYSDOT BIN 1066779	RCRA-LQG
NYSDOT BIN 106745C	RCRA-LQG
NYSDOT BIN 1067979	RCRA-LQG
NYSDOT BIN 106680A	RCRA-LQG
NYSDOT BIN 1066809	RCRA-LQG
NYSDOT BIN 124009A	RCRA-LQG
NYSDOT BIN 124009B	RCRA-LQG
NYSDOT BIN 1066730	RCRA-LQG
NYSDOT BIN 1066760	RCRA-LQG
CON EDISON	RCRA-LQG
CON EDISON - GAS MAIN EXCAVATION	RCRA-LQG
NYSDOT BIN 1077030	RCRA-LQG
NYSDOT BIN 2229339	RCRA-LQG
CON EDISON - SERVICE BOX 12275	RCRA-LQG
CON EDISON - SERVICE BOX 59967	RCRA-LQG
CON EDISON - SERVICE BOX 55709	RCRA-LQG
NYCDOT WILLIS AVENUE BRIDGE	RCRA-LQG, FINDS
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON - MANHOLE 11	RCRA-NonGen
CON EDISON - MANHOLE 14	RCRA-NonGen
CON EDISON - MANHOLE 11	RCRA-NonGen
CON EDISON - MANHOLE 13	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON - MANHOLE 15	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen

CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
NYCDOT BRIDGE BIN 2241410	RCRA-NonGen, FINDS
CON EDISON	RCRA-NonGen
NYC DEPT OF SANITATION	RCRA-NonGen, FINDS
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
NYSDOT CONTRACT D253182	RCRA-NonGen, FINDS
CON EDISON - E 115TH ST FORMER MGP	RCRA-NonGen
CON EDISON	RCRA-NonGen
CON EDISON	RCRA-NonGen
MTA NYCT - ST NICHOLAS AVE C & D L	RCRA-NonGen, FINDS
AMTRAK HELLGATE BRIDGE	RCRA-NonGen, FINDS
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
BJS WHOLESALE CLUB BJ0176	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON

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CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
CON EDISON	RCRA-CESQG
VAULT VS2109	NY Spills, NY Hist Spills
1GAL FROM DEAD A TRANS FEEDER	NY Spills
138TH ST	NY Spills, NY Hist Spills
CROSS STREETS	NY Spills
ROADWAY	NY Spills
SERVICE 10277	NY Spills
EAST 138TH STREET	NY Spills, NY Hist Spills
MANHOLE 20362	NY Spills, NY Hist Spills
221481; 140TH	NY Spills
MANHOLE #3861	NY Spills
MANHOLE #14X	NY Spills
VAULT # 3200	NY Spills
MANHOLE 4526	NY Spills, NY Hist Spills
MANHOLE 4513	NY Spills, NY Hist Spills
SERVICE ROAD	NY Spills
GRAND CONCOURSE	NY Spills
TM-502	NY Spills
REG 51	NY Spills
APARTMNET BUILDING	NY Spills
FEEDER # 30X03	NY Spills
VS #2715	NY Spills
VAULT	NY Spills
PAD MOUNT TRANSFORMER 1451	NY Spills
MAN HOLE #15149	NY Spills
MANHOLE #148	NY Spills, NY Hist Spills
PS 33	NY Spills
SERVICE BOX #4855	NY Spills
MANHOLE #17516	NY Spills
NEAR CITY BUS PARKING	NY Spills, NY Hist Spills
MANHOLE TM0244	NY Spills, NY Hist Spills
VAULT # 612	NY Spills
MTA, BEDFORD & CONCOURSE	NY Spills, NY Hist Spills
MAN HOLE #1418	NY Spills, NY Hist Spills
MAJOR DEEGAN EXPRESSWAY	NY Spills, NY Hist Spills
BROADWAY & VANCOURTLAND P	NY Spills, NY Hist Spills
HUNTS POINT DRAWBRIDGE	NY Spills, NY Hist Spills
GUNN HILL ROAD AND	NY Spills, NY Hist Spills
BRONX RIVER AVE & E233 ST	NY Spills, NY Hist Spills
219881; BRONX PARK EAST	NY Spills
NEW YORK CITY PARK	NY Spills
BRONX RIVER	NY Spills
BRONX RIVER	NY Spills
BURNSIDE AVE & GRAND CONCORS	NY Spills
E CHESTER RD & MORRIS PARK AV	NY Spills
MANHOLE 9580	NY Spills

RESIDENTIAL BLDG	NY Spills
CROSS BRONX	NY Spills
MAN HOLE	NY Spills
DRUM RUN	NY Spills
CORNER OF E 138TH ST.	NY Spills, NY Hist Spills
FEEDER 38X04	NY Spills
MANHOLE #TM1437	NY Spills, NY Hist Spills
MANHOLE #15149	NY Spills
MANHOLE 15210	NY Spills, NY Hist Spills
MANHOLE 183	NY Spills
POLE 18898	NY Spills
POLE #18898	NY Spills
DRUM RUN	NY Spills
OUTSIDE SOIL	NY Spills
SOIL	NY Spills
GETTY #258	NY Spills
ROADWAY/SOIL	NY Spills
MANHOLE 11401	NY Spills, NY Hist Spills
SB EXIT 10 & RT 95	NY Spills, NY Hist Spills
VAULT #5137	NY Spills, NY Hist Spills
EXTERIOR ST - LANDING RD	NY Spills, NY Hist Spills
CONSTRUCTION SITE	NY Spills
TRAFFIC ACCIDENT- 30 GAL DIESEL IN	NY Spills
PIER 2 BRONX TERMINAL MARKET	NY Spills
EXTERIOR ST	NY Spills
SERVICE BOX 15164	NY Spills, NY Hist Spills
ON THE STREET	NY Spills
IN SEWER OR VAULT	NY Spills, NY Hist Spills
221625; GERARD AVENUE	NY Spills
INTERSECTION	NY Spills
FORDHAM RD &	NY Spills, NY Hist Spills
MANHOLE 15218	NY Spills, NY Hist Spills
138TH ST	NY Spills, NY Hist Spills
MANHOLE #15206	NY Spills, NY Hist Spills
GRAND CONCOURSE	NY Spills, NY Hist Spills
MANHOLE #15226	NY Spills, NY Hist Spills
170TH STREET AND	NY Spills, NY Hist Spills
179 TH STREET AND	NY Spills, NY Hist Spills
GRAND CONCOURSE & 92ND S	NY Spills, NY Hist Spills
CONSTRUCITON SITE	NY Spills
MANHOLE 4942	NY Spills
TREMONT AVE AND	NY Spills
ROADWAY	NY Spills
BEDFORD PARK RD	NY Spills, NY Hist Spills
TRAFFIC ACCIDENT	NY Spills
GETTY #258	NY Spills
GETTY#258	NY Spills
GETTY #258	NY Spills
GETTY 258	NY Spills
MANHOLE # 28995	NY Spills
VAULT 0119	NY Spills, NY Hist Spills
BRUCKNER EXCHANGE	NY Spills, NY Hist Spills
CONNER ST	NY Spills, NY Hist Spills
TOLL PLAZA AT WHITESTONE BRIDGE	NY Spills
MANHOLE 15002	NY Spills
MORRIS PARK/ WILKINSON	NY Spills
PUMPING STA COOP SOUTH	NY Spills
IFO TASK FORCE	NY Spills
MANHOLE #4492	NY Spills
JEROME PARK RESERVOIR SHAFT B-21	NY Spills
258 GETTY STATION	NY Spills
MANHOLE #17501	NY Spills

EXTERIOR ST &	NY Spills, NY Hist Spills
MAJOR DEEGAN & CROSS BRON	NY Spills, NY Hist Spills
MAJOR DEGAN & CROSS BRONX	NY Spills, NY Hist Spills
ROADWAY	NY Spills, NY Hist Spills
HIGHWAY	NY Spills
WIB 66	NY Spills
EAST BOUND BRONX EXPRESSW	NY Spills
NEAR W 176 ST	NY Spills
MAJOR DEEGAN & 150TH ST	NY Spills
EXXON MOBIL 10570	NY Spills
DRUM RUN	NY Spills
ON HIGHWAY	NY Spills
217841; MAJOR DEEGAN EXPY AND E 23	NY Spills
219099; MAJOR DEEGAN AND MCLEAN AV	NY Spills
DOT CONSTRUCTION SITE	NY Spills
WEST 230 TH ST AND	NY Spills, NY Hist Spills
180TH STREET 2 BLOCKS OF	NY Spills, NY Hist Spills
MORRIS PK & E 180TH ST	NY Spills, NY Hist Spills
MANHOLE #27843	NY Spills
ROADWAY	NY Spills
POLE #2639	NY Spills
PELHAM LINE TRAIN STA.	NY Spills, NY Hist Spills
MANHOLE# 17514	NY Spills
FORDHAM RD	NY Spills
MILE MARKER IS POSSIBLY 2.6 THE CA	NY Spills
MANHOLE #20866	NY Spills, NY Hist Spills
VAULT #5019	NY Spills, NY Hist Spills
MANHOLE #26532	NY Spills
XFMR FAILURE IN VAULT #1429 - 15 G	NY Spills
LINCOLN HOSPITAL EMERGENCY ENTRANC	NY Spills
219050; PARK AVE AND E167 ST	NY Spills
PELHAM PARK NORTH	NY Spills, NY Hist Spills
ROADWAY	NY Spills
ROADWAY BUS#9936	NY Spills
STREET	NY Spills
DRUM RUN	NY Spills
EAST RIVER	NY Spills, NY Hist Spills
EAST RIVER WHITE STONE BR	NY Spills, NY Hist Spills
RIVER AVE	NY Spills, NY Hist Spills
167TH STREET AND	NY Spills, NY Hist Spills
BRONX RIVER AV/WESTCHESTE	NY Spills, NY Hist Spills
END OF WHITE PLAINS ROAD	NY Spills
MANHOLE 29004	NY Spills, NY Hist Spills
ROBERTO CLEMENTE STATE PK	NY Spills, NY Hist Spills
MANHOLE #7511	NY Spills
MH29084	NY Spills
218778; SERVICE ROAD MAJOR DEEGAN	NY Spills
MANHOLE 156	NY Spills
MAJOR DEEGAN EXPY	NY Spills, NY Hist Spills
ELEVATED TRAIN	NY Spills
207264; SWC GERARD AVE & E149 ST	NY Spills
EAST 165 TH ST AND	NY Spills
ROADWAY	NY Spills, NY Hist Spills
MANHOLE 23890	NY Spills, NY Hist Spills
MANHOLE 23927	NY Spills, NY Hist Spills
98 VAN CORTLAND PARK ST	NY Spills
MAJOR DEEGAN EXPRESSWAY/	NY Spills
SHAFT 3B	NY Spills
IN FRONT OF	NY Spills
MANHOLE TM 280 HAS 50 GAL DIELECTR	NY Spills
E 177TH ST AND	NY Spills, NY Hist Spills
MANHOLE # 9489	NY Spills

MANHOLE 9539	NY Spills
208501; WALTON AVE & E150 ST	NY Spills
OPEN TRENCH	NY Spills
NYC TRANSIT BUS	NY Spills
WESTCHESTER AV & RT 95	NY Spills
MANHOLE 11501	NY Spills, NY Hist Spills
204710; EXTERIOR ST	NY Spills
205006; EXTERIOR ST 140' N/O LANDI	NY Spills
208591; EXTERIOR ST	NY Spills
208260; E GRAND CONCOURSE; E/S GRA	NY Spills
207648; N/E/C E 187 ST & GRAND CON	NY Spills
208330; PARK AVE	NY Spills
MANHOLE #61770 (ACCESS RD)	NY Spills
CONTRACTOR SPILLED A BIT OF OIL	NY Spills
CITY COLLEGE OF NEW YORK - CUNY	HIST UST
RALPH J. RANGEL	HIST UST

OVERVIEW MAP - 3213671.2s

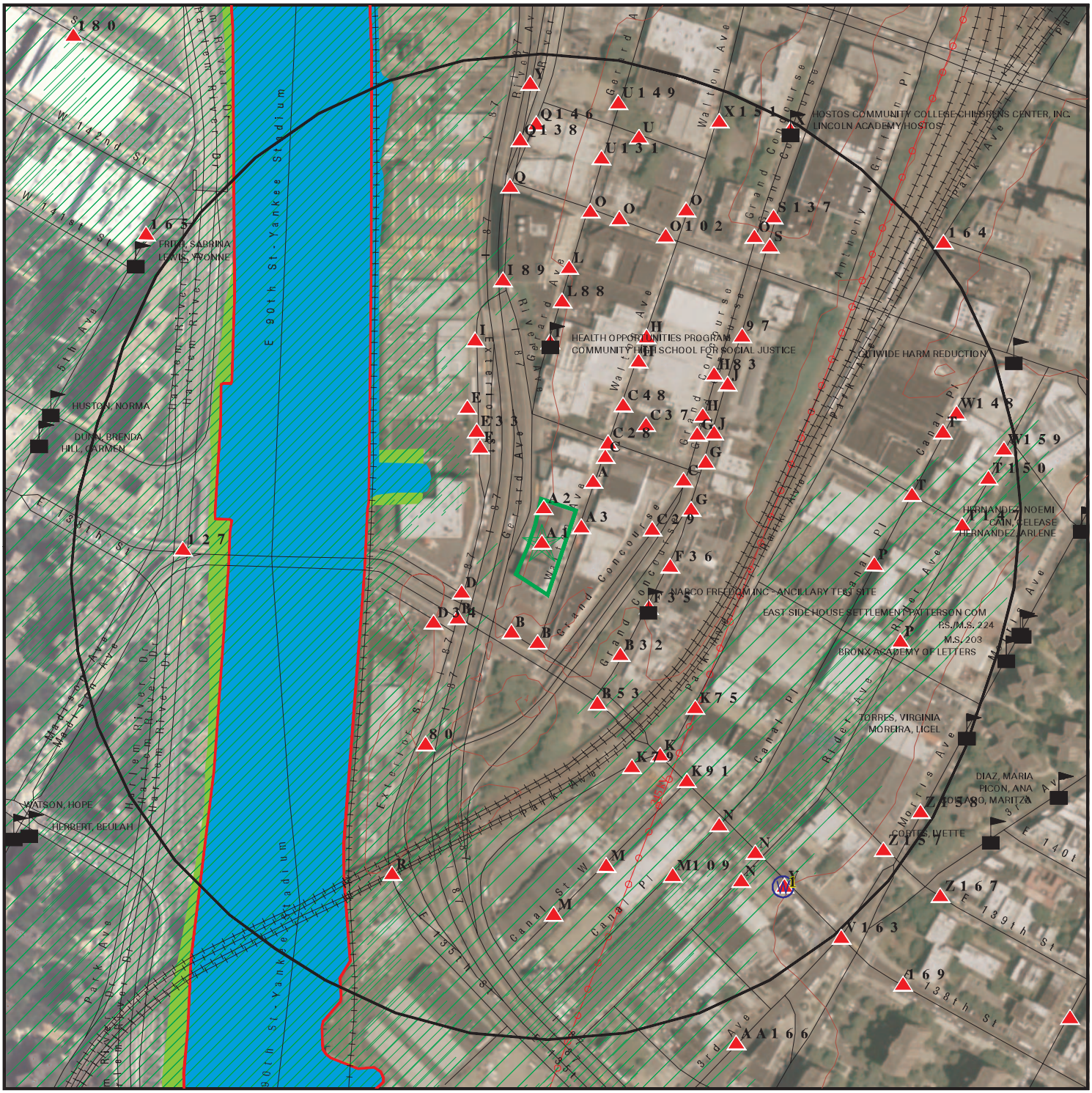


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Tuck It Away Associates ADDRESS: 261 Walton Avenue Bronx NY 10451 LAT/LONG: 40.8143 / 73.9305	CLIENT: Airtek Env. Corp. CONTACT: Judah Lebow INQUIRY #: 3213671.2s DATE: November 28, 2011 12:13 pm

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DETAIL MAP - 3213671.2s



Target Property
Toxic Sites
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Dept. Defense Sites

0 1/16 1/8 1/4 Miles

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

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

SITE NAME: Tuck It Away Associates	CLIENT: Airtek Env. Corp.
ADDRESS: 261 Walton Avenue Bronx NY 10451	CONTACT: Judah Lebow
LAT/LONG: 40.8143 / 73.9305	INQUIRY #: 3213671.2s
	DATE: November 28, 2011 12:14 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		1.000	0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS		0.500	0	0	0	NR	NR	0
FEDERAL FACILITY		1.000	0	0	0	0	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		0.500	0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS		1.000	0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		0.500	0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG		0.250	0	0	NR	NR	NR	0
RCRA-SQG		0.250	2	2	NR	NR	NR	4
RCRA-CESQG		0.250	1	2	NR	NR	NR	3
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS		1.000	0	0	1	0	NR	1
VAPOR REOPENED		1.000	0	0	1	0	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		0.500	1	1	2	NR	NR	4
State and tribal leaking storage tank lists								
LTANKS		0.500	3	8	30	NR	NR	41
HIST LTANKS		0.500	2	8	26	NR	NR	36
INDIAN LUST		0.500	0	0	0	NR	NR	0
State and tribal registered storage tank lists								
TANKS		0.250	1	1	NR	NR	NR	2

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST		0.250	10	17	NR	NR	NR	27
CBS UST		0.250	0	0	NR	NR	NR	0
MOSF UST		0.500	0	0	0	NR	NR	0
AST		0.250	4	18	NR	NR	NR	22
CBS AST		0.250	0	1	NR	NR	NR	1
MOSF AST		0.500	0	0	0	NR	NR	0
MOSF		0.500	0	0	0	NR	NR	0
CBS		0.250	0	1	NR	NR	NR	1
INDIAN UST		0.250	0	0	NR	NR	NR	0
FEMA UST		0.250	0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS		0.500	0	0	0	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
RES DECL		0.125	0	NR	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
State and tribal Brownfields sites								
ERP		0.500	0	0	0	NR	NR	0
BROWNFIELDS		0.500	0	0	2	NR	NR	2
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI		0.500	0	0	0	NR	NR	0
DEBRIS REGION 9		0.500	0	0	0	NR	NR	0
SWTIRE		0.500	0	0	0	NR	NR	0
SWRCY		0.500	0	2	0	NR	NR	2
INDIAN ODI		0.500	0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
DEL SHWS		1.000	0	0	0	0	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
HIST UST		0.250	10	15	NR	NR	NR	25
HIST AST		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LUCIS		0.500	0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
NY Spills		0.125	19	NR	NR	NR	NR	19
NY Hist Spills		0.125	14	NR	NR	NR	NR	14
Other Ascertainable Records								
RCRA-NonGen		0.250	9	19	NR	NR	NR	28
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
HSWDS		0.500	0	0	0	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
MANIFEST		0.250	10	17	NR	NR	NR	27
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
E DESIGNATION	X	0.125	32	NR	NR	NR	NR	32
INDIAN RESERV		1.000	0	0	0	0	NR	0
SCRD DRYCLEANERS		0.500	0	0	0	NR	NR	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		0.500	0	0	0	NR	NR	0
COAL ASH		0.500	0	0	0	NR	NR	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **LOT 60,TAXBLOCK 2344** **E DESIGNATION** **S109942719**
Target **261 WALTON AVENUE** **N/A**
Property **BRONX, NY 10451**

Site 1 of 8 in cluster A

E DESIGNATION:

Tax Lot(s):	60
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E7
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	TUCK-IT AWAY ASSOCIAT
Lot Area:	000027454
Total Building Floor Area:	00000043820
Commercial Floor Area:	00000043820
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000043820
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	006.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0258.75
Lot Depth:	0106.67
Building Frontage:	0211.25
Building Depth:	0089.50
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5

LOT 60,TAXBLOCK 2344 (Continued) **S109942719**

Basement Type Grade:	5
Land Assessed Value:	00000161550
Total Assessed Value:	00000697500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.60
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440060
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003494
Y Coordinate:	0235939
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	60
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported

LOT 60,TAXBLOCK 2344 (Continued) **S109942719**

All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E7
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	TUCK-IT AWAY ASSOCIAT
Lot Area:	000027454
Total Building Floor Area:	00000043820
Commercial Floor Area:	00000043820
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000043820
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	006.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0258.75
Lot Depth:	0106.67
Building Frontage:	0211.25
Building Depth:	0089.50
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000161550
Total Assessed Value:	00000697500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.60
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440060
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003494
Y Coordinate:	0235939
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 60,TAXBLOCK 2344 (Continued) **S109942719**

Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	60
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E7
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	TUCK-IT AWAY ASSOCIAT
Lot Area:	000027454
Total Building Floor Area:	00000043820
Commercial Floor Area:	00000043820
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000043820
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	006.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0258.75
Lot Depth:	0106.67
Building Frontage:	0211.25
Building Depth:	0089.50
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5

LOT 60,TAXBLOCK 2344 (Continued) **S109942719**

Basement Type Grade:	5
Land Assessed Value:	00000161550
Total Assessed Value:	00000697500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.60
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440060
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003494
Y Coordinate:	0235939
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

A2 **METROPOLITAN ROOFING SUPPS CO** **UST** **U001831654**
355 MAJOR DEEGAN BLVD **HIST UST** **N/A**
< 1/8 **NEW YORK, NY 10451**
1 ft.

Site 2 of 8 in cluster A

UST:

Facility Id:	2-061441
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS
Expiration Date:	N/A
UTM X:	590104.88214999996
UTM Y:	4518573.81116

Affiliation Records:

Site Id:	1088
Affiliation Type:	Owner
Company Name:	METROPOLITAN ROOFING SUPPS CO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	355 MAJOR DEEGAN BLVD
Address2:	Not reported
City:	NEW YORK

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

State: NY
Zip Code: 10451
Country Code: 001
Phone: (212) 665-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 1088
Affiliation Type: Mail Contact
Company Name: METROPOLITAN ROOFING SUPPS CO
Contact Type: Not reported
Contact Name: Not reported
Address1: 355 MAJOR DEEGAN BLVD
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10451
Country Code: 001
Phone: (212) 665-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 1088
Affiliation Type: On-Site Operator
Company Name: METROPOLITAN ROOFING SUPPS CO
Contact Type: Not reported
Contact Name: METROPOLITAN ROOFING SUPPS CO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 665-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 1088
Affiliation Type: Emergency Contact
Company Name: METROPOLITAN ROOFING SUPPS CO
Contact Type: Not reported
Contact Name: CARL J GEROSA JR
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

Phone:	(914) 834-7494
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

C02 - Pipe Location - Underground/On-ground
G03 - Tank Secondary Containment - Vault (w/o access)
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
B00 - Tank External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
C00 - Pipe Location - No Piping
G00 - Tank Secondary Containment - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
H00 - Tank Leak Detection - None
J02 - Dispenser - Suction

Tank Info:

Site ID:	1088
Tank Number:	001
Tank ID:	39997
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	4/1/1991
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1088
Tank Number:	002
Tank ID:	39998
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	4/1/1991
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1088
Tank Number:	003
Tank ID:	39999

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	4/1/1991
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1088
Tank Number:	004
Tank ID:	40000
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	4/1/1991
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1088
Tank Number:	101
Tank ID:	2127
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1962
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/1/1991
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1088
Tank Number:	102
Tank ID:	2128

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1962
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/1/1991
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1088
Tank Number:	103
Tank ID:	2129
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1962
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/1/1991
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-061441
SPDES Number:	Not reported
Emergency Contact:	CARL J GEROSA JR
Emergency Telephone:	(914) 834-7494
Operator:	METROPOLITAN ROOFING SUPPS CO
Operator Telephone:	(212) 665-3700
Owner Name:	METROPOLITAN ROOFING SUPPS CO
Owner Address:	355 MAJOR DEEGAN BLVD
Owner City,St,Zip:	NEW YORK, NY 10451
Owner Telephone:	(212) 665-3700
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	METROPOLITAN ROOFING SUPPS CO
Mailing Address:	355 MAJOR DEEGAN BLVD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10451
Mailing Contact:	Not reported
Mailing Telephone:	(212) 665-3700
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	355 MAJOR DEEGAN BLVD

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	07/16/1991
Expiration Date:	01/14/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	04/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	UNKNOWN

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	04/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	04/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	04/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	101
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19621201
Capacity (gals):	550
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	08/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	102
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19621201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported

METROPOLITAN ROOFING SUPPS CO (Continued) **U001831654**

Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	08/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	103
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19621201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	08/01/1991
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

A3 **APARTMENT BUILDING** **NY Spills** **S103274561**
ESE **250 WALTON AVE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.006 mi.
31 ft. **Site 3 of 8 in cluster A**

NY Spills:

Site ID:	321649
Facility Addr2:	Not reported
Facility ID:	9802251
Spill Number:	9802251
Facility Type:	ER
SWIS:	0301
Investigator:	TOMASELLO
Referred To:	Not reported
Spill Date:	5/14/1998
Reported to Dept:	5/20/1998

APARTMENT BUILDING (Continued) **S103274561**

CID:	282
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	3/3/2003
Remediation Phase:	0
Date Entered In Computer:	5/20/1998
Spill Record Last Update:	3/3/2003
Spiller Name:	Not reported
Spiller Company:	UNKNOWN FOR NOW
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	OWNERS #
Contact Phone:	(917) 904-6768 0277
DEC Region:	2
DER Facility ID:	259111
DEC Memo:	Not reported
Remarks:	nyc haz mat got a call from a mr marcellus from con ed who reported a oil petroleum spill.unknown what type of oil petroleum it is.

Material:

Site ID:	321649
Operable Unit ID:	1060309
Operable Unit:	01
Material ID:	320586
Material Code:	9999
Material Name:	Other -
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

APARTMENT BUILDING (Continued) **S103274561**

NY Hist Spills:

Region of Spill:	2
Spill Number:	9802251
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	05/14/1998 12:00
Reported to Dept Date/Time:	05/20/98 16:01
SWIS:	60
Spiller Name:	UNKNOWN FOR NOW
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Contact:	OWNERS #
Spiller Phone:	(917) 904-6768 0277
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	05/20/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	05/21/98
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0

APARTMENT BUILDING (Continued) **S103274561**

Unkonwn Quantity Recovered: True
Material: OTHER PETROLEUM
Class Type: OTHER PETROLEUM
Times Material Entry In File: 996
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: SPOKE TO DEP 4:15 PM - WATER AND OIKL MIXTURE IN BASEMENT OF APT BUILDING. REP FROM CON ED SAW THIS ON 5 14 DOES NOT HAVE HIS
Remark: nyc ha mat got a call from a mr marcellus from con ed who reported a oil petroleum spill.unknown what type of oil petroleum it is.

A4 **LOT 11,TAXBLOCK 2344** **E DESIGNATION** **S109942172**
ENE **270 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.009 mi.
47 ft. **Site 4 of 8 in cluster A**

E DESIGNATION:
Tax Lot(s): 11
E-No: E-227
Effective Date: 6/30/2009
Satisfaction Date: Not reported
Ceqr Number: 08DCP071X
Ulurp Number: 090303ZMX
Zoning Map No: 6a
Description: Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code: BX
Community District: 201
Census Tract: 57
Census Block: 2009
School District: 07
City Council District: 17
Fire Company: L017
Health Area: 23
Police Precinct: 040
Zone District 1: M1-2
Zone District 2: Not reported
Commercial Overlay1: Not reported
Commercial Overlay2: Not reported
Special Purpose District1: Not reported
Special Purpose District2: Not reported
All Components1: M1-2
All Components2: Not reported
Split Boundary Indicator: N
Building Class: E9
Land Use Category: 06
Number of Easements: 0
Owner, Type of Code: Not reported
Owner Name: JOHN LAGE
Lot Area: 000017930
Total Building Floor Area: 00000015800
Commercial Floor Area: 00000015800
Office Floor Area: 00000001800
Retail Floor Area: 00000000000
Garage Floor Area: 00000000000
Storage Floor Area: 00000000000
Factory Floor Area: 00000000000

LOT 11,TAXBLOCK 2344 (Continued) **S109942172**

Other Floor Area:	00000014000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0150.00
Lot Depth:	0081.63
Building Frontage:	0150.00
Building Depth:	0105.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000035280
Total Assessed Value:	00000423450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.88
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440011
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003665
Y Coordinate:	0235922
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	11
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57

LOT 11,TAXBLOCK 2344 (Continued) **S109942172**

Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	JOHN LAGE
Lot Area:	000017930
Total Building Floor Area:	00000015800
Commercial Floor Area:	00000015800
Office Floor Area:	00000001800
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000014000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0150.00
Lot Depth:	0081.63
Building Frontage:	0150.00
Building Depth:	0105.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000035280
Total Assessed Value:	00000423450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.88
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440011
Condominium Number:	00000

LOT 11,TAXBLOCK 2344 (Continued) **S109942172**

Census Tract 2:	0057
X Coordinate:	1003665
Y Coordinate:	0235922
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	11
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	JOHN LAGE
Lot Area:	000017930
Total Building Floor Area:	00000015800
Commercial Floor Area:	00000015800
Office Floor Area:	00000001800
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000014000

LOT 11,TAXBLOCK 2344 (Continued) **S109942172**

Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0150.00
Lot Depth:	0081.63
Building Frontage:	0150.00
Building Depth:	0105.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000035280
Total Assessed Value:	00000423450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.88
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440011
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003665
Y Coordinate:	0235922
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	11
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009

LOT 11,TAXBLOCK 2344 (Continued) **S109942172**

School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	JOHN LAGE
Lot Area:	000017930
Total Building Floor Area:	00000015800
Commercial Floor Area:	00000015800
Office Floor Area:	00000001800
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000014000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0150.00
Lot Depth:	0081.63
Building Frontage:	0150.00
Building Depth:	0105.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000035280
Total Assessed Value:	00000423450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.88
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440011
Condominium Number:	00000
Census Tract 2:	0057

LOT 11,TAXBLOCK 2344 (Continued) **S109942172**

X Coordinate:	1003665
Y Coordinate:	0235922
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

A5 **287 WALTON AVE.** **HIST UST** **U003790765**
NNE **287 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.019 mi.
102 ft. **Site 5 of 8 in cluster A**

HIST UST:

PBS Number:	2-605583
SPDES Number:	Not reported
Emergency Contact:	KEN RUTH
Emergency Telephone:	(718) 993-4000
Operator:	KEN RUTH
Operator Telephone:	(718) 993-4000
Owner Name:	287 WALTON AVE ASSOCIATES
Owner Address:	287 WALTON AVENUE
Owner City,St,Zip:	BRONX, NY 10451
Owner Telephone:	(718) 993-4000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	STANLEY RUTH CO. INC.
Mailing Address:	287 WALTON AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	KEN RUTH
Mailing Telephone:	(718) 993-4000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	04/09/2001
Expiration Date:	04/06/2006
Renew Flag:	False
Renewal Date:	Not reported

287 WALTON AVE. (Continued) **U003790765**

Total Capacity:	3000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Jacketed
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

A6 **LOT 83,TAXBLOCK 2344** **E DESIGNATION** **S109942788**
NNE **287 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.019 mi.
102 ft. **Site 6 of 8 in cluster A**

E DESIGNATION:

Tax Lot(s):	83
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07

LOT 83,TAXBLOCK 2344 (Continued) **S109942788**

City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	287-289 WALTON AVE RL
Lot Area:	000015001
Total Building Floor Area:	00000006400
Commercial Floor Area:	00000006400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000006400
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0118.42
Lot Depth:	0145.42
Building Frontage:	0040.00
Building Depth:	0080.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000071550
Total Assessed Value:	00000110250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.43
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440083
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003542

LOT 83,TAXBLOCK 2344 (Continued) **S109942788**

Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	83
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	287-289 WALTON AVE RL
Lot Area:	000015001
Total Building Floor Area:	00000006400
Commercial Floor Area:	00000006400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000006400
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7

LOT 83,TAXBLOCK 2344 (Continued) **S109942788**

Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0118.42
Lot Depth:	0145.42
Building Frontage:	0040.00
Building Depth:	0080.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000071550
Total Assessed Value:	00000110250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.43
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440083
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003542
Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	83
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07

LOT 83,TAXBLOCK 2344 (Continued) **S109942788**

City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	287-289 WALTON AVE RL
Lot Area:	000015001
Total Building Floor Area:	00000006400
Commercial Floor Area:	00000006400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000006400
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0118.42
Lot Depth:	0145.42
Building Frontage:	0040.00
Building Depth:	0080.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000071550
Total Assessed Value:	00000110250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.43
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440083
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003542

LOT 83,TAXBLOCK 2344 (Continued) **S109942788**

Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

A7 **287 WALTON AVE.** **UST** **U004078456**
NNE **287 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.019 mi.
102 ft. **Site 7 of 8 in cluster A**

UST:

Facility Id:	2-605583
Region:	STATE
DEC Region:	2
Site Status:	Active
Program Type:	PBS
Expiration Date:	2016/04/06
UTM X:	590282.01893000002
UTM Y:	4518747.4496799996

Affiliation Records:

Site Id:	27450
Affiliation Type:	On-Site Operator
Company Name:	287 WALTON AVE.
Contact Type:	Not reported
Contact Name:	KEN RUTH
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 993-4000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	27450
Affiliation Type:	Owner
Company Name:	287 WALTON AVE ASSOCIATES
Contact Type:	PLANT MANAGER
Contact Name:	KEN RUTH
Address1:	287 WALTON AVENUE
Address2:	Not reported
City:	BRONX

287 WALTON AVE. (Continued) **U004078456**

State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 993-4000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	3/29/2006

Site Id:	27450
Affiliation Type:	Emergency Contact
Company Name:	287 WALTON AVE ASSOCIATES
Contact Type:	Not reported
Contact Name:	KEN RUTH
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 993-4000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	27450
Affiliation Type:	Mail Contact
Company Name:	STANLEY RUTH CO. INC.
Contact Type:	Not reported
Contact Name:	KEN RUTH
Address1:	287 WALTON AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 993-4000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None
E00 - Piping Secondary Containment - None
C01 - Pipe Location - Aboveground
K01 - Spill Prevention - Catch Basin
I05 - Overfill - Vent Whistle
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
H02 - Tank Leak Detection - Interstitial - Manual Monitoring

287 WALTON AVE. (Continued) **U004078456**

L00 - Piping Leak Detection - None
B05 - Tank External Protection - Jacketed

Tank Info:

Site ID:	27450
Tank Number:	001
Tank ID:	60081
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1974
Capacity Gallons:	3000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	2/11/2011

A8 **LOT 17,TAXBLOCK 2344** **E DESIGNATION** **S109942273**
NE **288 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.020 mi.
106 ft. **Site 8 of 8 in cluster A**

E DESIGNATION:

Tax Lot(s):	17
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06

LOT 17,TAXBLOCK 2344 (Continued) **S109942273**

Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	DOLLED ASSOCIATES,
Lot Area:	000024680
Total Building Floor Area:	00000032500
Commercial Floor Area:	00000032500
Office Floor Area:	00000002500
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000030000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0225.00
Lot Depth:	0107.17
Building Frontage:	0209.00
Building Depth:	0107.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000193500
Total Assessed Value:	00000508500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1948
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.32
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440017
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003718
Y Coordinate:	0236088
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

LOT 17,TAXBLOCK 2344 (Continued) **S109942273**

Tax Lot(s):	17
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	DOLLED ASSOCIATES,
Lot Area:	000024680
Total Building Floor Area:	00000032500
Commercial Floor Area:	00000032500
Office Floor Area:	00000002500
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000030000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0225.00
Lot Depth:	0107.17
Building Frontage:	0209.00
Building Depth:	0107.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000193500
Total Assessed Value:	00000508500
Land Exempt Value:	00000000000

LOT 17,TAXBLOCK 2344 (Continued) **S109942273**

Total Exempt Value:	00000000000
Year Built:	1948
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.32
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440017
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003718
Y Coordinate:	0236088
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	17
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06

LOT 17,TAXBLOCK 2344 (Continued) **S109942273**

Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	DOLLED ASSOCIATES,
Lot Area:	000024680
Total Building Floor Area:	00000032500
Commercial Floor Area:	00000032500
Office Floor Area:	00000002500
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000030000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0225.00
Lot Depth:	0107.17
Building Frontage:	0209.00
Building Depth:	0107.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000193500
Total Assessed Value:	00000508500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1948
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.32
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440017
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003718
Y Coordinate:	0236088
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

LOT 17,TAXBLOCK 2344 (Continued) **S109942273**

Tax Lot(s):	17
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	DOLLED ASSOCIATES,
Lot Area:	000024680
Total Building Floor Area:	00000032500
Commercial Floor Area:	00000032500
Office Floor Area:	00000002500
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000030000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0225.00
Lot Depth:	0107.17
Building Frontage:	0209.00
Building Depth:	0107.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000193500
Total Assessed Value:	00000508500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000

LOT 17,TAXBLOCK 2344 (Continued) **S109942273**

Year Built:	1948
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.32
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440017
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003718
Y Coordinate:	0236088
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

B9 **LOT 16,TAXBLOCK 2350** **E DESIGNATION** **S109942257**
SSW **135 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.027 mi.
142 ft. **Site 1 of 10 in cluster B**

E DESIGNATION:

Tax Lot(s):	16
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2005
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported

LOT 16,TAXBLOCK 2350 (Continued) **S109942257**

Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F2
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BARBOUR INDUSTRIES,IN
Lot Area:	000009800
Total Building Floor Area:	00000029640
Commercial Floor Area:	00000029640
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000029640
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0098.67
Lot Depth:	0100.00
Building Frontage:	0098.67
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000039690
Total Assessed Value:	00000306000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.02
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023500016
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003838
Y Coordinate:	0236944
Zoning Map:	06A
Sanborn Map:	209N055
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005

LOT 16,TAXBLOCK 2350 (Continued) **S109942257**

Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	16
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2005
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F2
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BARBOUR INDUSTRIES,IN
Lot Area:	000009800
Total Building Floor Area:	00000029640
Commercial Floor Area:	00000029640
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000029640
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0098.67
Lot Depth:	0100.00
Building Frontage:	0098.67
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N

LOT 16,TAXBLOCK 2350 (Continued) **S109942257**

Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000039690
Total Assessed Value:	00000306000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.02
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023500016
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003838
Y Coordinate:	0236944
Zoning Map:	06A
Sanborn Map:	209N055
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	16
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2005
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported

LOT 16,TAXBLOCK 2350 (Continued) **S109942257**

All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F2
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BARBOUR INDUSTRIES,IN
Lot Area:	000009800
Total Building Floor Area:	00000029640
Commercial Floor Area:	00000029640
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000029640
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	003.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0098.67
Lot Depth:	0100.00
Building Frontage:	0098.67
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000039690
Total Assessed Value:	00000306000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.02
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023500016
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003838
Y Coordinate:	0236944
Zoning Map:	06A
Sanborn Map:	209N055
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 16,TAXBLOCK 2350 (Continued) **S109942257**

Date of Base Map Data: 01/2006
Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

B10 **B P PRODUCTS NORTH AMERICA #48374** **RCRA-SQG** **1007990531**
SSW **115 E 138TH ST** **MANIFEST** **NYR000130468**
< 1/8 **BRONX, NY 10451** **MANIFEST**
0.028 mi.
149 ft. **Site 2 of 10 in cluster B**

RCRA-SQG:
Date form received by agency: 01/01/2007
Facility name: B P PRODUCTS NORTH AMERICA #48374
Facility address: 115 E 138TH ST
BRONX, NY 10451
EPA ID: NYR000130468
Mailing address: PO BOX 6038
ARTESIA, NY 907026038
Contact: PAULA SKRYJA
Contact address: PO BOX 6038
ARTESIA, NY 907026038
Contact country: US
Contact telephone: (410) 551-6074
Contact email: Not reported
EPA Region: 02
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: NO NAME FOUND
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/18/2005
Owner/Op end date: Not reported

Owner/operator name: NO NAME FOUND
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/18/2005
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No

B P PRODUCTS NORTH AMERICA #48374 (Continued) **1007990531**

Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency:	01/01/2006
Facility name:	B P PRODUCTS NORTH AMERICA #48374
Classification:	Not a generator, verified
Date form received by agency:	01/31/2005
Facility name:	B P PRODUCTS NORTH AMERICA #48374
Classification:	Conditionally Exempt Small Quantity Generator
Violation Status:	No violations found

NY MANIFEST:

EPA ID:	NYR000130468
Country:	USA
Mailing Name:	BP PRODUCTS OF NORTH AMERICA AMOCO 48374
Mailing Contact:	N/S
Mailing Address:	PO BOX 80249
Mailing Address 2:	Not reported
Mailing City:	RANCHO SANTA MARGARITA
Mailing State:	CA
Mailing Zip:	92688
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	949-460-5200
Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	2008-10-21
Trans1 Recv Date:	2008-10-21
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-10-21
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000130468
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	Not reported
Quantity:	200.0
Units:	P - Pounds

B P PRODUCTS NORTH AMERICA #48374 (Continued) **1007990531**

Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001274737JJK
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	Y
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	06
Manifest Status:	001274549JJK
Trans1 State ID:	NYR000130468
Trans2 State ID:	Not reported
Generator Ship Date:	NJD991291105
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJR000023036
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DM
Container Type:	200
Handling Method:	P
Specific Gravity:	1
Waste Code:	B
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	06
Manifest Status:	NJA5246524
Trans1 State ID:	NYR000130468
Trans2 State ID:	Not reported
Generator Ship Date:	NJD991291105
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJR000023036

B P PRODUCTS NORTH AMERICA #48374 (Continued) **1007990531**

TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DM
Container Type:	200
Handling Method:	P
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	NJA5246524
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	04/07/2006
Trans1 Recv Date:	04/07/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	04/07/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000130468
Trans1 EPA ID:	56247
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

NJ MANIFEST:

Manifest Code:	001274737JJK
EPA ID:	NYR000130468
Date Shipped:	10/21/2008
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000023036
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported

B P PRODUCTS NORTH AMERICA #48374 (Continued) **1007990531**

Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	10/21/2008
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	10/21/2008
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	Not reported
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	D018
Manifest Year:	2008 New Jersey Manifest Data
Quantity:	200
Unit:	P
Hand Code:	H141

Manifest Code:	NJA5246524
EPA ID:	NYR000130468
Date Shipped:	20060407
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000023036
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	060407
Date Trans2 Transported Waste:	000000
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	060407
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	07130622
Reference Manifest Number:	Not reported

B P PRODUCTS NORTH AMERICA #48374 (Continued) **1007990531**

Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

B11 **GASETERIA** **LTANKS** **S105997104**
SSW **115 EAST 138TH STREET** **N/A**
< 1/8 **BRONX, NY**
0.028 mi.
149 ft. **Site 3 of 10 in cluster B**

LTANKS:

Site ID:	97236
Spill No:	0207682
Spill Date:	10/24/2002
Spill Cause:	Tank Test Failure
Spill Source:	Gasoline Station
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	Not reported
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	aaobliga
Referred To:	MONITORING
Reported to Dept:	10/24/2002
CID:	211
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	1
Date Entered In Computer:	10/24/2002
Spill Record Last Update:	4/7/2011
Spiller Name:	PAULA SKRYJA
Spiller Company:	GASETERIA
Spiller Address:	1 WEST PENN AVENUE
Spiller City,St,Zip:	TOWSON, MD 21204-
Spiller County:	001
Spiller Contact:	JEFF BEAUDETTE
Spiller Phone:	(800) 666-2605
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	158352
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "VOUGHT" DEC Sigona sent a notice regarding the tank test failure on 10/24/2002. BP PRODUCTS NORTH AMERICA, INC. SUITE 410, 1 WEST PENNSYLVANIA AVENUE TOWSON, MD 21204 ATTN: PAULA SKRYJA see also spill 9408104 10/24/02 Tightness test on tanks/lines and leak detectors - Two regular USTs and two super USTs failed on ullage bubbles. Stage II was not tested because of ullage problems on the

GASETERIA (Continued) **S105997104**

tanks. Dispenser #8 taken out of service because it pumps gas into vapor line when pump handle is off. Reviewed 11/20/02 tank re-test results (received 1/8/03). Retested two regular unleaded and two premium unleaded USTs. All passed. Stage II was not tested because piping system needs to be reconfigured. 12/15/03 Left Paula Skryja voicemail message inquiring about status of site. PBS information shows five unleaded gas USTs were removed. 12/15/03 Spoke with Paula Skryja. Site was taken over from Gaseteria in August 2002. Some repairs were made to risers, no tank problems. Station was temporarily shut down until raze and rebuild. Gaseteria removed tanks 1.5 weeks ago. BP was on-site to oversee tank removal. Station to be back in service March 2004. Paula to forward information regarding initial TTF. (KMF) 12/26/03 Received information from Paula Skryja, BP regulatory assurance specialist. Tanks retested and passed on 11/20/02. Details of UST removal should be obtained from Gaseteria. (KMF) 9/19/05 - Spill transferred from Vought to Obligado 12/5/05 - Obligado - File Review: Baseline Assessment Report, submitted by Delta, 12/2/05. At time of assessment, site was an active GAseteria service station with 4 4000 gallon gasoline USTs and 1 4000 gallon diesel USTs, 3 pump islands. Surrounding landuse is commercial. Sensitive receptor show Harlem River 500 ft soughwest of site. Closest school is 1400 ft northeast of site. Bedrock located at 8 to 12 ft below ground surface. Water is located in bedrock fractures between 8 and 15 ft bgs. Gw flows to southwest. Five soil borings conducted on Dec. 20, 2001. Only soil exceedences in one soil boring SB-3 (9-10.2) with 5880 ppb xylenes and 16,100 ppb napthalene. Total VOCs 81,402 ppb. Three temporary wells installed. Notable ground water results in ppb: (2/6 and 4/19/02) MW1 - benzene 233, ethylbenzene 539, MTBE 3070 MW2 - benzene 52.3, toluene 48, ethylbenzene 575, xylenes 1810, MTBE 122 MW3 - MTBE 50.2 (8/15/02) MW1 - benzene 205, ethlybenzene 435, MTBE 11000 MW2 - benzene 168, ethlybenzene 203, xylene 84.8 MW3 - MTBE 294 UST Closure Report, submitted by AGS, 12/03. On 11/20/03, 5 4000 gallon tanks excavated, Pump islands, piping, vent lines removed. 5 endpoint soil samples collected. IMpacts in only one soil sample, UST - SW Bottom, showing 5200 ppb xylenes. SVOC exceedences as well. One gw sample collected from pit water, showing 6.8 ppb benzene, 27 ppb ethylbenzene, 181 ppb xyelens, 89 ppb toluene. Excavated soil was reused as backfill. Recommends peparation of a Subsurface Investigation Work Plan to investigate and delineate the detected contaminates. UST Closure Report Addendum, submitted by AGS, 12/03. Letter report documents collection of seven samples below former seven despensers and collection of 5 samples at various pipin glocations. VOCs impacts were not detected. SVOCs were detected mostly PAHs. UST Closure Report Addendum No. 2, submitted by AGS, 9/04. Details discovery and abandonment of 3 unregistered and abandoned 550 gallon USTS. PBS registration number 2-191361 assigned on 9/3/04. 425 gallons of non DOT regulated waste liquid was removed from the two tanks. 3 soil samples were collected around the UST. USTs abandoned by filling with concrete slurry. No VOC exceedences detected from soil samples, minor PAH exceedences. "Upon completion of the rebuiling activities AGS will prepare a Subsurface Investigation Work Plan to investigate and delineate athe detected contaminants." 12/7/05 - Meeting with ASR, Gaseteria, DEC. This site is scheduled for investigation in summmer 2006. 9/12/06 - Obligado - Emailed multi-site stipulation agreement to Gaseteria on 9/8/06. Sent original on 9/12/06. Due date for workplan is 4/1/06. 6/1/07 - Obligado - Phone conversation with Steve

GASETERIA (Continued) **S105997104**

Muller to discuss schedule. New due date for workplan is 8/1/07. 9/25/07 - Obligado - Spoke to Steve Muller about this site. He requested proposing a workplan to collect samples from tank mat wells to determine if there is ground water contamination. I told him I would not accept this work plan and he must submit a workplan for well installation. He said he would submit the workplan today. 9/26/07 - Obligado - Received the Investigation Work Plan. 10/26/07 - Obligado - Reviewed the Subsurface Investigation Workplan. It proposes installation of 4 monitoring wells, collection of soil and ground water samples for 8260/8270 , well survey, and submission of summary report within 60 days. Sent approval email to Steve Muller. 1/30/08 - Obigado - Reviewed Subsurface Investigation Report. 3 monitoring wells were installed. Tank mat wells MWNW and MWSE were also sampled. Soil borings performed above bedrock and samples collected. MWs were installed into bedrock. No VOC impacts in soil above bedrock was above standards, minor SVOC impacts which may be attibutable to fill. Ground water impacts in 2 of 5 wells. Tank mat wells MWNW and MWSE were also sampled. Max BTEX is 579 at MW3, 247 at MWSE. The report recommneds monitoring for 2 more quarters. I approved the report but required monitoring for 4 quarters at minimum. 5/20/08 - Obligado - Review 1Q08 monitoirng report. BTEX from ND to 272 ug/L. MTBE from ND to 9 ug/L. Will continue monitoring. 12/15/08 - Obligado - Meeting with Gaseteria/ASR/DEC. Gaseteria will submit Closure Petition. 2/2/09 - Obligado - Closure petition submitted. 9/14/09 - Obligado - Sent letter rejecting closure petition. Required soil borings in the vicinity of the tanks to document complete removal of contaminated soil, continued sampling of ground water for at least 2 more quarters. 3/12/10 - Obligado - JCB submitted a work plan to install 2 borings and collect soil and ground water samples in the vicinity of ht eUSTs to document contaminated soil removal. I sent an approval letter to JCB via email. I report will be submitted within 90 days. 4/7/11 - Obligado - I reviewed the RIR report. Soil contamination found in soil boring SB4 adjacent to MWSE. GW samples were collected and BTEX in SB4 was 287 ug/l. During the most recent monitoring event, elevated ground water concentrations detected in MWSE. BTEX was detected at 1591 ug/L in MWSE, including 560 ug/L Benzene. Concentrations in this well have been steadily increasing throughout 2010. I emailed Steve Muller to request the most recent data.

Remarks: PIPING PROBLEM - RECOMMEND UNCOVER ISOLATE AND RETEST

Material:

Site ID:	97236
Operable Unit ID:	860553
Operable Unit:	01
Material ID:	514693
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

GASETERIA (Continued) **S105997104**

Tank Test:

Site ID:	97236
Spill Tank Test:	1527614
Tank Number:	1-4
Tank Size:	4000
Test Method:	14
Leak Rate:	0
Gross Fail:	F
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	VacuTest

B12 **GASETERIA** **NY Spills** **S104495753**
SSW **115 EAST 138TH STREET** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.028 mi.
149 ft. **Site 4 of 10 in cluster B**

NY Spills:

Site ID:	189745
Facility Addr2:	Not reported
Facility ID:	9408104
Spill Number:	9408104
Facility Type:	ER
SWIS:	0301
Investigator:	JMROMMEL
Referred To:	Not reported
Spill Date:	9/14/1994
Reported to Dept:	9/14/1994
CID:	Not reported
Spill Cause:	Other
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/28/2003
Remediation Phase:	0
Date Entered In Computer:	10/28/1994
Spill Record Last Update:	1/7/2004
Spiller Name:	Not reported
Spiller Company:	GASETERIA
Spiller Address:	115 EAST 138TH STREET
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	158352
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ROMMEL" to be investigated and remediated under spill 0207682 rommel

GASETERIA (Continued) **S104495753**

Remarks: TO TEST TANK (TOMASELLO)

Material:
Site ID: 189745
Operable Unit ID: 1002238
Operable Unit: 01
Material ID: 377548
Material Code: 0009
Material Name: Gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: 52
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

NY Hist Spills:
Region of Spill: 2
Spill Number: 9408104
Investigator: ROMMEL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 09/14/1994 12:00
Reported to Dept Date/Time: 09/14/94 12:12
SWIS: 60
Spiller Name: GASETERIA
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: 115 E. 138TH STREET
Spiller City,St,Zip: BRONX, NEW YORK
Spill Cause: Other
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 05
Spill Notifier: Responsible Party
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /

GASETERIA (Continued) **S104495753**

Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 10/28/94
Date Spill Entered In Computer Data File: Not reported
Update Date: 08/08/95
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 52
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: TO TEST TANK TOMASELLO)

B13 **138 PETROLEUM, LLC** **UST** **1001171441**
SSW **115 EAST 138TH STREET** **HIST UST** **N/A**
< 1/8 **BRONX, NY 10451**
0.028 mi.
149 ft. **Site 5 of 10 in cluster B**

UST:
Facility Id: 2-191361
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2013/10/17
UTM X: 590183.12259000004
UTM Y: 4518615.0674200002

Affiliation Records:
Site Id: 5961
Affiliation Type: On-Site Operator
Company Name: 138 PETROLEUM, LLC
Contact Type: Not reported

138 PETROLEUM, LLC (Continued) **1001171441**

Contact Name:	STATION MANAGER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 402-2375
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Site Id:	5961
Affiliation Type:	Emergency Contact
Company Name:	ATLANTIS MANAGEMENT GROUP II, LLC
Contact Type:	Not reported
Contact Name:	ENVIRONMENTAL HELPDESK
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(800) 977-7725
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Site Id:	5961
Affiliation Type:	Mail Contact
Company Name:	GILBARCO VEEDER-ROOT CMS
Contact Type:	Not reported
Contact Name:	COMPLIANCE MANAGMEENT SERVICES
Address1:	7300 W. FRIENDLY AVE., MS F-76
Address2:	PO BOX 22087
City:	GREENSBORO
State:	NC
Zip Code:	27420
Country Code:	001
Phone:	(800) 253-8054
Phone Ext:	Not reported
Email:	ATLANTIS@GILBARCO.COM
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Site Id:	5961
Affiliation Type:	Owner
Company Name:	ATLANTIS MANAGEMENT GROUP II, LLC
Contact Type:	OWNER'S AUTHORIZED AGENT
Contact Name:	ADRIANNE RUTHERFORD
Address1:	555 S. COLUMBUS AVE., SUITE 201
Address2:	Not reported

138 PETROLEUM, LLC (Continued) **1001171441**

City:	MOUNT VERNON
State:	NY
Zip Code:	10550
Country Code:	001
Phone:	(914) 699-9500
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Equipment Records:

H99 - Tank Leak Detection - Other
G00 - Tank Secondary Containment - None
H99 - Tank Leak Detection - Other
H99 - Tank Leak Detection - Other
H99 - Tank Leak Detection - Other
H99 - Tank Leak Detection - Other
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
F08 - Pipe External Protection - Retrofitted Impressed Current
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
F08 - Pipe External Protection - Retrofitted Impressed Current
A00 - Tank Internal Protection - None
J01 - Dispenser - Submersible
F08 - Pipe External Protection - Retrofitted Impressed Current
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
F08 - Pipe External Protection - Retrofitted Impressed Current
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
F08 - Pipe External Protection - Retrofitted Impressed Current
J01 - Dispenser - Submersible
D02 - Pipe Type - Galvanized Steel
J01 - Dispenser - Submersible
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
B08 - Tank External Protection - Retrofitted Impressed Current
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
K00 - Spill Prevention - None
B00 - Tank External Protection - None
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
B00 - Tank External Protection - None
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
G99 - Tank Secondary Containment - Other
B04 - Tank External Protection - Fiberglass
K01 - Spill Prevention - Catch Basin
F04 - Pipe External Protection - Fiberglass

138 PETROLEUM, LLC (Continued) **1001171441**

D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
G99 - Tank Secondary Containment - Other
C02 - Pipe Location - Underground/On-ground
B01 - Tank External Protection - Painted/Asphalt Coating
K01 - Spill Prevention - Catch Basin
K01 - Spill Prevention - Catch Basin
K01 - Spill Prevention - Catch Basin
I02 - Overfill - High Level Alarm
C02 - Pipe Location - Underground/On-ground
B04 - Tank External Protection - Fiberglass
K01 - Spill Prevention - Catch Basin
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
I02 - Overfill - High Level Alarm
B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
B04 - Tank External Protection - Fiberglass
K01 - Spill Prevention - Catch Basin
F04 - Pipe External Protection - Fiberglass
G99 - Tank Secondary Containment - Other
I02 - Overfill - High Level Alarm
B08 - Tank External Protection - Retrofitted Impressed Current
H05 - Tank Leak Detection - In-Tank System (ATG)
I00 - Overfill - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
B08 - Tank External Protection - Retrofitted Impressed Current
K00 - Spill Prevention - None
G04 - Tank Secondary Containment - Double-Walled (Underground)
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
B08 - Tank External Protection - Retrofitted Impressed Current
H05 - Tank Leak Detection - In-Tank System (ATG)
C02 - Pipe Location - Underground/On-ground
F04 - Pipe External Protection - Fiberglass
B01 - Tank External Protection - Painted/Asphalt Coating
G04 - Tank Secondary Containment - Double-Walled (Underground)
G04 - Tank Secondary Containment - Double-Walled (Underground)
I00 - Overfill - None
H05 - Tank Leak Detection - In-Tank System (ATG)
C02 - Pipe Location - Underground/On-ground
G99 - Tank Secondary Containment - Other
G99 - Tank Secondary Containment - Other
I02 - Overfill - High Level Alarm
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
H05 - Tank Leak Detection - In-Tank System (ATG)
B04 - Tank External Protection - Fiberglass
D08 - Pipe Type - Equivalent Technology
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
I03 - Overfill - Automatic Shut-Off
H00 - Tank Leak Detection - None
I04 - Overfill - Product Level Gauge (A/G)
F04 - Pipe External Protection - Fiberglass
H00 - Tank Leak Detection - None
I03 - Overfill - Automatic Shut-Off

138 PETROLEUM, LLC (Continued) **1001171441**

K01 - Spill Prevention - Catch Basin
B08 - Tank External Protection - Retrofitted Impressed Current
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
C00 - Pipe Location - No Piping
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
I04 - Overfill - Product Level Gauge (A/G)
B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
B01 - Tank External Protection - Painted/Asphalt Coating
D06 - Pipe Type - Fiberglass Reinforced Plastic (FRP)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
G04 - Tank Secondary Containment - Double-Walled (Underground)
I03 - Overfill - Automatic Shut-Off
I03 - Overfill - Automatic Shut-Off
I03 - Overfill - Automatic Shut-Off
E04 - Piping Secondary Containment - Double-Walled (Underground)
E04 - Piping Secondary Containment - Double-Walled (Underground)

Tank Info:

Site ID:	5961
Tank Number:	001
Tank ID:	7485
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	5/1/1978
Capacity Gallons:	4000
Tightness Test Method:	14
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/20/2002
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	5961
Tank Number:	002
Tank ID:	7486
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	5/1/1978
Capacity Gallons:	4000
Tightness Test Method:	14
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/20/2002
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	5961

138 PETROLEUM, LLC (Continued) **1001171441**

Tank Number:	003
Tank ID:	7487
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	5/1/1978
Capacity Gallons:	4000
Tightness Test Method:	14
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/20/2002
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	5961
Tank Number:	004
Tank ID:	7488
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	5/1/1978
Capacity Gallons:	4000
Tightness Test Method:	14
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/20/2002
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	5961
Tank Number:	005
Tank ID:	7489
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	5/1/1978
Capacity Gallons:	4000
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	6/7/2000
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	5961

138 PETROLEUM, LLC (Continued) **1001171441**

Tank Number:	006
Tank ID:	179983
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	8/1/2004
Capacity Gallons:	12000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	1/5/2009
Site ID:	5961
Tank Number:	007
Tank ID:	179984
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	8/1/2004
Capacity Gallons:	12000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	1/5/2009
Site ID:	5961
Tank Number:	010
Tank ID:	180178
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	9/5/2004
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	9/23/2004
Site ID:	5961

138 PETROLEUM, LLC (Continued) **1001171441**

Tank Number:	011
Tank ID:	180179
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	9/23/2004
Site ID:	5961
Tank Number:	1
Tank ID:	67170
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	12000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	12/1/2003
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	11/2/2004
Site ID:	5961
Tank Number:	2
Tank ID:	67171
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	12000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	12/1/2003
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	11/2/2004

HIST UST:
PBS Number: 2-191361

138 PETROLEUM, LLC (Continued) **1001171441**

SPDES Number:	Not reported
Emergency Contact:	ROBERTO PORCELLI
Emergency Telephone:	(718) 782-4200
Operator:	GASETERIA OIL CORP
Operator Telephone:	(212) 993-2549
Owner Name:	JIMCAR REALTY CORP
Owner Address:	364 MASPETH AVE
Owner City,St,Zip:	BROOKLYN, NY 11211
Owner Telephone:	(718) 782-4200
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	JIMCAR REALTY CORP
Mailing Address:	364 MASPETH AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11211
Mailing Contact:	ROBERTO PORCELLI
Mailing Telephone:	(718) 782-4200
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	07/28/2000
Expiration Date:	06/05/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	20000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19780501
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	13
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL

138 PETROLEUM, LLC (Continued) **1001171441**

Pipe Internal:	None
Pipe External:	Impressed Current
Second Containment:	Other
Leak Detection:	Other
Overfill Prot:	Catch Basin, Automatic Shut-Off
Dispenser:	Submersible
Date Tested:	06/07/2000
Next Test Date:	06/07/2005
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19780501
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	13
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Impressed Current
Second Containment:	Other
Leak Detection:	Other
Overfill Prot:	Catch Basin, Automatic Shut-Off
Dispenser:	Submersible
Date Tested:	06/07/2000
Next Test Date:	06/07/2005
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19780501
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	13
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Impressed Current
Second Containment:	Other

138 PETROLEUM, LLC (Continued) **1001171441**

Leak Detection:	Other
Overfill Prot:	Catch Basin, Automatic Shut-Off
Dispenser:	Submersible
Date Tested:	06/07/2000
Next Test Date:	06/07/2005
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19780501
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	13
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Impressed Current
Second Containment:	Other
Leak Detection:	Other
Overfill Prot:	Catch Basin, Automatic Shut-Off
Dispenser:	Submersible
Date Tested:	06/07/2000
Next Test Date:	06/07/2005
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19780501
Capacity (gals):	4000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	13
Pipe Location:	None
Pipe Type:	FIBERGLASS REINFORCED PLASTIC
Pipe Internal:	None
Pipe External:	Impressed Current
Second Containment:	Other
Leak Detection:	Other
Overfill Prot:	Catch Basin, Automatic Shut-Off
Dispenser:	Submersible

138 PETROLEUM, LLC (Continued) **1001171441**

Date Tested:	06/07/2000
Next Test Date:	06/07/2005
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

C14 **LOT 75,TAXBLOCK 2344** **E DESIGNATION** **S109942764**
NNE **301 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.029 mi.
154 ft. **Site 1 of 17 in cluster C**

E DESIGNATION:

Tax Lot(s):	75
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BENGOMO REALTY INC
Lot Area:	000013280
Total Building Floor Area:	00000019000
Commercial Floor Area:	00000019000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000019000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001

LOT 75,TAXBLOCK 2344 (Continued) **S109942764**

Number of Floors:	004.00
Residential Units:	00000
Non and Residential Units:	00008
Lot Frontage:	0086.58
Lot Depth:	0174.67
Building Frontage:	0050.00
Building Depth:	0095.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000225000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.43
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440075
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003558
Y Coordinate:	0236213
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	75
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07

LOT 75,TAXBLOCK 2344 (Continued) **S109942764**

City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BENGOMO REALTY INC
Lot Area:	000013280
Total Building Floor Area:	00000019000
Commercial Floor Area:	00000019000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000019000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	004.00
Residential Units:	00000
Non and Residential Units:	00008
Lot Frontage:	0086.58
Lot Depth:	0174.67
Building Frontage:	0050.00
Building Depth:	0095.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000225000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.43
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440075
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003558

LOT 75,TAXBLOCK 2344 (Continued) **S109942764**

Y Coordinate:	0236213
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	75
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BENGOMO REALTY INC
Lot Area:	000013280
Total Building Floor Area:	00000019000
Commercial Floor Area:	00000019000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000019000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001

LOT 75,TAXBLOCK 2344 (Continued) **S109942764**

Number of Floors:	004.00
Residential Units:	00000
Non and Residential Units:	00008
Lot Frontage:	0086.58
Lot Depth:	0174.67
Building Frontage:	0050.00
Building Depth:	0095.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000225000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.43
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440075
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003558
Y Coordinate:	0236213
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

C15 **BEN-GOMO REALTY, INC.** **AST** **A100129096**
NNE **301 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10454**
0.029 mi.
154 ft. **Site 2 of 17 in cluster C**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-603762
Program Type:	PBS
UTM X:	590289.36675000004
UTM Y:	4518761.9456099998
Expiration Date:	2013/11/24

BEN-GOMO REALTY, INC. (Continued) **A100129096**

Affiliation Records:

Site Id:	25665
Affiliation Type:	Emergency Contact
Company Name:	BENNY GOMOLINSKI
Contact Type:	Not reported
Contact Name:	BENNY GOMOLINSKI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 585-1590
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	25665
Affiliation Type:	Owner
Company Name:	BENNY GOMOLINSKI
Contact Type:	VICE PRESIDENT
Contact Name:	MICHAEL GOMOLINSKI
Address1:	301 WALTON AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10454
Country Code:	001
Phone:	(718) 585-1590
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	9/15/2008

Site Id:	25665
Affiliation Type:	On-Site Operator
Company Name:	BEN-GOMO REALTY, INC.
Contact Type:	Not reported
Contact Name:	BENNY GOMOLINSKI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 585-1590
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	25665
Affiliation Type:	Mail Contact

BEN-GOMO REALTY, INC. (Continued) **A100129096**

Company Name:	BEN GOMO REALTY, INC.
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	301 WALTON AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 585-1590
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

C03 - Pipe Location - Aboveground/Underground Combination
H00 - Tank Leak Detection - None
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
G03 - Tank Secondary Containment - Vault (w/o access)
B01 - Tank External Protection - Painted/Asphalt Coating
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I05 - Overfill - Vent Whistle
K00 - Spill Prevention - None

Tank Info:

Tank Number:	001
Tank Id:	55512
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1975
Capacity Gallons:	3500
Tightness Test Method:	03
Date Test:	11/1/1998
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/15/2008

B16 **MANHOLE #9476** **NY Spills** **S106007845**
South **WALTON AV & E 138TH ST** **N/A**
< 1/8 **BRONX, NY**
0.031 mi.
162 ft. **Site 6 of 10 in cluster B**

NY Spills:

Site ID:	167087
Facility Addr2:	Not reported
Facility ID:	0206646
Spill Number:	0206646
Facility Type:	ER
SWIS:	0301
Investigator:	AERODRIG
Referred To:	Not reported
Spill Date:	9/26/2002
Reported to Dept:	9/26/2002
CID:	257
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/27/2002
Remediation Phase:	0
Date Entered In Computer:	9/26/2002
Spill Record Last Update:	11/27/2002
Spiller Name:	CALLER
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	001
Contact Name:	ANDREW MORRIS
Contact Phone:	(212) 580-6763
DEC Region:	2
DER Facility ID:	140762
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "RODRIGUEZ" E2MIS NOTES 145281 OS G. Meiers #14850 reports while inspecting MH-9476 found ~ 1 pint of dielectric cable oil coming from open ends. The ends were sealed, but there is a D-fault in the manhole on Feeder 2X01 making the structure unsafe to work in. This clean up is pending safe access. A liquid sample for PCB was taken. Environmental tag #32997 was installed. Clean up pending safe access. There is no smoke or fire, no sewers or waterways, and no private property affected. Lab Sequence Number: 02-09045-001 Aroclor 1242 < 1.0 ppm EPA 608/8082 Aroclor 1254 < 1.0 ppm EPA 608/8082 Aroclor 1248 < 1.0 ppm EPA 608/8082 Aroclor 1260 < 1.0 ppm EPA 608/8082 04-OCT-2002 05:12 Feeder Deenergized as FCR K. Scully, Cleanup in progress. Crew on location William Silkowski 82003 and C. Marine 14876. 04-OCT-2002 05:38 Environmental Flush Mech B W. Silkowski 82003 and Mech B C. Marine 14876 report cleanup complete. Tanker removed 80 gallons of non-PCB liquid waste. 400 pounds of non-PCB lead hazardous solids removed by flush truck to be transported to

MANHOLE #9476 (Continued) **S106007845**

Remarks: Hellgate Flush pit. Structure was double washed and rinsed. Spill tag 32997 was removed. Source of oil D-Fault cut out. Cleanup complete. feeder 28301 - spill is on 150gals of water - cleanup pending test results - ref #145281

Material:

Site ID:	167087
Operable Unit ID:	858400
Operable Unit:	01
Material ID:	517248
Material Code:	0541A
Material Name:	DIELECTRIC FLUID
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

D17 **LOT 52,TAXBLOCK 2344** **E DESIGNATION** **S109942666**
WSW **109 EAST 138 STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.032 mi.
169 ft. **Site 1 of 4 in cluster D**

E DESIGNATION:

Tax Lot(s):	52
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2

LOT 52,TAXBLOCK 2344 (Continued) **S109942666**

Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G4
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	OSTRAGER, SEYMOUR
Lot Area:	000010500
Total Building Floor Area:	00000000400
Commercial Floor Area:	00000000400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000400
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0078.00
Lot Depth:	0102.00
Building Frontage:	0013.00
Building Depth:	0037.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000058500
Total Assessed Value:	00000093150
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.04
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440052
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003434
Y Coordinate:	0235777
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported

LOT 52,TAXBLOCK 2344 (Continued) **S109942666**

Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	52
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2010
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G4
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	OSTRAGER, SEYMOUR
Lot Area:	000010500
Total Building Floor Area:	00000000400
Commercial Floor Area:	00000000400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000400
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0078.00
Lot Depth:	0102.00

LOT 52,TAXBLOCK 2344 (Continued) **S109942666**

Building Frontage:	0013.00
Building Depth:	0037.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000058500
Total Assessed Value:	00000093150
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.04
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440052
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003434
Y Coordinate:	0235777
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

D18 **255 EXTERIOR STREET, LLC** **UST** **U004045301**
WSW **255 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.032 mi.
171 ft. **Site 2 of 4 in cluster D**

UST:

Facility Id:	2-610014
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS
Expiration Date:	N/A
UTM X:	590121.28917999996
UTM Y:	4518639.5160699999

Affiliation Records:

Site Id:	351975
Affiliation Type:	On-Site Operator
Company Name:	255 EXTERIOR STREET, LLC

255 EXTERIOR STREET, LLC (Continued) **U004045301**

Contact Type:	Not reported
Contact Name:	MICHAEL JAYNE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 862-3625
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	8/31/2005

Site Id:	351975
Affiliation Type:	Mail Contact
Company Name:	STORAGE DELUXE
Contact Type:	Not reported
Contact Name:	MR. MICHAEL JAYNE
Address1:	1880 BARTOW AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10469
Country Code:	001
Phone:	(718) 862-3625
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	8/31/2005

Site Id:	351975
Affiliation Type:	Emergency Contact
Company Name:	255 EXTERIOR STREET, LLC
Contact Type:	Not reported
Contact Name:	MICHAEL JAYNE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 862-3625
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	8/31/2005

Site Id:	351975
Affiliation Type:	Owner
Company Name:	255 EXTERIOR STREET, LLC
Contact Type:	AGENT
Contact Name:	ROMEO SANTOS
Address1:	26 WEST 17TH STREET, STE.801

255 EXTERIOR STREET, LLC (Continued) **U004045301**

Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10011
Country Code:	001
Phone:	(718) 862-3625
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	8/31/2005

Equipment Records:

K00 - Spill Prevention - None
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
I00 - Overfill - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
K00 - Spill Prevention - None
J02 - Dispenser - Suction
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
E00 - Piping Secondary Containment - None
D00 - Pipe Type - No Piping
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
C00 - Pipe Location - No Piping
I00 - Overfill - None
F00 - Pipe External Protection - None
K00 - Spill Prevention - None
J02 - Dispenser - Suction
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
D00 - Pipe Type - No Piping
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	351975
Tank Number:	01
Tank ID:	207900
Tank Status:	Closed - Removed
Tank Model:	Not reported

255 EXTERIOR STREET, LLC (Continued) **U004045301**

Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/15/2005
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	8/31/2005
Site ID:	351975
Tank Number:	02
Tank ID:	207901
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/15/2005
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	8/31/2005
Site ID:	351975
Tank Number:	03
Tank ID:	207902
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/15/2005
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	8/31/2005

D19 **LOT 3,TAXBLOCK 2349** **E DESIGNATION** **S109942410**
WSW **255 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.032 mi.
171 ft. **Site 3 of 4 in cluster D**

E DESIGNATION:

Tax Lot(s):	3
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	53.01
Census Block:	9033
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	Z9
Land Use Category:	Not reported
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	MAD-BRI ASSOCIATES,
Lot Area:	000050000
Total Building Floor Area:	00000000800
Commercial Floor Area:	00000000800
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000800
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0305.08
Lot Depth:	0300.42
Building Frontage:	0020.00
Building Depth:	0040.00
Proximity Code:	1
Irregular Lot Code:	Y
Lot Type:	3

LOT 3,TAXBLOCK 2349 (Continued) **S109942410**

Basement Type Grade:	5
Land Assessed Value:	00000236250
Total Assessed Value:	00000246600
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1990
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.02
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490003
Condominium Number:	00000
Census Tract 2:	005301
X Coordinate:	1003112
Y Coordinate:	0236029
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	3
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	53.01
Census Block:	9033
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1

LOT 3,TAXBLOCK 2349 (Continued) **S109942410**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	Z9
Land Use Category:	Not reported
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	MAD-BRI ASSOCIATES,
Lot Area:	000050000
Total Building Floor Area:	00000000800
Commercial Floor Area:	00000000800
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000800
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0305.08
Lot Depth:	0300.42
Building Frontage:	0020.00
Building Depth:	0040.00
Proximity Code:	1
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000236250
Total Assessed Value:	00000246600
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1990
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.02
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490003
Condominium Number:	00000
Census Tract 2:	005301
X Coordinate:	1003112
Y Coordinate:	0236029
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 3,TAXBLOCK 2349 (Continued) **S109942410**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

C20 **B & M LINEN CORP** **RCRA-NonGen** **1004755458**
NNE **310 WALTON AVE** **FINDS** **NY0000002733**
< 1/8 **BRONX, NY 10451** **MANIFEST**
0.035 mi.
184 ft. **Site 3 of 17 in cluster C**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: B & M LINEN CORP
Facility address: 310 WALTON AVE
BRONX, NY 104515428
EPA ID: NY0000002733
Mailing address: WALTON AVE
BRONX, NY 104515428
Contact: MIRON MARKUS
Contact address: WALTON AVE
BRONX, NY 104515428
Contact country: US
Contact telephone: (718) 585-3535
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: GARTH ORG & DOLLED ASSOC
Owner/operator address: 250 W 49TH ST
NEW YORK, NY 10019
Owner/operator country: Not reported
Owner/operator telephone: (212) 231-5700
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/01/0001
Owner/Op end date: Not reported

Owner/operator name: A T & T
Owner/operator address: 227 W MONROE SUITE 1004
CHICAGO, IL 60606
Owner/operator country: US
Owner/operator telephone: (312) 230-5239
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/07/2000
Owner/Op end date: Not reported

Owner/operator name: GARTH ORG & DOLLED ASSOC
Owner/operator address: 250 W 49TH ST
NEW YORK, NY 10019
Owner/operator country: US
Owner/operator telephone: (212) 231-5700
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/01/2001

B & M LINEN CORP (Continued) **1004755458**

Owner/Op end date: Not reported

Owner/operator name: A T & T
Owner/operator address: 227 W MONROE SUITE 1004
CHICAGO, IL 60606
Owner/operator country: US
Owner/operator telephone: (312) 230-5239
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 01/07/2000
Owner/Op end date: Not reported

Owner/operator name: A T & T
Owner/operator address: 227 W MONROE SUITE 1004
CHICAGO, IL 60606
Owner/operator country: Not reported
Owner/operator telephone: (312) 230-5239
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 01/07/2000
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: B & M LINEN CORP
Classification: Not a generator, verified

Date form received by agency: 02/15/2001
Facility name: B & M LINEN CORP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 01/11/2000
Facility name: B & M LINEN CORP
Classification: Conditionally Exempt Small Quantity Generator

Hazardous Waste Summary:
Waste code: D000
Waste name: Not Defined

B & M LINEN CORP (Continued) **1004755458**

Waste code: D007
Waste name: CHROMIUM

Waste code: D008
Waste name: LEAD

Waste code: D039
Waste name: TETRACHLOROETHYLENE

Waste code: D040
Waste name: TRICHLOROETHYLENE

Waste code: F002
Waste name: THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2-TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE LISTED IN F001, F004, OR F005, AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.

Violation Status: No violations found

FINDS:

Registry ID: 110004307526

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

NY MANIFEST:
EPA ID: NY0000002733
Country: USA
Mailing Name: AMERICAN TELEPHONE & TELEGRAPH COMM
Mailing Contact: J J O'TOOLE
Mailing Address: 227 WEST MONROE SUITE 1004
Mailing Address 2: Not reported
Mailing City: CHICAGO
Mailing State: IL
Mailing Zip: 60606
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 516-424-3030

Document ID: NYC6557793
Manifest Status: Not reported
Trans1 State ID: SCR000075150
Trans2 State ID: NJD071629976

B & M LINEN CORP (Continued) **1004755458**

Generator Ship Date:	09/19/2001
Trans1 Recv Date:	09/19/2001
Trans2 Recv Date:	09/21/2001
TSD Site Recv Date:	09/25/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NY0000002733
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	EH270TNY
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00180
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2001

Document ID:	NYB2767356
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS632
Trans2 State ID:	NJDEPS710
Generator Ship Date:	940328
Trans1 Recv Date:	940328
Trans2 Recv Date:	940328
TSD Site Recv Date:	940330
Part A Recv Date:	Not reported
Part B Recv Date:	940407
Generator EPA ID:	NY0000002733
Trans1 EPA ID:	NJD991291584
Trans2 EPA ID:	NJD000692061
TSDF ID:	NYD049836679
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	00363
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	94

Document ID:	NYB4723605
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS632
Trans2 State ID:	NJDEPS710
Generator Ship Date:	940324
Trans1 Recv Date:	940324

B & M LINEN CORP (Continued) **1004755458**

Trans2 Recv Date:	940324
TSD Site Recv Date:	940326
Part A Recv Date:	Not reported
Part B Recv Date:	940414
Generator EPA ID:	NY0000002733
Trans1 EPA ID:	NJD991291584
Trans2 EPA ID:	NJD000692061
TSDF ID:	KSD981506025
Waste Code:	B001 - PCB OIL (CONC) FROM TRANS, CAP, ETC
Quantity:	00362
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94

C21 **310 WALTON AVENUE** **UST** **U003790763**
NNE **310 WALTON AVENUE** **HIST UST** **N/A**
< 1/8 **BRONX, NY 10451**
0.035 mi.
184 ft. **Site 4 of 17 in cluster C**

UST:

Facility Id:	2-605572
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS
Expiration Date:	N/A
UTM X:	590293.60345000005
UTM Y:	4518770.3038400002

Affiliation Records:

Site Id:	27439
Affiliation Type:	On-Site Operator
Company Name:	310 WALTON AVENUE
Contact Type:	Not reported
Contact Name:	JASON FRIEDLAND
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(914) 751-4000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/16/2006

Site Id:	27439
Affiliation Type:	Emergency Contact
Company Name:	DOLED ASSOCIATES % WESTROCK DEVELOPMENT
Contact Type:	Not reported
Contact Name:	ROBERT FRIEDLAND
Address1:	Not reported

310 WALTON AVENUE (Continued) **U003790763**

Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 968-8500
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/16/2006

Site Id:	27439
Affiliation Type:	Mail Contact
Company Name:	WESTROCK DEVELOPMENT
Contact Type:	Not reported
Contact Name:	JASON FRIEDLAND
Address1:	656 CENTRAL PARK AVE
Address2:	Not reported
City:	YONKERS
State:	NY
Zip Code:	10704
Country Code:	001
Phone:	(914) 751-4000
Phone Ext:	304
Email:	JFRIEDLAND@WESTROCKDEVELOPMENT.COM
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2/9/2011

Site Id:	27439
Affiliation Type:	Owner
Company Name:	DOLED ASSOCIATES % WESTROCK DEVELOPMENT
Contact Type:	PROPERTY MANAGER / OWNERS
Contact Name:	JASON FRIEDLAND
Address1:	656 CENTRAL PARK AVE
Address2:	Not reported
City:	YONKERS
State:	NY
Zip Code:	10704
Country Code:	001
Phone:	(914) 751-4000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2/9/2011

Equipment Records:

G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
J00 - Dispenser - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None

310 WALTON AVENUE (Continued) **U003790763**

C02 - Pipe Location - Underground/On-ground

Tank Info:

Site ID:	27439
Tank Number:	01
Tank ID:	60069
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	00
Next Test Date:	Not reported
Date Tank Closed:	3/24/2006
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	2/9/2011

HIST UST:

PBS Number:	2-605572
SPDES Number:	Not reported
Emergency Contact:	ROBERT FRIEDLAND
Emergency Telephone:	(914) 968-8500
Operator:	KENNETH FRIEDLAND
Operator Telephone:	(212) 586-8800
Owner Name:	DOLED ASSOCIATES % THE GARTH ORGANIZATION
Owner Address:	250 WEST 49TH STREET
Owner City,St,Zip:	NEW YORK, NY 10019
Owner Telephone:	(212) 586-8800
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	THE GARTH ORGANIZATION
Mailing Address:	250 WEST 49TH STREET
Mailing Address 2:	SUITE 305
Mailing City,St,Zip:	NEW YORK, NY 10019
Mailing Contact:	KENNETH S. FRIEDLAND
Mailing Telephone:	(212) 586-8800
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	04/09/2001
Expiration Date:	04/05/2006
Renew Flag:	False

310 WALTON AVENUE (Continued) **U003790763**

Renewal Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2
Tank Id:	01
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	5000
Product Stored:	USED OIL (FUEL)
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Not reported
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Not reported
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

C22 **310 WALTON AVENUE** **LTANKS** **S102672362**
NNE **310 WALTON AVENUE** **HIST LTANKS** **N/A**
< 1/8 **BRONX, NY**
0.035 mi.
184 ft. **Site 5 of 17 in cluster C**

LTANKS:

Site ID:	79679
Spill No:	9312938
Spill Date:	2/2/1994
Spill Cause:	Tank Overfill
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	2/2/1994
Facility Addr2:	Not reported
Cleanup Ceased:	2/2/1994
Cleanup Meets Standard:	True
SWIS:	0301

310 WALTON AVENUE (Continued) **S102672362**

Investigator:	SMMARTIN
Referred To:	Not reported
Reported to Dept:	2/2/1994
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2/3/1994
Spill Record Last Update:	3/12/2003
Spiller Name:	Not reported
Spiller Company:	BAERENKLAU
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	73950
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "MARTINKAT"
Remarks:	CONTAINED ON PAVEMENT - CLEAN UP IS DONE.

Material:

Site ID:	79679
Operable Unit ID:	991449
Operable Unit:	01
Material ID:	388342
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2

310 WALTON AVENUE (Continued) **S102672362**

Spill Number:	9312938
Spill Date:	02/02/1994
Spill Time:	10:35
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/02/94
Cleanup Ceased:	02/02/94
Cleanup Meets Standard:	True
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	02/02/94
Reported to Department Time:	12:31
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	BAERENKLAU
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	02/03/94
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

310 WALTON AVENUE (Continued) **S102672362**

Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Spill Cause:	CONTAINED ON PAVEMENT - CLEAN UP IS DONE.

C23 **HIPPODROME SVCS** **MANIFEST** **1009225499**
NNE **310 WALTON AVE** **N/A**
< 1/8 **BRONX, NY 10451**
0.035 mi.
184 ft. **Site 6 of 17 in cluster C**

NY MANIFEST:

EPA ID:	NYD000002733
Country:	USA
Mailing Name:	HIPPODROME SVCS
Mailing Contact:	N/S
Mailing Address:	310 WALTON AVE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-402-9092

Document ID:	NYC6386141
Manifest Status:	Not reported
Trans1 State ID:	SCR000075150
Trans2 State ID:	SCR000074591
Generator Ship Date:	02/08/2001
Trans1 Recv Date:	02/08/2001
Trans2 Recv Date:	02/13/2001
TSD Site Recv Date:	02/18/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD000002733
Trans1 EPA ID:	OHD980587364
Trans2 EPA ID:	Not reported
TSDF ID:	EH2705NY
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2001

B24 **STAINED SOIL FOUND IN EXCAVATION** **NY Spills** **S108957157**
SW **EAST 138 STREET & EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY**
0.041 mi.
215 ft. **Site 7 of 10 in cluster B**

NY Spills:

Site ID:	390434
Facility Addr2:	Not reported
Facility ID:	0709365
Spill Number:	0709365
Facility Type:	ER
SWIS:	0301
Investigator:	gdbreen
Referred To:	Not reported
Spill Date:	11/29/2007
Reported to Dept:	11/29/2007
CID:	444
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/28/2007
Remediation Phase:	0
Date Entered In Computer:	11/29/2007
Spill Record Last Update:	12/28/2007
Spiller Name:	ERTSDESK
Spiller Company:	CON EDISON
Spiller Address:	EAST 138TH STREET/EXTERIO
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	999
Contact Name:	ERTSDESK
Contact Phone:	(212) 580-8383
DEC Region:	2
DER Facility ID:	340030
DEC Memo:	12/28/07 - See eDocs for Con Ed report detailing cleanup and closure. 209007. see eDocs
Remarks:	FOUND WHILE ON SITE AND IT HAD DISCOLORED SOIL AND ODOR. 209007

Material:

Site ID:	390434
Operable Unit ID:	1147537
Operable Unit:	01
Material ID:	2137969
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

STAINED SOIL FOUND IN EXCAVATION (Continued) **S108957157**

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

E25 **CON-EDISON @ SERVICE CENTER** **SWF/LF** **S105841876**
WNW **281 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.042 mi.
220 ft. **Site 1 of 9 in cluster E**

SWF/LF:

Flag:	INACTIVE
Region Code:	2
Phone Number:	2124604833
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	HARRY A. COATES
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	C&D processing - registered
Activity Number:	[03W70]
Active:	No
East Coordinate:	590086
North Coordinate:	4518544
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Waste Type:	Not reported
Authorization #:	None
Authorization Date:	Not reported
Expiration Date:	Not reported

E26 CON ED - EXTERIOR ST STORAGE YARD **RCRA-NonGen** **1006810635**
WNW 281 EXTERIOR ST **FINDS** **NYR000114579**
< 1/8 BRONX, NY 10462 **MANIFEST**
0.042 mi.
220 ft. Site 2 of 9 in cluster E

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	CON ED - EXTERIOR ST STORAGE YARD
Facility address:	281 EXTERIOR ST BRONX, NY 10462
EPA ID:	NYR000114579
Mailing address:	MATTHEWS AVE BRONX, NY 10462
Contact:	ROSEMARIE GIORDANO
Contact address:	MATTHEWS AVE BRONX, NY 10462
Contact country:	US
Contact telephone:	(718) 904-4648
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON CO OF NY INC
Owner/operator address:	NOT REQUIRED NOT REQUIRED, NY
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	12/29/1926
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON CO OF NY INC
Owner/operator address:	NOT REQUIRED NOT REQUIRED, NY
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	12/29/1926
Owner/Op end date:	Not reported

Handler Activities Summary:

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

CON ED - EXTERIOR ST STORAGE YARD (Continued) **1006810635**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: CON ED - EXTERIOR ST STORAGE YARD
Classification: Not a generator, verified

Date form received by agency: 03/27/2003
Facility name: CON ED - EXTERIOR ST STORAGE YARD
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110014447713

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

NY MANIFEST:
EPA ID: NYR000114579
Country: USA
Mailing Name: CON ED - EXTERIOR ST STORAGE YARD
Mailing Contact: FRANKLYN MURRAY
Mailing Address: 4 IRVING PL RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-460-2808

Document ID: Not reported
Manifest Status: Not reported
Trans1 State ID: NYD006982359
Trans2 State ID: Not reported
Generator Ship Date: 2008-04-09
Trans1 Recv Date: 2008-04-09
Trans2 Recv Date: Not reported
TSD Site Recv Date: 2008-04-10
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYR000114579
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID: NYD077444263

CON ED - EXTERIOR ST STORAGE YARD (Continued) **1006810635**

Waste Code:	Not reported
Quantity:	130.0
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	2.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001446935FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	2008-04-09
Trans1 Recv Date:	2008-04-09
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-04-10
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000114579
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	Not reported
Quantity:	130.0
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	2.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001446935FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

CON ED - EXTERIOR ST STORAGE YARD (Continued) **1006810635**

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD006982359
Trans2 State ID:	Not reported
Generator Ship Date:	2008-04-09
Trans1 Recv Date:	2008-04-09
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-04-10
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000114579
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444263
Waste Code:	Not reported
Quantity:	130.0
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	2.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001446935FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

E27 **LOT 15,TAXBLOCK 2349** **E DESIGNATION** **S109942242**
WNW **281 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.042 mi.
220 ft. **Site 3 of 9 in cluster E**

E DESIGNATION:

Tax Lot(s):	15
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23

LOT 15,TAXBLOCK 2349 (Continued) **S109942242**

Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	U2
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CONSOLIDATED EDISON C
Lot Area:	000054543
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0170.67
Lot Depth:	0319.58
Building Frontage:	0030.00
Building Depth:	0108.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000000000
Total Assessed Value:	00000000000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.06
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490015
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003100
Y Coordinate:	0236226
Zoning Map:	06A
Sanborn Map:	209N052

LOT 15,TAXBLOCK 2349 (Continued) **S109942242**

Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	15
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	U2
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CONSOLIDATED EDISON C
Lot Area:	000054543
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000

LOT 15,TAXBLOCK 2349 (Continued) **S109942242**

Non and Residential Units:	00000
Lot Frontage:	0170.67
Lot Depth:	0319.58
Building Frontage:	0030.00
Building Depth:	0108.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000000000
Total Assessed Value:	00000000000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.06
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490015
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003100
Y Coordinate:	0236226
Zoning Map:	06A
Sanborn Map:	209N052
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	15
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23

LOT 15,TAXBLOCK 2349 (Continued) **S109942242**

Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	U2
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CONSOLIDATED EDISON C
Lot Area:	000054543
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000
Lot Frontage:	0170.67
Lot Depth:	0319.58
Building Frontage:	0030.00
Building Depth:	0108.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000000000
Total Assessed Value:	00000000000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.06
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490015
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003100
Y Coordinate:	0236226
Zoning Map:	06A
Sanborn Map:	209N052

LOT 15,TAXBLOCK 2349 (Continued) **S109942242**

Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	15
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	U2
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CONSOLIDATED EDISON C
Lot Area:	000054543
Total Building Floor Area:	00000000000
Commercial Floor Area:	00000000000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00000

LOT 15,TAXBLOCK 2349 (Continued) **S109942242**

Lot Frontage:	0170.67
Lot Depth:	0319.58
Building Frontage:	0030.00
Building Depth:	0108.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000000000
Total Assessed Value:	00000000000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	0000
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.06
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490015
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003100
Y Coordinate:	0236226
Zoning Map:	06A
Sanborn Map:	209N052
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

C28 **CON EDISON** **RCRA-NonGen** **1014398691**
NNE **E 140TH ST & WALTON AVE** **NYP004210480**
< 1/8 **BRONX, NY 10451**
0.043 mi.
225 ft. **Site 7 of 17 in cluster C**

RCRA-NonGen:

Date form received by agency:	07/04/2010
Facility name:	CON EDISON
Facility address:	E 140TH ST & WALTON AVE BRONX, NY 10451
EPA ID:	NYP004210480
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	DENNIS MICHAELIDES
Contact address:	Not reported Not reported
Contact country:	Not reported

CON EDISON (Continued) **1014398691**

Contact telephone: (718) 204-4297
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

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

Violation Status: No violations found

C29 **LOT 1,TAXBLOCK 2344** **E DESIGNATION** **S109942108**
ESE **261 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.044 mi.
233 ft. **Site 8 of 17 in cluster C**

E DESIGNATION:
Tax Lot(s): 1
E-No: E-227
Effective Date: 6/30/2009
Satisfaction Date: Not reported
Ceqr Number: 08DCP071X
Ulurp Number: 090303ZMX
Zoning Map No: 6a
Description: Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code: BX
Community District: 201
Census Tract: 57
Census Block: 2009
School District: 07
City Council District: 17
Fire Company: L017
Health Area: 23
Police Precinct: 040
Zone District 1: M1-2
Zone District 2: Not reported
Commercial Overlay1: Not reported
Commercial Overlay2: Not reported
Special Purpose District1: Not reported
Special Purpose District2: Not reported
All Components1: M1-2
All Components2: Not reported

LOT 1,TAXBLOCK 2344 (Continued) **S109942108**

Split Boundary Indicator:	N
Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	SIEGEL MARVIN
Lot Area:	000010453
Total Building Floor Area:	00000007200
Commercial Floor Area:	00000007200
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000007200
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0020.08
Lot Depth:	0198.75
Building Frontage:	0081.50
Building Depth:	0125.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000056700
Total Assessed Value:	00000125550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1997
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.69
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003585
Y Coordinate:	0235778
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005

LOT 1,TAXBLOCK 2344 (Continued) **S109942108**

Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	SIEGEL MARVIN
Lot Area:	000010453
Total Building Floor Area:	00000007200
Commercial Floor Area:	00000007200
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000007200
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0020.08
Lot Depth:	0198.75
Building Frontage:	0081.50
Building Depth:	0125.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000056700

LOT 1,TAXBLOCK 2344 (Continued) **S109942108**

Total Assessed Value:	00000125550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1997
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.69
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003585
Y Coordinate:	0235778
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N

LOT 1,TAXBLOCK 2344 (Continued) **S109942108**

Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	SIEGEL MARVIN
Lot Area:	000010453
Total Building Floor Area:	00000007200
Commercial Floor Area:	00000007200
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000007200
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0020.08
Lot Depth:	0198.75
Building Frontage:	0081.50
Building Depth:	0125.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000056700
Total Assessed Value:	00000125550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1997
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.69
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003585
Y Coordinate:	0235778
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005

LOT 1,TAXBLOCK 2344 (Continued) **S109942108**

Pluto-Base Map Indicator:	1
Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F4
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	SIEGEL MARVIN
Lot Area:	000010453
Total Building Floor Area:	00000007200
Commercial Floor Area:	00000007200
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000007200
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0020.08
Lot Depth:	0198.75
Building Frontage:	0081.50
Building Depth:	0125.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000056700
Total Assessed Value:	00000125550

LOT 1,TAXBLOCK 2344 (Continued) **S109942108**

Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1997
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.69
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003585
Y Coordinate:	0235778
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

B30 **MAJOR DEEGAN EXPWY/BX** **NY Spills** **S102145398**
SW **MAJOR DEEGAN EXPWY/E 138** **NY Hist Spills** **N/A**
< 1/8 **NEW YORK CITY, NY**
0.045 mi.
237 ft. **Site 8 of 10 in cluster B**

NY Spills:

Site ID:	215915
Facility Addr2:	Not reported
Facility ID:	8903460
Spill Number:	8903460
Facility Type:	ER
SWIS:	0301
Investigator:	JAMES
Referred To:	Not reported
Spill Date:	7/5/1989
Reported to Dept:	7/5/1989
CID:	Not reported
Spill Cause:	Traffic Accident
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Notifier:	Local Agency
Cleanup Ceased:	7/5/1989
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported

MAJOR DEEGAN EXPWY/BX (Continued) **S102145398**

Spill Closed Dt:	7/5/1989
Remediation Phase:	0
Date Entered In Computer:	7/6/1989
Spill Record Last Update:	9/30/2004
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	178771
DEC Memo:	Not reported
Remarks:	TRACTOR TRAILER ACCIDENT, DEP ENROUTE TO SCENE, DEP TO SUPERVISE CLEAN UP OF SPILL.

Material:

Site ID:	215915
Operable Unit ID:	928882
Operable Unit:	01
Material ID:	447549
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	80
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	8903460
Investigator:	JAMES
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/05/1989 13:30
Reported to Dept Date/Time:	07/05/89 14:15

MAJOR DEEGAN EXPWY/BX (Continued) **S102145398**

SWIS:	60
Spiller Name:	Not reported
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Traffic Accident
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	08
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	07/05/89
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	07/05/89
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/06/89
Date Spill Entered In Computer Data File:	Not reported
Update Date:	/ /
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	80
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	UNKNOWN PETROLEUM
Class Type:	UNKNOWN PETROLEUM
Times Material Entry In File:	16414
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	TRACTOR TRAILER ACCIDENT, DEP ENROUTE TO SCENE, DEP TO SUPERVISE CLEAN UP OF SPILL.

E31 **725 EXTERIOR ST** **NY Spills** **S103570832**
NW **725 EXTERIOR ST** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.045 mi.
239 ft. **Site 4 of 9 in cluster E**

NY Spills:

Site ID:	98330
Facility Addr2:	Not reported
Facility ID:	9703953
Spill Number:	9703953
Facility Type:	ER
SWIS:	0301
Investigator:	CAENGELH
Referred To:	Not reported
Spill Date:	7/1/1997
Reported to Dept:	7/1/1997
CID:	211
Spill Cause:	Other
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	2/28/2003
Remediation Phase:	0
Date Entered In Computer:	7/1/1997
Spill Record Last Update:	2/28/2003
Spiller Name:	FRANK MASSERIA
Spiller Company:	CON ED
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003
Spiller Company:	001
Contact Name:	FRANK MASSERIA
Contact Phone:	(212) 580-6764
DEC Region:	2
DER Facility ID:	87496
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ENGELHARDT" e2mis 108859 AT 13:30 HRS I&A MECH ADAM SEPOVODA REPORTED TO HISSUPERVISOR THAT OIL FROM A 5 GALLON COCTAIL DRUM WHICH WAS APROX 2/3 FULL HAD SPILLED ABOUT 3 GALLONS ONTO BACK OF TRUCK AND PAVEMENT WHEN TRUCK WENT OVER A BUMP IN THE ROAD. SUPERVISOR NOTIFED HER DISPATCHER OF INCIDENT AND GAVE INFORMATION TO HER DISPATCHER TO ENTER ON INCIDENT REPORT. I&A DISPATCHER THEN NOTIFIED THE CONTROL CENTER OF INCIDENT WHICH WAS AT 1410 HRS. AT THAT TIME INFORMATION ON THE FORM WAS REVIEWED AND CIG NOTIFICATION WAS ATTEMPED. NO ANSWER TO PHONE. CREW WAS PERFORMING CLEAN UP UNDER ASSUMPTION THAT DRUM CONTENTS WERE BETWEEN 50 AND 499 PPM. R FURINO 52437 1/JUL 1997 RESULTS RECIEVED 97-07866 8 PPM
Remarks:	PRODUCT CONTAINS 50 PPM PCB'S - TRUCK WAS TRANSPORTING PRODUCT WHEN CONTAINER TIPPED CAUSING PRODUCT TO SPILL ON ROADWAY - CLEAN UP CREW ON SCENE

Material:

Site ID:	98330

725 EXTERIOR ST (Continued) **S103570832**

Operable Unit ID:	1049844
Operable Unit:	01
Material ID:	333226
Material Code:	0020A
Material Name:	TRANSFORMER OIL
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	3
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9703953
Investigator:	ENGELHARDT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/01/1997 13:30
Reported to Dept Date/Time:	07/01/97 15:59
SWIS:	60
Spiller Name:	CON ED
Spiller Contact:	FRANK MASSERIA
Spiller Phone:	(212) 580-6764
Spiller Contact:	FRANK MASSERIA
Spiller Phone:	(212) 580-6764
Spiller Address:	4 IRVING PLACE
Spiller City,St,Zip:	MANHATTAN, NY 10003-
Spill Cause:	Other
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	07
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

725 EXTERIOR ST (Continued) **S103570832**

Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 07/01/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 07/02/97
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 3
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: TRANSFORMER OIL
Class Type: TRANSFORMER OIL
Times Material Entry In File: 533
CAS Number: Not reported
Last Date: 19940926
DEC Remarks: Not reported
Remark: PRODUCT CONTAINS 50 PPM PCB S - TRUCK WAS TRANSPORTING PRODUCT WHEN CONTAINER TIPPED CAUSING PRODUCT TO SPILL ON ROADWAY - CLEAN UP CREW ON SCENE

B32 **GRAND CONCOUR/CARROLL PL.** **LTANKS** **S100494202**
SE **118 GRAND CONCOURSE** **HIST LTANKS** **N/A**
< 1/8 **BRONX, NY**
0.053 mi.
278 ft. **Site 9 of 10 in cluster B**

LTANKS:
Site ID: 255100
Spill No: 9208519
Spill Date: 10/22/1992
Spill Cause: Tank Failure
Spill Source: Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 3/20/2003
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: MITCHELL
Referred To: Not reported

GRAND CONCOUR/CARROLL PL. (Continued) **S100494202**

Reported to Dept:	10/23/1992
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	10/27/1992
Spill Record Last Update:	3/20/2003
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	208955
DEC Memo:	Not reported
Remarks:	DURING TANK PULL CONTAMINATED SOIL DISCOVERED-SPILL SETS ON CLAY & ROCK-5K TANK MAY HAVE WEAK SEAM -TANK GONE-STOCKPILED, TESTED & DISPOSE- NEW ADDRESS:118 GRAND CONCOURSE,BRONX,10456

Material:

Site ID:	255100
Operable Unit ID:	972057
Operable Unit:	01
Material ID:	405611
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9208519

GRAND CONCOUR/CARROLL PL. (Continued) **S100494202**

Spill Date:	10/22/1992
Spill Time:	12:01
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	MITCHELL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	10/23/92
Reported to Department Time:	15:04
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/27/92
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/09/98
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum

GRAND CONCOUR/CARROLL PL. (Continued) **S100494202**

Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Pounds
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: DURING TANK PULL CONTAMINATED SOIL DISCOVERED-SPILL SETS ON CLAY ROCK-5K TANK MAY HAVE WEAK SEAM -TANK GONE-STOCKPILED, TESTED DISPOSE- NEW ADDRESS:118 GRAND CONCOURSE,BRONX,10456

E33 **NY Spills** **S104648050**
NW **745 EXTERIOR ST** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.053 mi.
279 ft. **Site 5 of 9 in cluster E**

NY Spills:
Site ID: 110081
Facility Addr2: Not reported
Facility ID: 9809111
Spill Number: 9809111
Facility Type: ER
SWIS: 0301
Investigator: MMMULQUE
Referred To: Not reported
Spill Date: 10/21/1998
Reported to Dept: 10/21/1998
CID: 199
Spill Cause: Deliberate
Water Affected: EAST RIVER
Spill Source: Commercial/Industrial
Spill Notifier: Other
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt: 2/13/2003
Remediation Phase: 0
Date Entered In Computer: 10/21/1998
Spill Record Last Update: 2/13/2003
Spiller Name: Not reported
Spiller Company: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: ***Update***, ZZ
Spiller Company: 001
Contact Name: LESTER WORRELL
Contact Phone: (718) 401-8594
DEC Region: 2
DER Facility ID: 96519
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was

(Continued) **S104648050**

"MULQUEEN" Faxed To Hazmatcopy To Div. Of Water,
Eco'S02/13/2003-Closed Due To The Nature / Extent Of The Spill Report.
Not reported

Remarks: CALLER STATES THE RECYCLING COMPANY DOSENT EVEN HAVE PERMITS TO WORK - AND THEY ARE RCV'ING MATERALS - THEY ARE DUMPING A LOT OF THE ITEMS IN THE EAST RIVER - THIS MORNING THEY DUMPED AT LEAST 4 20+ GALLONS OF UNK MATERAL IN THE RIVER

Material:

Site ID:	110081
Operable Unit ID:	1066394
Operable Unit:	01
Material ID:	316576
Material Code:	0063A
Material Name:	UNKNOWN HAZARDOUS MATERIAL
Case No.:	Not reported
Material FA:	Hazardous Material
Quantity:	100
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9809111
Investigator:	MULQUEEN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/21/1998 11:30
Reported to Dept Date/Time:	10/21/98 13:17
SWIS:	60
Spiller Name:	Not reported
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Contact:	LESTER WORRELL
Spiller Phone:	(718) 401-8594
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Deliberate

(Continued) **S104648050**

Reported to Dept: Surface Water
Water Affected: EAST RIVER
Spill Source: 01
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Unable/unwilling Responsible Party. Corrective action taken. (ISR)
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 10/21/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 10/23/98
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Nonpetroleum/Nonhazardous
Quantity Spilled: 100
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: UNKNOWN HAZARDOUS MATERIAL
Class Type: UNKNOWN HAZARDOUS MATERIAL
Times Material Entry In File: 2093
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: FAXED TO HAZMAT COPY TO DIV. OF WATER, ECO S
Remark: CALLER STATES THE RECYCLING COMPANY DOSENT EVEN HAVE PERMITS TO WORK - AND THEY ARE RCV ING MATERALS - THEY ARE DUMPING A LOT OF THE ITEMS IN THE EAST RIVER - THIS MORNING THEY DUMPED AT LEAST 4 20+ GALLONS OF UNK MATERAL IN THE RIVER

D34 **LOT 43,TAXBLOCK 2323** **E DESIGNATION** **S109942582**
WSW **110 EAST 138 STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.053 mi.
281 ft. **Site 4 of 4 in cluster D**

E DESIGNATION:

Tax Lot(s):	43
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	53.01
Census Block:	9036
School District:	07
City Council District:	17
Fire Company:	E060
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	L9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RYDAN REALTY, INC.
Lot Area:	000038344
Total Building Floor Area:	00000030284
Commercial Floor Area:	00000030284
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000030284
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0134.50
Lot Depth:	0285.08
Building Frontage:	0134.00
Building Depth:	0113.00
Proximity Code:	0
Irregular Lot Code:	N

LOT 43,TAXBLOCK 2323 (Continued) **S109942582**

Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000078750
Total Assessed Value:	00000288000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1957
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.79
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023230043
Condominium Number:	00000
Census Tract 2:	005301
X Coordinate:	1003101
Y Coordinate:	0235698
Zoning Map:	06A
Sanborn Map:	209S003
Tax Map:	20902
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	43
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	53.01
Census Block:	9036
School District:	07
City Council District:	17
Fire Company:	E060
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported

LOT 43,TAXBLOCK 2323 (Continued) **S109942582**

All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	L9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RYDAN REALTY, INC.
Lot Area:	000038344
Total Building Floor Area:	00000030284
Commercial Floor Area:	00000030284
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000030284
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0134.50
Lot Depth:	0285.08
Building Frontage:	0134.00
Building Depth:	0113.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000078750
Total Assessed Value:	00000288000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1957
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.79
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023230043
Condominium Number:	00000
Census Tract 2:	005301
X Coordinate:	1003101
Y Coordinate:	0235698
Zoning Map:	06A
Sanborn Map:	209S003
Tax Map:	20902
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 43,TAXBLOCK 2323 (Continued) **S109942582**

Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	43
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	53.01
Census Block:	9036
School District:	07
City Council District:	17
Fire Company:	E060
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	L9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RYDAN REALTY, INC.
Lot Area:	000038344
Total Building Floor Area:	00000030284
Commercial Floor Area:	00000030284
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000030284
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0134.50
Lot Depth:	0285.08
Building Frontage:	0134.00
Building Depth:	0113.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3

LOT 43,TAXBLOCK 2323 (Continued) **S109942582**

Basement Type Grade:	5
Land Assessed Value:	00000078750
Total Assessed Value:	00000288000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1957
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.79
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023230043
Condominium Number:	00000
Census Tract 2:	005301
X Coordinate:	1003101
Y Coordinate:	0235698
Zoning Map:	06A
Sanborn Map:	209S003
Tax Map:	20902
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	43
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	53.01
Census Block:	9036
School District:	07
City Council District:	17
Fire Company:	E060
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1

LOT 43,TAXBLOCK 2323 (Continued) **S109942582**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	L9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	RYDAN REALTY, INC.
Lot Area:	000038344
Total Building Floor Area:	00000030284
Commercial Floor Area:	00000030284
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000030284
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0134.50
Lot Depth:	0285.08
Building Frontage:	0134.00
Building Depth:	0113.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000078750
Total Assessed Value:	00000288000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1957
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.79
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023230043
Condominium Number:	00000
Census Tract 2:	005301
X Coordinate:	1003101
Y Coordinate:	0235698
Zoning Map:	06A
Sanborn Map:	209S003
Tax Map:	20902
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 43,TAXBLOCK 2323 (Continued) **S109942582**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

F35 **LOT 6,TAXBLOCK 2341** **E DESIGNATION** **S109942698**
ESE **250 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.056 mi.
296 ft. **Site 1 of 2 in cluster F**

E DESIGNATION:

Tax Lot(s):	6
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CORNER 138 ST. INC
Lot Area:	000014300
Total Building Floor Area:	00000013206
Commercial Floor Area:	00000013206
Office Floor Area:	00000013206
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0142.00

LOT 6,TAXBLOCK 2341 (Continued) **S109942698**

Lot Depth:	0089.75
Building Frontage:	0141.33
Building Depth:	0106.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000067500
Total Assessed Value:	00000322650
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	Not reported
Year Altered1:	1997
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.92
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410006
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003788
Y Coordinate:	0235574
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	6
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2

LOT 6,TAXBLOCK 2341 (Continued) **S109942698**

Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CORNER 138 ST. INC
Lot Area:	000014300
Total Building Floor Area:	00000013206
Commercial Floor Area:	00000013206
Office Floor Area:	00000013206
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0142.00
Lot Depth:	0089.75
Building Frontage:	0141.33
Building Depth:	0106.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000067500
Total Assessed Value:	00000322650
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	Not reported
Year Altered1:	1997
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.92
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410006
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003788
Y Coordinate:	0235574
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported

LOT 6,TAXBLOCK 2341 (Continued) **S109942698**

Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	6
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CORNER 138 ST. INC
Lot Area:	000014300
Total Building Floor Area:	00000013206
Commercial Floor Area:	00000013206
Office Floor Area:	00000013206
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0142.00
Lot Depth:	0089.75

LOT 6,TAXBLOCK 2341 (Continued) **S109942698**

Building Frontage:	0141.33
Building Depth:	0106.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000067500
Total Assessed Value:	00000322650
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	Not reported
Year Altered1:	1997
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.92
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410006
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003788
Y Coordinate:	0235574
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	6
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported

LOT 6,TAXBLOCK 2341 (Continued) **S109942698**

Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	CORNER 138 ST. INC
Lot Area:	000014300
Total Building Floor Area:	00000013206
Commercial Floor Area:	00000013206
Office Floor Area:	00000013206
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0142.00
Lot Depth:	0089.75
Building Frontage:	0141.33
Building Depth:	0106.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000067500
Total Assessed Value:	00000322650
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	Not reported
Year Altered1:	1997
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.92
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410006
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003788
Y Coordinate:	0235574
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005

LOT 6,TAXBLOCK 2341 (Continued) **S109942698**

Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

F36 **LOT 10,TAXBLOCK 2341** **E DESIGNATION** **S109942154**
ESE **276 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.060 mi.
317 ft. **Site 2 of 2 in cluster F**

E DESIGNATION:

Tax Lot(s):	10
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	HUGGINS,BENJAMIN
Lot Area:	000031900
Total Building Floor Area:	00000008900
Commercial Floor Area:	00000008900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000008900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7

LOT 10,TAXBLOCK 2341 (Continued) **S109942154**

Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0222.00
Lot Depth:	0090.00
Building Frontage:	0078.00
Building Depth:	0028.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000194400
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.28
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410010
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003903
Y Coordinate:	0235741
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	10
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07

LOT 10,TAXBLOCK 2341 (Continued) **S109942154**

City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	HUGGINS,BENJAMIN
Lot Area:	000031900
Total Building Floor Area:	00000008900
Commercial Floor Area:	00000008900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000008900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0222.00
Lot Depth:	0090.00
Building Frontage:	0078.00
Building Depth:	0028.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000194400
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.28
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410010
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003903

LOT 10,TAXBLOCK 2341 (Continued) **S109942154**

Y Coordinate:	0235741
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	10
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	HUGGINS,BENJAMIN
Lot Area:	000031900
Total Building Floor Area:	00000008900
Commercial Floor Area:	00000008900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000008900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001

LOT 10,TAXBLOCK 2341 (Continued) **S109942154**

Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0222.00
Lot Depth:	0090.00
Building Frontage:	0078.00
Building Depth:	0028.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000194400
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.28
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410010
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003903
Y Coordinate:	0235741
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	10
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17

LOT 10,TAXBLOCK 2341 (Continued) **S109942154**

Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	HUGGINS,BENJAMIN
Lot Area:	000031900
Total Building Floor Area:	00000008900
Commercial Floor Area:	00000008900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000008900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00003
Lot Frontage:	0222.00
Lot Depth:	0090.00
Building Frontage:	0078.00
Building Depth:	0028.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000194400
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1966
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.28
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410010
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003903
Y Coordinate:	0235741

LOT 10,TAXBLOCK 2341 (Continued) **S109942154**

Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

C37 **WALTON AVE-138 & 140TH ST** **NY Spills** **S102148505**
NE **WALTON AVE-138 & 140TH ST** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.063 mi.
331 ft. **Site 9 of 17 in cluster C**

NY Spills:

Site ID:	129666
Facility Addr2:	Not reported
Facility ID:	9405257
Spill Number:	9405257
Facility Type:	ER
SWIS:	0301
Investigator:	SMMARTIN
Referred To:	Not reported
Spill Date:	7/18/1994
Reported to Dept:	7/18/1994
CID:	Not reported
Spill Cause:	Abandoned Drums
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Local Agency
Cleanup Ceased:	7/18/1994
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	No spill occured. (Not Possible)
Spill Closed Dt:	7/18/1994
Remediation Phase:	0
Date Entered In Computer:	10/6/1994
Spill Record Last Update:	9/30/2004
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	111771
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "MARTINKAT"
Remarks:	DRUM NOT WORKING & HAZMAT WAS NOTIFIED. REFERRED TO DEP

WALTON AVE-138 & 140TH ST (Continued) **S102148505**

Material:

Site ID:	129666
Operable Unit ID:	1002454
Operable Unit:	01
Material ID:	381850
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	55
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9405257
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/18/1994 11:15
Reported to Dept Date/Time:	07/18/94 11:26
SWIS:	60
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Abandoned Drums
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	12
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	07/18/94
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

WALTON AVE-138 & 140TH ST (Continued) **S102148505**

Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: No spill occured. (Not Possible)
Spill Closed Dt: 07/18/94
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 10/06/94
Date Spill Entered In Computer Data File: Not reported
Update Date: / /
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 55
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: UNKNOWN PETROLEUM
Class Type: UNKNOWN PETROLEUM
Times Material Entry In File: 16414
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: DRUM NOT WORKING HAZMAT WAS NOTIFIED. REFERRED TO DEP

C38 **LOT 27,TAXBLOCK 2344** **E DESIGNATION** **S109942387**
ENE **315 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.063 mi.
333 ft. **Site 10 of 17 in cluster C**

E DESIGNATION:
Tax Lot(s): 27
E-No: E-227
Effective Date: 6/30/2009
Satisfaction Date: Not reported
Ceqr Number: 08DCP071X
Ulurp Number: 090303ZMX
Zoning Map No: 6a
Description: Window Wall Attenuation & Alternate Ventilation
Borough Code: BX
Community District: 201
Census Tract: 57
Census Block: 2009
School District: 07
City Council District: 17
Fire Company: L017
Health Area: 23

LOT 27,TAXBLOCK 2344 (Continued) **S109942387**

Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	315 RE CORP
Lot Area:	000016062
Total Building Floor Area:	00000010183
Commercial Floor Area:	00000010183
Office Floor Area:	00000002400
Retail Floor Area:	00000000000
Garage Floor Area:	00000007783
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0173.08
Lot Depth:	0077.08
Building Frontage:	0034.00
Building Depth:	0040.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000098550
Total Assessed Value:	00000400500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1999
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.63
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440027
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003808
Y Coordinate:	0236084
Zoning Map:	06A
Sanborn Map:	209N053

LOT 27,TAXBLOCK 2344 (Continued) **S109942387**

Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	27
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	315 RE CORP
Lot Area:	000016062
Total Building Floor Area:	00000010183
Commercial Floor Area:	00000010183
Office Floor Area:	00000002400
Retail Floor Area:	00000000000
Garage Floor Area:	00000007783
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000

LOT 27,TAXBLOCK 2344 (Continued) **S109942387**

Non and Residential Units:	00001
Lot Frontage:	0173.08
Lot Depth:	0077.08
Building Frontage:	0034.00
Building Depth:	0040.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000098550
Total Assessed Value:	00000400500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1999
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.63
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440027
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003808
Y Coordinate:	0236084
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	27
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23

LOT 27,TAXBLOCK 2344 (Continued) **S109942387**

Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	315 RE CORP
Lot Area:	000016062
Total Building Floor Area:	00000010183
Commercial Floor Area:	00000010183
Office Floor Area:	00000002400
Retail Floor Area:	00000000000
Garage Floor Area:	00000007783
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0173.08
Lot Depth:	0077.08
Building Frontage:	0034.00
Building Depth:	0040.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000098550
Total Assessed Value:	00000400500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1999
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.63
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440027
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003808
Y Coordinate:	0236084
Zoning Map:	06A
Sanborn Map:	209N053

LOT 27,TAXBLOCK 2344 (Continued) **S109942387**

Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	27
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	315 RE CORP
Lot Area:	000016062
Total Building Floor Area:	00000010183
Commercial Floor Area:	00000010183
Office Floor Area:	00000002400
Retail Floor Area:	00000000000
Garage Floor Area:	00000007783
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001

LOT 27,TAXBLOCK 2344 (Continued) **S109942387**

Lot Frontage:	0173.08
Lot Depth:	0077.08
Building Frontage:	0034.00
Building Depth:	0040.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000098550
Total Assessed Value:	00000400500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	1999
Year Altered2:	2002
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.63
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440027
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003808
Y Coordinate:	0236084
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

C39 **BOULEVARD CAR WASH OF N.Y. INC.** **UST** **U004078584**
ENE **315 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.063 mi.
333 ft. **Site 11 of 17 in cluster C**

UST:

Facility Id:	2-402877
Region:	STATE
DEC Region:	2
Site Status:	Active
Program Type:	PBS
Expiration Date:	2015/02/08
UTM X:	590360.02781999996
UTM Y:	4518727.0963300001

Affiliation Records:

Site Id:	19315

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

Affiliation Type:	Emergency Contact
Company Name:	JOHN LAGE
Contact Type:	Not reported
Contact Name:	SERGIO SANTOS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(914) 637-3895
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/9/2005

Site Id:	19315
Affiliation Type:	Owner
Company Name:	JOHN LAGE
Contact Type:	PRESIDENT
Contact Name:	JOHN LAGE
Address1:	4391 BOSTON POST RD.
Address2:	Not reported
City:	PELHAM MANOR
State:	NY
Zip Code:	10803
Country Code:	001
Phone:	(914) 637-3895
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	3/11/2009

Site Id:	19315
Affiliation Type:	On-Site Operator
Company Name:	BOULEVARD CAR WASH OF N.Y. INC.
Contact Type:	Not reported
Contact Name:	ARI KAHALANI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 585-9162
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/8/2005

Site Id:	19315
Affiliation Type:	Mail Contact
Company Name:	BOULEVARD CAR WASH OF N.Y. INC.
Contact Type:	Not reported

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

Contact Name:	SERGIO SANTOS
Address1:	4391 BOSTON POST RD.
Address2:	Not reported
City:	PELHAM MANOR
State:	NY
Zip Code:	10803
Country Code:	001
Phone:	(914) 637-3895
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/8/2005

Equipment Records:

F06 - Pipe External Protection - Wrapped
A01 - Tank Internal Protection - Epoxy Liner
K02 - Spill Prevention - Transfer Station Containment
J03 - Dispenser - Gravity
I04 - Overfill - Product Level Gauge (A/G)
B01 - Tank External Protection - Painted/Asphalt Coating
I02 - Overfill - High Level Alarm
H05 - Tank Leak Detection - In-Tank System (ATG)
A99 - Tank Internal Protection - Other
F02 - Pipe External Protection - Original Sacrificial Anode
A01 - Tank Internal Protection - Epoxy Liner
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
C01 - Pipe Location - Aboveground
G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
J03 - Dispenser - Gravity
B02 - Tank External Protection - Original Sacrificial Anode
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
A99 - Tank Internal Protection - Other
C01 - Pipe Location - Aboveground
C01 - Pipe Location - Aboveground
K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
J03 - Dispenser - Gravity
F02 - Pipe External Protection - Original Sacrificial Anode
G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
C02 - Pipe Location - Underground/On-ground
K01 - Spill Prevention - Catch Basin
B02 - Tank External Protection - Original Sacrificial Anode
B02 - Tank External Protection - Original Sacrificial Anode
B01 - Tank External Protection - Painted/Asphalt Coating
A01 - Tank Internal Protection - Epoxy Liner
I04 - Overfill - Product Level Gauge (A/G)
I02 - Overfill - High Level Alarm
F02 - Pipe External Protection - Original Sacrificial Anode
I04 - Overfill - Product Level Gauge (A/G)

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
A01 - Tank Internal Protection - Epoxy Liner
J03 - Dispenser - Gravity
C02 - Pipe Location - Underground/On-ground
H05 - Tank Leak Detection - In-Tank System (ATG)
H05 - Tank Leak Detection - In-Tank System (ATG)
I04 - Overfill - Product Level Gauge (A/G)
H05 - Tank Leak Detection - In-Tank System (ATG)
K02 - Spill Prevention - Transfer Station Containment
F02 - Pipe External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
F06 - Pipe External Protection - Wrapped
H05 - Tank Leak Detection - In-Tank System (ATG)
K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
B02 - Tank External Protection - Original Sacrificial Anode
H05 - Tank Leak Detection - In-Tank System (ATG)
K02 - Spill Prevention - Transfer Station Containment
I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
G00 - Tank Secondary Containment - None
B02 - Tank External Protection - Original Sacrificial Anode
K02 - Spill Prevention - Transfer Station Containment
F02 - Pipe External Protection - Original Sacrificial Anode
B02 - Tank External Protection - Original Sacrificial Anode
A99 - Tank Internal Protection - Other
A99 - Tank Internal Protection - Other
I04 - Overfill - Product Level Gauge (A/G)
C01 - Pipe Location - Aboveground
A99 - Tank Internal Protection - Other
A99 - Tank Internal Protection - Other
A99 - Tank Internal Protection - Other
E00 - Piping Secondary Containment - None
H05 - Tank Leak Detection - In-Tank System (ATG)
K01 - Spill Prevention - Catch Basin
K01 - Spill Prevention - Catch Basin
B02 - Tank External Protection - Original Sacrificial Anode
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
G01 - Tank Secondary Containment - Diking (Aboveground)
K01 - Spill Prevention - Catch Basin
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
G01 - Tank Secondary Containment - Diking (Aboveground)
G01 - Tank Secondary Containment - Diking (Aboveground)
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
F02 - Pipe External Protection - Original Sacrificial Anode
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
G01 - Tank Secondary Containment - Diking (Aboveground)
G01 - Tank Secondary Containment - Diking (Aboveground)

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

F02 - Pipe External Protection - Original Sacrificial Anode
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
F02 - Pipe External Protection - Original Sacrificial Anode
J02 - Dispenser - Suction
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
F02 - Pipe External Protection - Original Sacrificial Anode
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
E00 - Piping Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
B01 - Tank External Protection - Painted/Asphalt Coating
F02 - Pipe External Protection - Original Sacrificial Anode
K02 - Spill Prevention - Transfer Station Containment
F06 - Pipe External Protection - Wrapped
I04 - Overfill - Product Level Gauge (A/G)
K01 - Spill Prevention - Catch Basin
J02 - Dispenser - Suction
A01 - Tank Internal Protection - Epoxy Liner
C01 - Pipe Location - Aboveground
J03 - Dispenser - Gravity
C02 - Pipe Location - Underground/On-ground
A99 - Tank Internal Protection - Other
H05 - Tank Leak Detection - In-Tank System (ATG)
I04 - Overfill - Product Level Gauge (A/G)
B02 - Tank External Protection - Original Sacrificial Anode
G00 - Tank Secondary Containment - None
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
I99 - Overfill - Other
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring

Tank Info:

Site ID:	19315
Tank Number:	001
Tank ID:	22923
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	4000
Tightness Test Method:	21
Next Test Date:	Not reported

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	002
Tank ID:	22924
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	4000
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	003
Tank ID:	22925
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	550
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	004
Tank ID:	22926
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	550
Tightness Test Method:	21
Next Test Date:	Not reported

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	005
Tank ID:	22927
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	550
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	006
Tank ID:	22928
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	550
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	007
Tank ID:	22929
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	550
Tightness Test Method:	21
Next Test Date:	Not reported

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **U004078584**

Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	19315
Tank Number:	008
Tank ID:	22930
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	550
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	12/17/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

C40 **ABANDONED GAS STATION** **NY Spills** **S105236853**
ENE **315 GRAND CONCOURSE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.063 mi.
333 ft. **Site 12 of 17 in cluster C**

NY Spills:

Site ID:	295076
Facility Addr2:	Not reported
Facility ID:	0109527
Spill Number:	0109527
Facility Type:	ER
SWIS:	0301
Investigator:	MXTIPPLE
Referred To:	Not reported
Spill Date:	12/29/2001
Reported to Dept:	12/29/2001
CID:	211
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Citizen
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/31/2001
Remediation Phase:	0

ABANDONED GAS STATION (Continued) **S105236853**

Date Entered In Computer: 12/29/2001
Spill Record Last Update: 1/3/2002
Spiller Name: Not reported
Spiller Company: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: ***Update***, ZZ
Spiller Company: 001
Contact Name: FRANK CHEZ
Contact Phone: (718) 409-9416
DEC Region: 2
DER Facility ID: 238772
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIPPLE/SIGONA" 12/29/2001 site visit revealed tank excavation in progress. Sigona is project manager for spill#99-09720 same spill, same site.
Remarks: CALLER STATES COMPANY ON SITE OF ABANDONED GAS STATION EXCAVATING UST AND THERE IS A STRONG SMELL OF GASOLINE COMING FROM HOLE

Material:
Site ID: 295076
Operable Unit ID: 846804
Operable Unit: 01
Material ID: 527185
Material Code: 0009
Material Name: Gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: 0
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

NY Hist Spills:
Region of Spill: 2
Spill Number: 0109527
Investigator: TIPPLE/SIGONA
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 12/29/2001 11:45

ABANDONED GAS STATION (Continued) **S105236853**

Reported to Dept Date/Time: 12/29/01 12:18
SWIS: 60
Spiller Name: Not reported
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Contact: FRANK CHEZ
Spiller Phone: (718) 409-9416
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 05
Spill Notifier: Citizen
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/31/01
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 12/29/01
Date Spill Entered In Computer Data File: Not reported
Update Date: 01/03/02
Is Updated: True

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: 12/29/2001 site visit revealed tank excavation in progress. Sigona is project manager for spill 99-09720 same spill, same site.
Remark: CALLER STATES COMPANY ON SITE OF ABANDONED GAS STATION EXCAVATING UST AND THERE IS A STRONG SMELL OF GASOLINE COMING FROM HOLE

C41 **FORMER CITYGAS/LAGE CAR WASH** **NY Spills** **S104283898**
ENE **315 GRAND CONCOURSE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY 10451**
0.063 mi.
333 ft. **Site 13 of 17 in cluster C**

NY Spills:

Site ID:	295077
Facility Addr2:	Not reported
Facility ID:	9909720
Spill Number:	9909720
Facility Type:	ER
SWIS:	0301
Investigator:	AXDORONO
Referred To:	UST CLOSURE REPORT IS DUE
Spill Date:	11/10/1999
Reported to Dept:	11/10/1999
CID:	252
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	Not Closed
Remediation Phase:	1
Date Entered In Computer:	11/10/1999
Spill Record Last Update:	10/26/2010
Spiller Name:	Not reported
Spiller Company:	315 GRAND CONCOURSE
Spiller Address:	315 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	999
Contact Name:	MR LAGE
Contact Phone:	(914) 793-5201
DEC Region:	2
DER Facility ID:	349663
DEC Memo:	PBS 2-402877 On December 8, 1999, DEC Sigona called S & W and spoke to Ms. Antoinette Day, who would leave a message for Scott Grahm. DEC Requested a copy of site assessment provided mailing address to S & W. 1/7/04 Reassigned from Sigona to K Foley. Formerly Citygas station. (KMF) 3/22/06 Reassigned from Foley to Tang.(KMF) 12/20/06: This spill is transferred from Mr. Koon Tang to Q.Abidi. Called Mr. Lage (914)793-5201 and left message to call me back regarding information of the spill. -QA 03/05/07: Called at (914)793-5201, They don't know about S & W Company and they don't have any clue for this spill. -QA 04/03/07: Called Mr. lage at (914)793-5201 he was not available left message to call me back. -QA 07/11/07: Called Mr. John Lage (owner) at (915)637-3895 to discuss regarding present status of the spill. He was not there talked to Mr. Tony Ribeiro, Office Manager (Lage Management Corporation) he said he has already done Phase 1 and Phase 2 and he said he will send me the reports. -QA 08/30/07: Called Mr. John Lage (owner) at (914)637-3895 for Phase 1 and Phase 2 report. He was not there left message to call me back.

FORMER CITYGAS/LAGE CAR WASH (Continued) **S104283898**

-QA 09/06/07: Called Mr. John Lage at (914)637-3895 he was not there, left message to called me back to discuss regarding Phase 1 and Phase 2 report that i did not received. -QA 09/13/07: Called Mr. John Lage (LMC) at (914)637-3895 he was not there. Left message to call me back. -QA 09/17/07: Called Mr. John Lage (LMC) at (914)637-3895 He was not there. Left message to call me back. -QA 09/21/07: Called Mr. John Lage (LMC) to discuss regarding spill. He was not there left message to call me back. -QA 10/05/07: Called Mr. John Lage (LMC) to remind him to send Phase 1 and Phase 2 report. He was not there left message to call me back. -QA 06/26/2008: This spill case was transferred to A. Doronova. - AD 11/2008: To find a current owner. To send an INL. AD 12/22/2008: Called and left a message to Mr. Lage's secretary. Found on ACRIS information that Citicorp North America Inc. (Invine, CA)owns the property now. Was given phone number: (212)816-0885 of Particia Brigantic (Office of General Counsel for this company). Called and left a message. AD 12/29/2008: Did not receive any response yet. Called and left messages to Mr. Lage and Ms. Brigantic. AD 04/06/2009: Did not receive any response yet. Called few times. Later spoke with P. Brigantic regarding the spill. She asked me to email her this request, in order to forward it to a person in charge of environmental issues in this company. Sent an email to P. Brigantic. AD 04/08/2009: Received an email from P. Brigantic saying: "Ms. Doronova- I have checked internally here at Citi and this does not relate to any of my clients. I have forwarded this information to the 2 co-heads of Citi's litigation dept. and they will assign it to someone. Thanks and regards, Patricia" AD 04/20/2009: Received a phone call from Preston Turner - Associate General Counsel of Citi Litigation Service Center. He was reffered this case from P. Brigantic. Informed him about site's situation. Mr. Turner will check his files for this property and get back to us. He also asked for time extention to respond on my e-mail, which was granted. AD 04/22/2009: Received an email from P. Tutner of Citi saying: "Dear Ms. Doronova: This e-mail will confirm our telephone conversation wherein I responded to your e-mail originally sent to Patricia Brigantic of Citigroup, Inc. Citigroup North America, Inc. is a separate legal entity, and will respond to your inquiry. This e-mail will confirm that you have extended the date by which Citigroup North America, Inc. must respond to your inquiry to May 20, 2009. Thank you for the accommodation. Preston Turner Associate General Counsel Citi Litigation Service Center 300 St. Paul Place, BSP17D Baltimore, MD 21202 (410) 332-3687 (443) 450-4314 (Facsimile)" AD 05/18/2009: Received an e-mail from P. Turner saying: "Dear Ms. Doronova: This e-mail will respond to the Division of Environmental Remediation's inquiry below related to NYSDEC Spill No. 9909720, and 315 Grand Concourse, Bronx, NY - Block #02344, Lot #0027 (the "Property"). By e-mail dated April 22, 2009, I confirmed with you the extension you granted to Citigroup North America, Inc. to respond to the inquiry by May 20, 2009. I write to advise you that after inquiry, I have determined that Citigroup North America, Inc. ("CNAI") is not an owner of the Property. CNAI is an assignee of a security interest in the Property, but not an owner. According to the records on file with the New York City Department of Finance, the current owner of the Property is: 315 R.E. CORP., a New York Corporation. 315 R.E. CORP. is the owner by virtue of a Deed from the New York City Economic Development Corporation recorded on August 15, 2000. See enclosed ACRIS Search Results for the Property as of April 20, 2009. CNAI is the assignee of a Mortgage as reflected in the

FORMER CITYGAS/LAGE CAR WASH (Continued) **S104283898**

enclosed January 26, 2004 Assignment of Mortgage, which was recorded in the land records on or about July 27, 2004. For your information, the New York Division of Corporations identifies the following information about 315 R.E. CORP.: Principal Executive Office: 4291 Boston Post Road, Pelham Manor, NY 10803. Chairman/CEO: John Lage. I believe 315 R.E. CORP. is represented by Robert Bernstein, Esquire of Scarsdale, NY (914) 472-8455. As Citigroup North America, Inc. is merely an assignee of a security interest in the Property, and not the owner of the Property, CNAI is not in control of the Property, including any current remediation efforts. If you disagree and contend that CNAI is responsible as a person with merely a security interest in the Property, please let me know. Otherwise, I will respectfully consider this inquiry satisfied. Thank you again for the accommodation in extending the response date to your inquiry. I hope the information I have provided you as to the Property's ownership is useful in your future inquiries related tot he Property. Sincerely, Preston Turner Associate General Counsel Citi Litigation Service Center 300 St. Paul Place, BSP17D Baltimore, MD 21202 (410) 332-3687 (443) 450-4314 (Facsimile)" To send an Outstanding Violation letter to the owner: John Lage 315 R.E. CORP.: 4291 Boston Post Road, Pelham Manor, NY 10803 Also, 315 R.E. CORP. is represented by Robert Bernstein, Esquire of Scarsdale, NY (914) 472-8455. Issued and sent an Outstanding Violation letter to Mr. Lage. Response is due June 18, 2009. AD 06/01/2009: Received some documentation from Mr. Lage. Will review. AD 08/19/2009: Reviewed the submited data. It includes: - Tank Removal proposal dated November 9, 1999 from Papitto Construction Co., Inc. addressed to Mr. Lage; - Subsurface investigation report (SIR) dated November 4, 1999 prepared by S&W Services, Inc. addressed to Mr. Vincent Papitto of Papitto Construction Co., Inc. The SIR states that S&W Services completed the investigation at the site on October 21, 1999. The site has one 4,000-gallon UST, one 6,000-gallon UST and forteen 550-gallon USTs. SI included advancement of 14 soil borings around USTs and collection of 14 soil samples for VOCs and SVOCs analysis. Soil boring logs data indicate that the depth to bedrock across the site ranges from approximately 1 foot to 6 feet. VOCs analytical data indicates very highly contaminated areas in the vicinity of soil borings: SB-4, SB-5, SB-7, SB-9, SB-10 and SB-11. High concentrations of SVOCs were found in borings: SB-1, SB-3, SB-4, SB-5, SB-10 and SB-12. The consultant recommended removal of USTs and contaminated fill material. No documentation was submitted on USTs removal. AD 10/29/2009: Searched in PBS base for USTs removal info. This site has PBS# 2-402877. According to PBS Facility Information Report, eight USTs were removed from the site on December 17, 2001. USTs description matches description of the tanks in Tank Removal Proposal from Papitto Construction Co., Inc. To contact Mr. Lage and request submission of the USTs Closure report. AD 01/08/2009: Called and spoke with Mr. Toni Riverra of Boulevard Car Wash and requested to submit USTs closure and removal report. AD 09/07/2010: Called and spoke with Mr. Riverra of Boulevard Car Wash regarding the reports submission. He told me that another Phase I investigation was performed by Hydroteck in 2005. requested to submit Phase I report from 2005 and UST closure report from 2001 till November 7, 2010. AD

Remarks: CAR WASH A WHILE AGO WAS A GAS STATION-SITE ASSESSMENT PERFORMED WHICH SHOWED SOIL TO BE CONTAMINATED.

Material:

Site ID: 295077

FORMER CITYGAS/LAGE CAR WASH (Continued) **S104283898**

Operable Unit ID:	1088402
Operable Unit:	01
Material ID:	298794
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9909720
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	11/10/1999 14:00
Reported to Dept Date/Time:	11/10/99 15:50
SWIS:	60
Spiller Name:	315 GRAND CONSOURSE
Spiller Contact:	Not reported
Spiller Phone:	( ) -
Spiller Contact:	MR LAGE
Spiller Phone:	(914) 793-5201
Spiller Address:	315 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, NY
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	05
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

FORMER CITYGAS/LAGE CAR WASH (Continued) **S104283898**

Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 11/10/99
Date Spill Entered In Computer Data File: Not reported
Update Date: 12/08/99
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: On December 8, 1999, DEC Sigona called S W and spoke to Ms. Antoinette Day, who would leave a message for Scott Grahm. DEC Requested acopy of site assessment provided mailing address to S W.
Remark: CAR WASH A WHILE AGO WAS A GAS STATION-SITE ASSESSMENT PERFORMED WHICH SHOWED SOIL TO BE CONTAMINATED.

C42 **315 GRAND CONCOURSE** **HIST UST** **U003065841**
ENE **315 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.063 mi.
333 ft. **Site 14 of 17 in cluster C**

HIST UST:
PBS Number: 2-402877
SPDES Number: Not reported
Emergency Contact: JOHN LAGE
Emergency Telephone: (914) 793-5200
Operator: JOHN LAGE
Operator Telephone: (914) 793-5200
Owner Name: MR. JOHN LAGE
Owner Address: 36-21 21ST STREET
Owner City,St,Zip: LONG ISLAND CITY, NY 11106
Owner Telephone: (718) 786-6228
Owner Type: Corporate/Commercial
Owner Subtype: Not reported

315 GRAND CONCOURSE (Continued) **U003065841**

Mailing Name:	MR. JOHN LAGE
Mailing Address:	36-21 21ST STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	LONG ISLAND CITY, NY 11106
Mailing Contact:	MR. JOHN LAGE
Mailing Telephone:	(718) 786-6228
Owner Mark:	Third Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	315 GRAND CONCOURSE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	Not reported
Expiration Date:	12/31/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	High Level Alarm, Catch Basin
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False

315 GRAND CONCOURSE (Continued) **U003065841**

Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	4000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	High Level Alarm, Catch Basin
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	Product Level Gauge, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

315 GRAND CONCOURSE (Continued) **U003065841**

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	Product Level Gauge, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	Product Level Gauge, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	006
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed

315 GRAND CONCOURSE (Continued) **U003065841**

Install Date:	20011201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	Product Level Gauge, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	007
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	Product Level Gauge, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	20011201
Capacity (gals):	550
Product Stored:	EMPTY

315 GRAND CONCOURSE (Continued) **U003065841**

Tank Type:	Steel/carbon steel
Tank Internal:	Other
Tank External:	Sacrificial Anode
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	In-tank System
Overfill Prot:	Other
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/17/2001
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

C43 **GRANDOPERATING CORP** **RCRA-NonGen** **1001489342**
ENE **315 GRAND CONCOURSE** **FINDS** **NYU005001326**
< 1/8 **BRONX, NY 10451**
0.063 mi.
333 ft. **Site 15 of 17 in cluster C**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	GRAND OPERATING CORP
Facility address:	315 GRAND CONCOURSE BRONX, NY 10451
EPA ID:	NYU005001326
Mailing address:	N HENRY ST BROOKLYN, NY 11222
Contact:	Not reported
Contact address:	N HENRY ST BROOKLYN, NY 11222
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	NON REGULATED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, NY 99999
Owner/operator country:	US
Owner/operator telephone:	(718) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NON REGULATED

GRAND OPERATING CORP (Continued) **1001489342**

Owner/operator address: NOT REQUIRED
NOT REQUIRED, NY 99999
Owner/operator country: US
Owner/operator telephone: (718) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: GRAND OPERATING CORP
Classification: Not a generator, verified

Date form received by agency: 05/10/1999
Facility name: GRAND OPERATING CORP
Classification: Not a generator, verified

Date form received by agency: 05/10/1999
Facility name: GRAND OPERATING CORP
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 04/06/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

FINDS:

Registry ID: 110009488394

Environmental Interest/Information System
AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of

GRAND OPERATING CORP (Continued) **1001489342**

Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

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

C44 **BOULEVARD CAR WASH OF N.Y. INC.** **AST** **A100293314**
ENE **315 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.063 mi.
333 ft. **Site 16 of 17 in cluster C**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-402877
Program Type:	PBS
UTM X:	590360.02781999996
UTM Y:	4518727.0963300001
Expiration Date:	2015/02/08

Affiliation Records:

Site Id:	19315
Affiliation Type:	Emergency Contact
Company Name:	JOHN LAGE
Contact Type:	Not reported
Contact Name:	SERGIO SANTOS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(914) 637-3895
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/9/2005

Site Id:	19315
Affiliation Type:	Owner
Company Name:	JOHN LAGE
Contact Type:	PRESIDENT
Contact Name:	JOHN LAGE
Address1:	4391 BOSTON POST RD.

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **A100293314**

Address2:	Not reported
City:	PELHAM MANOR
State:	NY
Zip Code:	10803
Country Code:	001
Phone:	(914) 637-3895
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	3/11/2009

Site Id:	19315
Affiliation Type:	On-Site Operator
Company Name:	BOULEVARD CAR WASH OF N.Y. INC.
Contact Type:	Not reported
Contact Name:	ARI KAHALANI
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 585-9162
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/8/2005

Site Id:	19315
Affiliation Type:	Mail Contact
Company Name:	BOULEVARD CAR WASH OF N.Y. INC.
Contact Type:	Not reported
Contact Name:	SERGIO SANTOS
Address1:	4391 BOSTON POST RD.
Address2:	Not reported
City:	PELHAM MANOR
State:	NY
Zip Code:	10803
Country Code:	001
Phone:	(914) 637-3895
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	2/8/2005

Equipment Records:

F06 - Pipe External Protection - Wrapped
A01 - Tank Internal Protection - Epoxy Liner
K02 - Spill Prevention - Transfer Station Containment
J03 - Dispenser - Gravity
I04 - Overfill - Product Level Gauge (A/G)
B01 - Tank External Protection - Painted/Asphalt Coating
I02 - Overfill - High Level Alarm
H05 - Tank Leak Detection - In-Tank System (ATG)

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **A100293314**

A99 - Tank Internal Protection - Other
F02 - Pipe External Protection - Original Sacrificial Anode
A01 - Tank Internal Protection - Epoxy Liner
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
C01 - Pipe Location - Aboveground
G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
J03 - Dispenser - Gravity
B02 - Tank External Protection - Original Sacrificial Anode
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
A99 - Tank Internal Protection - Other
C01 - Pipe Location - Aboveground
C01 - Pipe Location - Aboveground
K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
J03 - Dispenser - Gravity
F02 - Pipe External Protection - Original Sacrificial Anode
G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
C02 - Pipe Location - Underground/On-ground
K01 - Spill Prevention - Catch Basin
B02 - Tank External Protection - Original Sacrificial Anode
B02 - Tank External Protection - Original Sacrificial Anode
B01 - Tank External Protection - Painted/Asphalt Coating
A01 - Tank Internal Protection - Epoxy Liner
I04 - Overfill - Product Level Gauge (A/G)
I02 - Overfill - High Level Alarm
F02 - Pipe External Protection - Original Sacrificial Anode
I04 - Overfill - Product Level Gauge (A/G)
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
A01 - Tank Internal Protection - Epoxy Liner
J03 - Dispenser - Gravity
C02 - Pipe Location - Underground/On-ground
H05 - Tank Leak Detection - In-Tank System (ATG)
H05 - Tank Leak Detection - In-Tank System (ATG)
I04 - Overfill - Product Level Gauge (A/G)
H05 - Tank Leak Detection - In-Tank System (ATG)
K02 - Spill Prevention - Transfer Station Containment
F02 - Pipe External Protection - Original Sacrificial Anode
F02 - Pipe External Protection - Original Sacrificial Anode
F06 - Pipe External Protection - Wrapped
H05 - Tank Leak Detection - In-Tank System (ATG)
K01 - Spill Prevention - Catch Basin
C02 - Pipe Location - Underground/On-ground
B02 - Tank External Protection - Original Sacrificial Anode
H05 - Tank Leak Detection - In-Tank System (ATG)
K02 - Spill Prevention - Transfer Station Containment
I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
G00 - Tank Secondary Containment - None

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **A100293314**

B02 - Tank External Protection - Original Sacrificial Anode
K02 - Spill Prevention - Transfer Station Containment
F02 - Pipe External Protection - Original Sacrificial Anode
B02 - Tank External Protection - Original Sacrificial Anode
A99 - Tank Internal Protection - Other
A99 - Tank Internal Protection - Other
I04 - Overfill - Product Level Gauge (A/G)
C01 - Pipe Location - Aboveground
A99 - Tank Internal Protection - Other
A99 - Tank Internal Protection - Other
A99 - Tank Internal Protection - Other
E00 - Piping Secondary Containment - None
H05 - Tank Leak Detection - In-Tank System (ATG)
K01 - Spill Prevention - Catch Basin
K01 - Spill Prevention - Catch Basin
B02 - Tank External Protection - Original Sacrificial Anode
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
G01 - Tank Secondary Containment - Diking (Aboveground)
K01 - Spill Prevention - Catch Basin
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
G01 - Tank Secondary Containment - Diking (Aboveground)
G01 - Tank Secondary Containment - Diking (Aboveground)
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
F02 - Pipe External Protection - Original Sacrificial Anode
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
G01 - Tank Secondary Containment - Diking (Aboveground)
G01 - Tank Secondary Containment - Diking (Aboveground)
F02 - Pipe External Protection - Original Sacrificial Anode
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
F02 - Pipe External Protection - Original Sacrificial Anode
J02 - Dispenser - Suction
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
F02 - Pipe External Protection - Original Sacrificial Anode
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
E00 - Piping Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
B01 - Tank External Protection - Painted/Asphalt Coating
F02 - Pipe External Protection - Original Sacrificial Anode
K02 - Spill Prevention - Transfer Station Containment
F06 - Pipe External Protection - Wrapped
I04 - Overfill - Product Level Gauge (A/G)

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **A100293314**

K01 - Spill Prevention - Catch Basin
J02 - Dispenser - Suction
A01 - Tank Internal Protection - Epoxy Liner
C01 - Pipe Location - Aboveground
J03 - Dispenser - Gravity
C02 - Pipe Location - Underground/On-ground
A99 - Tank Internal Protection - Other
H05 - Tank Leak Detection - In-Tank System (ATG)
I04 - Overfill - Product Level Gauge (A/G)
B02 - Tank External Protection - Original Sacrificial Anode
G00 - Tank Secondary Containment - None
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
I99 - Overfill - Other
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
L02 - Piping Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring
H02 - Tank Leak Detection - Interstitial - Manual Monitoring

Tank Info:

Tank Number:	67
Tank Id:	181891
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	201
Pipe Model:	Not reported
Install Date:	1/1/2003
Capacity Gallons:	1000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	2/8/2005

Tank Number:	68
Tank Id:	181887
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	201
Pipe Model:	Not reported
Install Date:	1/1/2003
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KXTANG

BOULEVARD CAR WASH OF N.Y. INC. (Continued) **A100293314**

Last Modified:	2/8/2005

Tank Number:	69
Tank Id:	181888
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	201
Pipe Model:	Not reported
Install Date:	1/1/2003
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	2/8/2005

Tank Number:	70
Tank Id:	181889
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	201
Pipe Model:	Not reported
Install Date:	1/1/2003
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	2/8/2005

Tank Number:	71
Tank Id:	181890
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	201
Pipe Model:	Not reported
Install Date:	1/1/2003
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	2/8/2005

G45 **LOT 23,TAXBLOCK 2341** **E DESIGNATION** **S109942354**
East **304 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.063 mi.
334 ft. **Site 1 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	23
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	PHILMAUR INTERIORS IN
Lot Area:	000003660
Total Building Floor Area:	00000003200
Commercial Floor Area:	00000003200
Office Floor Area:	00000003200
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0074.00
Lot Depth:	0090.00
Building Frontage:	0040.00
Building Depth:	0080.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5

LOT 23,TAXBLOCK 2341 (Continued) **S109942354**

Basement Type Grade:	5
Land Assessed Value:	00000034650
Total Assessed Value:	00000076950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1964
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.87
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410023
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003945
Y Coordinate:	0235876
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	23
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 23,TAXBLOCK 2341 (Continued) **S109942354**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O9
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	PHILMAUR INTERIORS IN
Lot Area:	000003660
Total Building Floor Area:	00000003200
Commercial Floor Area:	00000003200
Office Floor Area:	00000003200
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0074.00
Lot Depth:	0090.00
Building Frontage:	0040.00
Building Depth:	0080.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000034650
Total Assessed Value:	00000076950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1964
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.87
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410023
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003945
Y Coordinate:	0235876
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 23,TAXBLOCK 2341 (Continued) **S109942354**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

G46 **310 GRAND CONCOURSE** **NY Spills** **S102663088**
East **310 GRAND CONCOURSE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.065 mi.
343 ft. **Site 2 of 10 in cluster G**

NY Spills:

Site ID:	122751
Facility Addr2:	Not reported
Facility ID:	9702764
Spill Number:	9702764
Facility Type:	ER
SWIS:	0301
Investigator:	SIGONA
Referred To:	Not reported
Spill Date:	6/4/1997
Reported to Dept:	6/4/1997
CID:	999
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Affected Persons
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	7/14/2003
Remediation Phase:	0
Date Entered In Computer:	6/4/1997
Spill Record Last Update:	7/14/2003
Spiller Name:	Not reported
Spiller Company:	STEVEN MARMONCRAFT
Spiller Address:	318 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, NY 10451-
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	106408
DEC Memo:	Not reported
Remarks:	DURING HOT SUMMER DAYS LAST YEAR, NOTICED GASOLINE & DIESEL VAPORS IN THE OPEN LOT. IT HAPPENED AGAIN A FEW WEEKS AGO. GAS STATION CLOSED MORE THAN 9 YEARS AGO. MAYBE 20 YEARS AGO. STEVEN M. IS CURRENT LANDLORD (FROM 5 YEARS) HE PAVED OVER THE LOT & METAL MATES BY TANK.

Material:

Site ID:	122751
Operable Unit ID:	1045498
Operable Unit:	01
Material ID:	335695
Material Code:	0008

310 GRAND CONCOURSE (Continued) **S102663088**

Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False
Site ID:	122751
Operable Unit ID:	1045498
Operable Unit:	01
Material ID:	335696
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9702764
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	06/04/1997
Reported to Dept Date/Time:	06/04/97 11:16
SWIS:	60
Spiller Name:	STEVEN MARMONCRAFT
Spiller Contact:	Not reported
Spiller Phone:	( ) 665-2500
Spiller Address:	318 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, NY 10451-
Spill Cause:	Unknown
Reported to Dept:	Air
Water Affected:	Not reported

310 GRAND CONCOURSE (Continued) **S102663088**

Spill Source: 12
Spill Notifier: Affected Persons
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 06/04/97
Date Spill Entered In Computer Data File: Not reported
Update Date: 06/05/97
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: DURING HOT SUMMER DAYS LAST YEAR, NOTICED GASOLINE DIESEL VAPORS IN THE OPEN LOT. IT HAPPENED AGAIN A FEW WEEKS AGO. GAS STATION CLOSED MORE THAN 9 YEARS AGO. MAYBE 20 YEARS AGO. STEVEN M. IS CURRENT LANDLORD FROM 5 YEARS) HE PAVED OVER THE LOT METAL MATES BY TANK.

G47 **LOT 28,TAXBLOCK 2341** **E DESIGNATION** **S109942395**
East **310 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.065 mi.
343 ft. **Site 3 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	28
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	Z&D REALTY CORP C/O S
Lot Area:	000017860
Total Building Floor Area:	00000001404
Commercial Floor Area:	00000001404
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001404
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0175.50
Lot Depth:	0100.00
Building Frontage:	0040.83
Building Depth:	0027.83
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5

LOT 28,TAXBLOCK 2341 (Continued) **S109942395**

Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000244350
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.08
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410028
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004002
Y Coordinate:	0236000
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	28
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported

LOT 28,TAXBLOCK 2341 (Continued) **S109942395**

All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	Z&D REALTY CORP C/O S
Lot Area:	000017860
Total Building Floor Area:	00000001404
Commercial Floor Area:	00000001404
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001404
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0175.50
Lot Depth:	0100.00
Building Frontage:	0040.83
Building Depth:	0027.83
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000244350
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.08
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410028
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004002
Y Coordinate:	0236000
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 28,TAXBLOCK 2341 (Continued) **S109942395**

Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	28
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	Z&D REALTY CORP C/O S
Lot Area:	000017860
Total Building Floor Area:	00000001404
Commercial Floor Area:	00000001404
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001404
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0175.50
Lot Depth:	0100.00
Building Frontage:	0040.83
Building Depth:	0027.83
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5

LOT 28,TAXBLOCK 2341 (Continued) **S109942395**

Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000244350
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.08
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410028
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004002
Y Coordinate:	0236000
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	28
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 28,TAXBLOCK 2341 (Continued) **S109942395**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	Z&D REALTY CORP C/O S
Lot Area:	000017860
Total Building Floor Area:	00000001404
Commercial Floor Area:	00000001404
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001404
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00004
Lot Frontage:	0175.50
Lot Depth:	0100.00
Building Frontage:	0040.83
Building Depth:	0027.83
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099450
Total Assessed Value:	00000244350
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.08
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410028
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004002
Y Coordinate:	0236000
Zoning Map:	06A
Sanborn Map:	209N053
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 28,TAXBLOCK 2341 (Continued) **S109942395**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

C48 **LOT 5,TAXBLOCK 2345** **E DESIGNATION** **S109942634**
NNE **334 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.065 mi.
345 ft. **Site 17 of 17 in cluster C**

E DESIGNATION:

Tax Lot(s):	5
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334 WALTON LLC
Lot Area:	000010053
Total Building Floor Area:	00000014940
Commercial Floor Area:	00000014940
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000014940
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0121.00
Lot Depth:	0083.08

LOT 5,TAXBLOCK 2345 (Continued) **S109942634**

Building Frontage:	0090.00
Building Depth:	0083.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000045000
Total Assessed Value:	00000128250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.49
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450005
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003794
Y Coordinate:	0236294
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	5
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2

LOT 5,TAXBLOCK 2345 (Continued) **S109942634**

Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334 WALTON LLC
Lot Area:	000010053
Total Building Floor Area:	00000014940
Commercial Floor Area:	00000014940
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000014940
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0121.00
Lot Depth:	0083.08
Building Frontage:	0090.00
Building Depth:	0083.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000045000
Total Assessed Value:	00000128250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.49
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450005
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003794
Y Coordinate:	0236294
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported

LOT 5,TAXBLOCK 2345 (Continued) **S109942634**

Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	5
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334 WALTON LLC
Lot Area:	000010053
Total Building Floor Area:	00000014940
Commercial Floor Area:	00000014940
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000014940
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0121.00
Lot Depth:	0083.08

LOT 5,TAXBLOCK 2345 (Continued) **S109942634**

Building Frontage:	0090.00
Building Depth:	0083.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000045000
Total Assessed Value:	00000128250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.49
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450005
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003794
Y Coordinate:	0236294
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	5
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported

LOT 5,TAXBLOCK 2345 (Continued) **S109942634**

Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	F9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334 WALTON LLC
Lot Area:	000010053
Total Building Floor Area:	00000014940
Commercial Floor Area:	00000014940
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000014940
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0121.00
Lot Depth:	0083.08
Building Frontage:	0090.00
Building Depth:	0083.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000045000
Total Assessed Value:	00000128250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.49
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450005
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003794
Y Coordinate:	0236294
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005

LOT 5,TAXBLOCK 2345 (Continued) **S109942634**

Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

E49 **GAINES LEASING CORP** **RCRA-NonGen** **1000313559**
NW **325 EXTERIA ST** **FINDS** **NYD982271272**
< 1/8 **BRONX, NY 10451** **HIST UST**
0.066 mi. **HIST AST**
350 ft. **Site 6 of 9 in cluster E** **MANIFEST**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	GAINES LEASING CORP
Facility address:	325 EXTERIA ST BRONX, NY 10451
EPA ID:	NYD982271272
Mailing address:	EXTERIA ST BRONX, NY 10451
Contact:	Not reported
Contact address:	EXTERIA ST BRONX, NY 10451
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	JACK SCHWARTZ
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	JACK SCHWARTZ
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No

GAINES LEASING CORP (Continued) **1000313559**

Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Historical Generators:

Date form received by agency: 01/01/2006
Facility name: GAINES LEASING CORP
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: GAINES LEASING CORP
Classification: Not a generator, verified

Date form received by agency: 08/05/1987
Facility name: GAINES LEASING CORP
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004417462

Environmental Interest/Information System

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

HIST UST:

PBS Number:	2-602947
SPDES Number:	Not reported
Emergency Contact:	BELL ATLANTIC
Emergency Telephone:	(800) 386-9639
Operator:	BELL ATLANTIC
Operator Telephone:	(800) 339-6144
Owner Name:	BELL ATLANTIC
Owner Address:	221 EAST 37TH STREET
Owner City,St,Zip:	NEW YORK, NY 10016
Owner Telephone:	(800) 339-6144
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	BELL ATLANTIC
Mailing Address:	221 EAST 37TH STREET, 4TH FLOOR

GAINES LEASING CORP (Continued) **1000313559**

Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10016
Mailing Contact:	MS. KATHLEEN TOBIN
Mailing Telephone:	(212) 338-6731
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	Not reported
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/27/1999
Expiration Date:	02/16/2004
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	5280
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19870301
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	Electronic
Overfill Prot:	High Level Alarm, Catch Basin
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True

GAINES LEASING CORP (Continued) **1000313559**

Lat/long: Not reported

HIST AST:

PBS Number:	2-602947
SWIS Code:	6001
Operator:	BELL ATLANTIC
Facility Phone:	(800) 339-6144
Facility Addr2:	Not reported
Facility Type:	OTHER
Emergency:	BELL ATLANTIC
Emergency Tel:	(800) 386-9639
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	BELL ATLANTIC
Owner Address:	221 EAST 37TH STREET
Owner City,St,Zip:	NEW YORK, NY 10016
Federal ID:	Not reported
Owner Tel:	(800) 339-6144
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	MS. KATHLEEN TOBIN
Mailing Name:	BELL ATLANTIC
Mailing Address:	221 EAST 37TH STREET, 4TH FLOOR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10016
Mailing Telephone:	(212) 338-6731
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	05/27/1999
Expiration:	02/16/2004
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5280
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	002
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19970101
Capacity (Gal):	1000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Stainless steel alloy
Tank Internal:	0

GAINES LEASING CORP (Continued) **1000313559**

Tank External:	01
Pipe Location:	Aboveground
Pipe Type:	FIBERGLASS COATED STEEL
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	04
Tank Containment:	Vault (w/access)
Leak Detection:	01
Overfill Protection:	25
Dispenser Method:	0
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	003
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	280
Product Stored:	USED OIL
Tank Type:	Stainless steel alloy
Tank Internal:	9
Tank External:	05
Pipe Location:	None
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Vault (w/access)
Leak Detection:	00
Overfill Protection:	05
Dispenser Method:	Not reported
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

NY MANIFEST:

EPA ID:	NYD161125372
Country:	USA
Mailing Name:	LUIGI RENALDO AUTOCRAFT INCORPORATED
Mailing Contact:	LUIGI RENALDO AUTOCRAFT INCORPORATED
Mailing Address:	325 EXTERIOR STREET
Mailing Address 2:	Not reported
Mailing City:	BRONX ATTN JOHN ARCURI
Mailing State:	NY
Mailing Zip:	10451

GAINES LEASING CORP (Continued) **1000313559**

Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-402-8555

NY MANIFEST:
No Manifest Records Available

E50 **LOT 38,TAXBLOCK 2349** **E DESIGNATION** **S109942511**
NW **325 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.066 mi.
350 ft. **Site 7 of 9 in cluster E**

E DESIGNATION:

Tax Lot(s):	38
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	EXTERIOR STREET ASSOC
Lot Area:	000105168
Total Building Floor Area:	00000025962
Commercial Floor Area:	00000025962
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000025962
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	002.00

LOT 38,TAXBLOCK 2349 (Continued) **S109942511**

Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0312.50
Lot Depth:	0336.50
Building Frontage:	0108.00
Building Depth:	0083.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000337500
Total Assessed Value:	00000720000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1930
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.25
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490038
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003101
Y Coordinate:	0236460
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	38
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017

LOT 38,TAXBLOCK 2349 (Continued) **S109942511**

Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	EXTERIOR STREET ASSOC
Lot Area:	000105168
Total Building Floor Area:	00000025962
Commercial Floor Area:	00000025962
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000025962
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0312.50
Lot Depth:	0336.50
Building Frontage:	0108.00
Building Depth:	0083.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000337500
Total Assessed Value:	00000720000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1930
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.25
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490038
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003101
Y Coordinate:	0236460
Zoning Map:	06A

LOT 38,TAXBLOCK 2349 (Continued) **S109942511**

Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

E51 **LUIGI RENALDO AUTO CENTER** **RCRA-NonGen** **1000235176**
NW **325 EXTERIOR ST** **NYD161125372**
< 1/8 **BRONX, NY 10451**
0.066 mi.
350 ft. **Site 8 of 9 in cluster E**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	LUIGI RENALDO AUTO CENTER
Facility address:	325 EXTERIOR ST BRONX, NY 104512012
EPA ID:	NYD161125372
Mailing address:	EXTERIOR ST BRONX, NY 10451
Contact:	Not reported
Contact address:	EXTERIOR ST BRONX, NY 10451
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	LUIGI RENALDO
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	LUIGI RENALDO
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

LUIGI RENALDO AUTO CENTER (Continued) **1000235176**

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: LUIGI RENALDO AUTO CENTER
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: LUIGI RENALDO AUTO CENTER
Classification: Not a generator, verified

Date form received by agency: 10/13/1988
Facility name: LUIGI RENALDO AUTO CENTER
Classification: Small Quantity Generator

Violation Status: No violations found

E52 **VERIZON BUILDING** **NY Spills** **S107522129**
NW **325 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY**
0.066 mi.
350 ft. **Site 9 of 9 in cluster E**

NY Spills:
Site ID: 358298
Facility Addr2: Not reported
Facility ID: 0512042
Spill Number: 0512042
Facility Type: ER
SWIS: 0301
Investigator: rmpiper
Referred To: Not reported
Spill Date: 1/19/2006
Reported to Dept: 1/19/2006
CID: 444
Spill Cause: Other
Water Affected: Not reported
Spill Source: Gasoline Station
Spill Notifier: Other
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended

VERIZON BUILDING (Continued) **S107522129**

UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	2/21/2007
Remediation Phase:	0
Date Entered In Computer:	1/19/2006
Spill Record Last Update:	2/21/2007
Spiller Name:	JEFF BOHLEN
Spiller Company:	VERIZON BUILDING
Spiller Address:	325 EXTERIOR STREET
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	001
Contact Name:	JEFF BOHLEN
Contact Phone:	(631) 471-1500
DEC Region:	2
DER Facility ID:	308314
DEC Memo:	3/17/06- DEC Piper reviewed tank closure report. As per analytical, GW has 4760 ppb of MtBE and 8 ppb of Toluene. All other constitiuents, SVOC and VOC, non- detect. Subsurface investigation warranted. Site abuts Harlem River. Referred to remediation. 7/11/06- DEC Piper received subsurface investigation report to delineate gw contamination. Five borings were completed on property. All locations revealed contamination below TAGMs. 2/20/07- DEC Piper reviewed report dated Jan 29, 2007, As per report, No VOC's or SVOC's above Tagm. This case is closed. See E-docs if warranted./
Remarks:	found soil sample in groundwater defective:

Material:

Site ID:	358298
Operable Unit ID:	1115548
Operable Unit:	01
Material ID:	2105622
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

B53 **CON EDISON** **RCRA-CESQG** **1012185535**
SSE **E 138TH ST & GRAND CONCOURSE** **NYP004163432**
< 1/8 **BRONX, NY 10451**
0.067 mi.
352 ft. **Site 10 of 10 in cluster B**

RCRA-CESQG:

Date form received by agency:	01/20/2009
Facility name:	CON EDISON
Facility address:	E 138TH ST & GRAND CONCOURSE BRONX, NY 10451
EPA ID:	NYP004163432
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	HERMAN BAKER
Contact address:	Not reported Not reported
Contact country:	Not reported
Contact telephone:	(718) 267-3853
Contact email:	Not reported
EPA Region:	02
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Handler Activities Summary:

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

Violation Status: No violations found

G54 **LOT 31,TAXBLOCK 2341** **E DESIGNATION** **S109942439**
ENE **334 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.075 mi.
394 ft. **Site 4 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	31
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334GC,
Lot Area:	000006167
Total Building Floor Area:	00000003950
Commercial Floor Area:	00000003950
Office Floor Area:	00000000000
Retail Floor Area:	00000003950
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0061.50
Lot Depth:	0100.00
Building Frontage:	0050.00
Building Depth:	0065.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5

LOT 31,TAXBLOCK 2341 (Continued) **S109942439**

Basement Type Grade:	5
Land Assessed Value:	00000031680
Total Assessed Value:	00000257850
Land Exempt Value:	00000000000
Total Exempt Value:	00000164520
Year Built:	1931
Year Built Code:	E
Year Altered1:	1994
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.64
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410031
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004040
Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	31
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 31,TAXBLOCK 2341 (Continued) **S109942439**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334GC,
Lot Area:	000006167
Total Building Floor Area:	00000003950
Commercial Floor Area:	00000003950
Office Floor Area:	00000000000
Retail Floor Area:	00000003950
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0061.50
Lot Depth:	0100.00
Building Frontage:	0050.00
Building Depth:	0065.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000031680
Total Assessed Value:	00000257850
Land Exempt Value:	00000000000
Total Exempt Value:	00000164520
Year Built:	1931
Year Built Code:	E
Year Altered1:	1994
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.64
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410031
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004040
Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 31,TAXBLOCK 2341 (Continued) **S109942439**

Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	31
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334GC,
Lot Area:	000006167
Total Building Floor Area:	00000003950
Commercial Floor Area:	00000003950
Office Floor Area:	00000000000
Retail Floor Area:	00000003950
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0061.50
Lot Depth:	0100.00
Building Frontage:	0050.00
Building Depth:	0065.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5

LOT 31,TAXBLOCK 2341 (Continued) **S109942439**

Land Assessed Value:	00000031680
Total Assessed Value:	00000257850
Land Exempt Value:	00000000000
Total Exempt Value:	00000164520
Year Built:	1931
Year Built Code:	E
Year Altered1:	1994
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.64
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410031
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004040
Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	31
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 31,TAXBLOCK 2341 (Continued) **S109942439**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	334GC,
Lot Area:	000006167
Total Building Floor Area:	00000003950
Commercial Floor Area:	00000003950
Office Floor Area:	00000000000
Retail Floor Area:	00000003950
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0061.50
Lot Depth:	0100.00
Building Frontage:	0050.00
Building Depth:	0065.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000031680
Total Assessed Value:	00000257850
Land Exempt Value:	00000000000
Total Exempt Value:	00000164520
Year Built:	1931
Year Built Code:	E
Year Altered1:	1994
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.64
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410031
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004040
Y Coordinate:	0236117
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 31,TAXBLOCK 2341 (Continued) **S109942439**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

G55 **LOT 1,TAXBLOCK 2345** **E DESIGNATION** **S109942109**
ENE **335 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.075 mi.
396 ft. **Site 5 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ENRIQUE PITA
Lot Area:	000004937
Total Building Floor Area:	00000001500
Commercial Floor Area:	00000001500
Office Floor Area:	00000000000
Retail Floor Area:	00000001500
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0060.33

LOT 1,TAXBLOCK 2345 (Continued) **S109942109**

Lot Depth:	0083.17
Building Frontage:	0025.00
Building Depth:	0060.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000022500
Total Assessed Value:	00000044415
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.30
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003879
Y Coordinate:	0236264
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2

LOT 1,TAXBLOCK 2345 (Continued) **S109942109**

Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ENRIQUE PITA
Lot Area:	000004937
Total Building Floor Area:	00000001500
Commercial Floor Area:	00000001500
Office Floor Area:	00000000000
Retail Floor Area:	00000001500
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0060.33
Lot Depth:	0083.17
Building Frontage:	0025.00
Building Depth:	0060.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000022500
Total Assessed Value:	00000044415
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.30
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003879
Y Coordinate:	0236264
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported

LOT 1,TAXBLOCK 2345 (Continued) **S109942109**

Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ENRIQUE PITA
Lot Area:	000004937
Total Building Floor Area:	00000001500
Commercial Floor Area:	00000001500
Office Floor Area:	00000000000
Retail Floor Area:	00000001500
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0060.33
Lot Depth:	0083.17

LOT 1,TAXBLOCK 2345 (Continued) **S109942109**

Building Frontage:	0025.00
Building Depth:	0060.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000022500
Total Assessed Value:	00000044415
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.30
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003879
Y Coordinate:	0236264
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	1
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported

LOT 1,TAXBLOCK 2345 (Continued) **S109942109**

Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ENRIQUE PITA
Lot Area:	000004937
Total Building Floor Area:	00000001500
Commercial Floor Area:	00000001500
Office Floor Area:	00000000000
Retail Floor Area:	00000001500
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0060.33
Lot Depth:	0083.17
Building Frontage:	0025.00
Building Depth:	0060.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000022500
Total Assessed Value:	00000044415
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.30
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450001
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003879
Y Coordinate:	0236264
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005

LOT 1,TAXBLOCK 2345 (Continued) **S109942109**

Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

G56 **LOT 34,TAXBLOCK 2341** **E DESIGNATION** **S109942466**
ENE **338 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.078 mi.
412 ft. **Site 6 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	34
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	340 GRAND CONCOURSE I
Lot Area:	000005842
Total Building Floor Area:	00000005300
Commercial Floor Area:	00000005300
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000005300
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001

LOT 34,TAXBLOCK 2341 (Continued) **S109942466**

Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0058.42
Lot Depth:	0100.00
Building Frontage:	0053.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000023895
Total Assessed Value:	00000080550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410034
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004058
Y Coordinate:	0236176
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	34
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07

LOT 34,TAXBLOCK 2341 (Continued) **S109942466**

City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	340 GRAND CONCOURSE I
Lot Area:	000005842
Total Building Floor Area:	00000005300
Commercial Floor Area:	00000005300
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000005300
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0058.42
Lot Depth:	0100.00
Building Frontage:	0053.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000023895
Total Assessed Value:	00000080550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410034
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004058

LOT 34,TAXBLOCK 2341 (Continued) **S109942466**

Y Coordinate:	0236176
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	34
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	340 GRAND CONCOURSE I
Lot Area:	000005842
Total Building Floor Area:	00000005300
Commercial Floor Area:	00000005300
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000005300
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001

LOT 34,TAXBLOCK 2341 (Continued) **S109942466**

Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0058.42
Lot Depth:	0100.00
Building Frontage:	0053.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000023895
Total Assessed Value:	00000080550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410034
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004058
Y Coordinate:	0236176
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	34
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17

LOT 34,TAXBLOCK 2341 (Continued) **S109942466**

Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	340 GRAND CONCOURSE I
Lot Area:	000005842
Total Building Floor Area:	00000005300
Commercial Floor Area:	00000005300
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000005300
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0058.42
Lot Depth:	0100.00
Building Frontage:	0053.00
Building Depth:	0100.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000023895
Total Assessed Value:	00000080550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.91
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410034
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004058
Y Coordinate:	0236176

LOT 34,TAXBLOCK 2341 (Continued) **S109942466**

Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

G57 **PEGUERO BROTHERS REPAIR SHOP** **AST** **A100304677**
ENE **338 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.078 mi.
412 ft. **Site 7 of 10 in cluster G**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-610573
Program Type:	PBS
UTM X:	590350.40708000003
UTM Y:	4518766.6637399998
Expiration Date:	2012/05/18

Affiliation Records:

Site Id:	381648
Affiliation Type:	Mail Contact
Company Name:	PEGUERO BROTHERS REPAIR SHOP
Contact Type:	Not reported
Contact Name:	LYSNETTE PEGUERO
Address1:	340 GRAND CONCOURSE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	5/18/2007

Site Id:	381648
Affiliation Type:	On-Site Operator
Company Name:	PEQUERO BROTHERS REPAIR SHOP
Contact Type:	Not reported
Contact Name:	LYSNETTE PEGUERO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN

PEGUERO BROTHERS REPAIR SHOP (Continued) **A100304677**

Zip Code:	Not reported
Country Code:	001
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	5/18/2007

Site Id:	381648
Affiliation Type:	Emergency Contact
Company Name:	SOCRATES PEGUERO
Contact Type:	Not reported
Contact Name:	SOCRATES PEGUERO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 514-1628
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	5/18/2007

Site Id:	381648
Affiliation Type:	Owner
Company Name:	SOCRATES PEGUERO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	2625 3RD AVE.
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-9278
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	5/18/2007

Equipment Records:

K01 - Spill Prevention - Catch Basin
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
B00 - Tank External Protection - None
G01 - Tank Secondary Containment - Diking (Aboveground)
I01 - Overfill - Float Vent Valve
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
C01 - Pipe Location - Aboveground
D11 - Pipe Type - Flexible Piping
L00 - Piping Leak Detection - None

PEGUERO BROTHERS REPAIR SHOP (Continued) **A100304677**

Tank Info:

Tank Number:	060613
Tank Id:	217281
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	8/1/1999
Capacity Gallons:	150
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	5/18/2007

G58 **EAGLE AUTO REPAIR CORP** **AST** **A100293835**
ENE **341 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.081 mi.
427 ft. **Site 8 of 10 in cluster G**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-607912
Program Type:	PBS
UTM X:	590338.76520999998
UTM Y:	4518810.8180600004
Expiration Date:	2012/07/08

Affiliation Records:

Site Id:	29764
Affiliation Type:	Mail Contact
Company Name:	EAGLE AUTO REPAIR CORP.
Contact Type:	Not reported
Contact Name:	ISREAL GONEN
Address1:	341 GRAND CONCOURSE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 742-0114
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	3/30/2007

Site Id:	29764
Affiliation Type:	On-Site Operator
Company Name:	EAGLE AUTO REPAIR CORP
Contact Type:	Not reported

EAGLE AUTO REPAIR CORP (Continued) **A100293835**

Contact Name:	ISREAL GONEN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 742-0114
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	29764
Affiliation Type:	Emergency Contact
Company Name:	EAGLE AUTO REPAIR CORP
Contact Type:	Not reported
Contact Name:	ISREAL GONEN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 742-0114
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	29764
Affiliation Type:	Owner
Company Name:	EAGLE AUTO REPAIR CORP
Contact Type:	OWNER/MANAGER
Contact Name:	ISRAEL GONEN
Address1:	341 GRAND CONCOURSE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 742-0114
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/20/2007

Equipment Records:

B00 - Tank External Protection - None
K00 - Spill Prevention - None
F00 - Pipe External Protection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
J00 - Dispenser - None

EAGLE AUTO REPAIR CORP (Continued) **A100293835**

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
D00 - Pipe Type - No Piping
G10 - Tank Secondary Containment - Impervious Underlayment
C00 - Pipe Location - No Piping
L00 - Piping Leak Detection - None

Tank Info:

Tank Number:	001
Tank Id:	63822
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/30/1999
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	4/20/2007

G59 **LOT 37,TAXBLOCK 2341** **E DESIGNATION** **S109942499**
ENE **344 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.083 mi.
440 ft. **Site 9 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	37
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 37,TAXBLOCK 2341 (Continued) **S109942499**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	HETED REALTY CORP
Lot Area:	000005050
Total Building Floor Area:	00000001150
Commercial Floor Area:	00000001150
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001150
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0050.50
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0046.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000021645
Total Assessed Value:	00000049500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.23
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410037
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004073
Y Coordinate:	0236227
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 37,TAXBLOCK 2341 (Continued) **S109942499**

Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	37
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	HETED REALTY CORP
Lot Area:	000005050
Total Building Floor Area:	00000001150
Commercial Floor Area:	00000001150
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001150
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0050.50
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0046.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5

LOT 37,TAXBLOCK 2341 (Continued) **S109942499**

Land Assessed Value:	00000021645
Total Assessed Value:	00000049500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.23
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410037
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004073
Y Coordinate:	0236227
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	37
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported

LOT 37,TAXBLOCK 2341 (Continued) **S109942499**

Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	HETED REALTY CORP
Lot Area:	000005050
Total Building Floor Area:	00000001150
Commercial Floor Area:	00000001150
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001150
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0050.50
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0046.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000021645
Total Assessed Value:	00000049500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.23
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410037
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004073
Y Coordinate:	0236227
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005

LOT 37,TAXBLOCK 2341 (Continued) **S109942499**

Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	37
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	HETED REALTY CORP
Lot Area:	000005050
Total Building Floor Area:	00000001150
Commercial Floor Area:	00000001150
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000001150
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0050.50
Lot Depth:	0100.00
Building Frontage:	0025.00
Building Depth:	0046.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000021645

LOT 37,TAXBLOCK 2341 (Continued) **S109942499**

Total Assessed Value:	00000049500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.23
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410037
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004073
Y Coordinate:	0236227
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

H60 **U-HAUL** **MANIFEST** **S109781428**
NNE **350 WALTON AVE** **N/A**
< 1/8 **BRONX, NY 10451**
0.084 mi.
445 ft. **Site 1 of 9 in cluster H**

CT MANIFEST:

Waste:

Manifest No:	CTF0961215
Waste Occurence:	1
UNNA:	1203
Hazard Class:	3
US Dot Description:	gasahol, gasoline
No of Containers:	001
Container Type:	TT
Quantity:	350
Weight/Volume:	G
Additional Description:	Not reported
Handling Code:	Not reported
Date Record Was Last Modified:	4/27/2004
DEO Who Last Modified Record:	IG

Waste CD:

Manifest No:	CTF0961215
Waste Occurence:	1
EPA Waste Code:	D001

U-HAUL (Continued) **S109781428**

Recycled Waste?: F
Date Record Was Last Modified: 4/27/2004
DEO Who Last Modified Record: IG

Detail:

Year:	2001
Manifest ID:	CTF0961215
TSDF EPA ID:	CTD002593887
TSDF Name:	BRIDGEPORT UNITED RECYCLE (FORMERLY HITCHCOCK GAS)
TSDF Address:	50 CROSS STREET
TSDF City,St,Zip:	BRIDGEPORT, CT 06608
TSDF Country:	USA
TSDF Telephone:	Not reported
Transport Date:	3/30/2001
Transporter EPA ID:	CTD021816889
Transporter Name:	UNITED OIL RECOVERY INC
Transporter Country:	USA
Transporter Phone:	Not reported
Trans 2 Date:	Not reported
Trans 2 EPA ID:	Not reported
Trans 2 Name:	Not reported
Trans 2 Address:	Not reported
Trans 2 City,St,Zip:	CT
Trans 2 Country:	USA
Trans 2 Phone:	Not reported
EPA ID:	NY0000079277
Generator Phone:	7185628700
Generator Mailing Addr:	350 WALTON AVE
Generator Mailing Town:	BRONX
Generator Mailing State:	NY
Generator Mailing Zip:	10451
Generator Mailing Country:	USA
Special Handling:	Not reported
Discrepancies:	No
Date Shipped:	3/30/2001
Date Received:	3/30/2001
Last modified date:	4/27/2004
Last modified by:	IG
Comments:	Not reported

H61 **U HAUL CENTER** **RCRA-NonGen** **1000871628**
NNE **350 WALTON AVE** **FINDS** **NY0000079277**
< 1/8 **BRONX, NY 10451** **MANIFEST**
0.084 mi.
445 ft. **Site 2 of 9 in cluster H**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	U-HAUL
Facility address:	350 WALTON AVE BRONX, NY 104515413
EPA ID:	NY0000079277
Mailing address:	WALTON AVE BRONX, NY 10451
Contact:	Not reported
Contact address:	WALTON AVE

U HAUL CENTER (Continued) **1000871628**

BRONX, NY 10451
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: U-HAUL CO METRO NEW YORK
Owner/operator address: 230 W 230TH ST
BRONX, NY 10463
Owner/operator country: US
Owner/operator telephone: (718) 562-8700
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: U-HAUL CO METRO NEW YORK
Owner/operator address: 230 W 230TH ST
BRONX, NY 10463
Owner/operator country: US
Owner/operator telephone: (718) 562-8700
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: U-HAUL
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: U-HAUL
Classification: Not a generator, verified

Date form received by agency: 12/15/1993

U HAUL CENTER (Continued) **1000871628**

Facility name: U-HAUL
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004310362

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

NY MANIFEST:

EPA ID:	NY0000079277
Country:	USA
Mailing Name:	U HAUL
Mailing Contact:	BAHI SENNY
Mailing Address:	350 WALTON AVE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-993-4300

Document ID:	NYC4353142
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	970307
Trans1 Recv Date:	970307
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970319
Part A Recv Date:	Not reported
Part B Recv Date:	970327
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	KYD053348108
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00150
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

U HAUL CENTER (Continued) **1000871628**

Document ID:	NYC3543570
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	DL8162
Trans2 State ID:	A40400
Generator Ship Date:	950613
Trans1 Recv Date:	950613
Trans2 Recv Date:	950623
TSD Site Recv Date:	950625
Part A Recv Date:	Not reported
Part B Recv Date:	950717
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	ARD981908551
TSDF ID:	KYD053348108
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00160
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	95

Document ID:	CTF0961215
Manifest Status:	Not reported
Trans1 State ID:	CTD021816889
Trans2 State ID:	Not reported
Generator Ship Date:	03/30/2001
Trans1 Recv Date:	03/30/2001
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/30/2001
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	CTD002593887
Trans2 EPA ID:	Not reported
TSDF ID:	CT18028A
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00350
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2001

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	TXR000050930
Trans2 State ID:	NJD071629976
Generator Ship Date:	2010-11-15
Trans1 Recv Date:	2010-11-15
Trans2 Recv Date:	2010-11-19
TSD Site Recv Date:	2010-11-22
Part A Recv Date:	Not reported

U HAUL CENTER (Continued) **1000871628**

Part B Recv Date:	Not reported
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	RID084802842
Waste Code:	Not reported
Quantity:	4.0
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1.0
Year:	2010
Manifest Tracking Num:	002496331SKS
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	NYC4300290
Manifest Status:	Completed copy
Trans1 State ID:	NYJE5256
Trans2 State ID:	Not reported
Generator Ship Date:	961004
Trans1 Recv Date:	961004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	961009
Part A Recv Date:	Not reported
Part B Recv Date:	961024
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00052
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	96

U HAUL CENTER (Continued) **1000871628**

Document ID:	NYC3543625
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	DL7754
Trans2 State ID:	Not reported
Generator Ship Date:	960105
Trans1 Recv Date:	960105
Trans2 Recv Date:	960112
TSD Site Recv Date:	960114
Part A Recv Date:	Not reported
Part B Recv Date:	960205
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	ARD981908551
TSDF ID:	KYD053348108
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00290
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	96

Document ID:	NYC4137570
Manifest Status:	Completed copy
Trans1 State ID:	NYJE5256
Trans2 State ID:	Not reported
Generator Ship Date:	960618
Trans1 Recv Date:	960618
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960621
Part A Recv Date:	Not reported
Part B Recv Date:	960703
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00051
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	96

Document ID:	NYC4249135
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC

U HAUL CENTER (Continued) **1000871628**

Trans1 State ID: NYJE5256
Trans2 State ID: Not reported
Generator Ship Date: 961115
Trans1 Recv Date: 961115
Trans2 Recv Date: 961122
TSD Site Recv Date: 961123
Part A Recv Date: Not reported
Part B Recv Date: 961213
Generator EPA ID: NY0000079277
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: MOD095038998
TSDF ID: KYD053348108
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00145
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 96

Document ID: NYC4026881
Manifest Status: Completed copy
Trans1 State ID: NYJE5256
Trans2 State ID: Not reported
Generator Ship Date: 960227
Trans1 Recv Date: 960227
Trans2 Recv Date: Not reported
TSD Site Recv Date: 960301
Part A Recv Date: Not reported
Part B Recv Date: 960312
Generator EPA ID: NY0000079277
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NYD000708198
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00052
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00005
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 96

Document ID: NYC4064466
Manifest Status: Completed copy
Trans1 State ID: NYJE5256
Trans2 State ID: Not reported

U HAUL CENTER (Continued) **1000871628**

Generator Ship Date:	960422
Trans1 Recv Date:	960422
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960424
Part A Recv Date:	Not reported
Part B Recv Date:	960503
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00051
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	96

Document ID:	NYC4196935
Manifest Status:	Completed copy
Trans1 State ID:	NYJV4819
Trans2 State ID:	Not reported
Generator Ship Date:	960815
Trans1 Recv Date:	960815
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	960821
Part A Recv Date:	Not reported
Part B Recv Date:	960906
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00051
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	96

U HAUL CENTER (Continued) **1000871628**

Document ID:	NYC4435356
Manifest Status:	Completed copy
Trans1 State ID:	NYJU4819
Trans2 State ID:	Not reported
Generator Ship Date:	970107
Trans1 Recv Date:	970107
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970110
Part A Recv Date:	Not reported
Part B Recv Date:	970123
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	97

Document ID:	NYC4479963
Manifest Status:	Completed copy
Trans1 State ID:	ILLP22335
Trans2 State ID:	Not reported
Generator Ship Date:	970603
Trans1 Recv Date:	970603
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970606
Part A Recv Date:	Not reported
Part B Recv Date:	970617
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00032
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)

U HAUL CENTER (Continued) **1000871628**

Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 100
Year: 97

Document ID: NYC4672337
Manifest Status: Completed copy
Trans1 State ID: NYJE5256
Trans2 State ID: Not reported
Generator Ship Date: 970307
Trans1 Recv Date: 970307
Trans2 Recv Date: Not reported
TSD Site Recv Date: 970312
Part A Recv Date: Not reported
Part B Recv Date: 970321
Generator EPA ID: NY0000079277
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NYD000708198
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00045
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00005
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 100
Year: 97

Document ID: NYC4249157
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: NYJE5256
Trans2 State ID: Not reported
Generator Ship Date: 961115
Trans1 Recv Date: 961115
Trans2 Recv Date: Not reported
TSD Site Recv Date: 961120
Part A Recv Date: Not reported
Part B Recv Date: 961209
Generator EPA ID: NY0000079277
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NYD000708198
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00068
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 004
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100

U HAUL CENTER (Continued) **1000871628**

Waste Code:	Not reported
Quantity:	00005
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	96

Document ID:	NYC3994108
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYJU4819
Trans2 State ID:	Not reported
Generator Ship Date:	970107
Trans1 Recv Date:	970107
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970115
Part A Recv Date:	Not reported
Part B Recv Date:	970203
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	KYD053348108
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00200
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	NYC4714503
Manifest Status:	Completed copy
Trans1 State ID:	NYGE5256
Trans2 State ID:	Not reported
Generator Ship Date:	970505
Trans1 Recv Date:	970505
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970508
Part A Recv Date:	Not reported
Part B Recv Date:	970515
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000708198
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00047
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00005

U HAUL CENTER (Continued) **1000871628**

Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97

Document ID:	NYC4479276
Manifest Status:	Completed copy
Trans1 State ID:	NY615256
Trans2 State ID:	Not reported
Generator Ship Date:	970430
Trans1 Recv Date:	970430
Trans2 Recv Date:	970509
TSD Site Recv Date:	970510
Part A Recv Date:	Not reported
Part B Recv Date:	970521
Generator EPA ID:	NY0000079277
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	KYD053348108
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00600
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

H62 **141ST ST& GRAND CONCOURSE** **NY Spills** **S102145239**
NE **141ST ST &GRAND CONCOURSE** **NY Hist Spills** **N/A**
< 1/8 **NEW YORK CITY, NY**
0.084 mi.
446 ft. **Site 3 of 9 in cluster H**

NY Spills:

Site ID:	114893
Facility Addr2:	Not reported
Facility ID:	8807934
Spill Number:	8807934
Facility Type:	ER
SWIS:	0301
Investigator:	SIGONA
Referred To:	Not reported
Spill Date:	1/1/1989
Reported to Dept:	1/1/1989
CID:	Not reported
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Local Agency
Cleanup Ceased:	1/1/1989
Cleanup Meets Std:	True
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False

141ST ST& GRAND CONCOURSE (Continued) **S102145239**

Spill Class:	Not reported
Spill Closed Dt:	1/1/1989
Remediation Phase:	0
Date Entered In Computer:	1/11/1989
Spill Record Last Update:	1/11/1989
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	100169
DEC Memo:	Not reported
Remarks:	NYCFD WATERED & FOAMED DOWN SPILL, NO ACTION REQUIRED BY DEC.

Material:

Site ID:	114893
Operable Unit ID:	923419
Operable Unit:	01
Material ID:	452709
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Not reported
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	8807934
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	01/01/1989 15:20
Reported to Dept Date/Time:	01/01/89 15:21

141ST ST& GRAND CONCOURSE (Continued) **S102145239**

SWIS:	60
Spiller Name:	UNKNOWN
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	05
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	01/01/89
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Not reported
Spill Closed Dt:	01/01/89
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	01/11/89
Date Spill Entered In Computer Data File:	Not reported
Update Date:	01/11/89
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	GASOLINE
Class Type:	GASOLINE
Times Material Entry In File:	21329
CAS Number:	Not reported
Last Date:	19940929
DEC Remarks:	Not reported
Remark:	NYCFD WATERED FOAMED DOWN SPILL, NO ACTION REQUIRED BY DEC.

G63 **LOT 40,TAXBLOCK 2341** **E DESIGNATION** **S109942555**
ENE **346 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.085 mi.
450 ft. **Site 10 of 10 in cluster G**

E DESIGNATION:

Tax Lot(s):	40
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	DIEGO YEPES
Lot Area:	000004000
Total Building Floor Area:	00000002450
Commercial Floor Area:	00000002450
Office Floor Area:	00000000000
Retail Floor Area:	00000002450
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0040.00
Lot Depth:	0100.00
Building Frontage:	0035.00
Building Depth:	0070.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5

LOT 40,TAXBLOCK 2341 (Continued) **S109942555**

Basement Type Grade:	5
Land Assessed Value:	00000013860
Total Assessed Value:	00000085950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.61
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410040
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004085
Y Coordinate:	0236271
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	40
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported

LOT 40,TAXBLOCK 2341 (Continued) **S109942555**

All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	DIEGO YEPES
Lot Area:	000004000
Total Building Floor Area:	00000002450
Commercial Floor Area:	00000002450
Office Floor Area:	00000000000
Retail Floor Area:	00000002450
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0040.00
Lot Depth:	0100.00
Building Frontage:	0035.00
Building Depth:	0070.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000013860
Total Assessed Value:	00000085950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.61
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410040
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004085
Y Coordinate:	0236271
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 40,TAXBLOCK 2341 (Continued) **S109942555**

Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	40
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	DIEGO YEPES
Lot Area:	000004000
Total Building Floor Area:	00000002450
Commercial Floor Area:	00000002450
Office Floor Area:	00000000000
Retail Floor Area:	00000002450
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0040.00
Lot Depth:	0100.00
Building Frontage:	0035.00
Building Depth:	0070.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5

LOT 40,TAXBLOCK 2341 (Continued) **S109942555**

Basement Type Grade:	5
Land Assessed Value:	00000013860
Total Assessed Value:	00000085950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.61
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410040
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004085
Y Coordinate:	0236271
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	40
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 40,TAXBLOCK 2341 (Continued) **S109942555**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	K1
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	DIEGO YEPES
Lot Area:	000004000
Total Building Floor Area:	00000002450
Commercial Floor Area:	00000002450
Office Floor Area:	00000000000
Retail Floor Area:	00000002450
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0040.00
Lot Depth:	0100.00
Building Frontage:	0035.00
Building Depth:	0070.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000013860
Total Assessed Value:	00000085950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1953
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.61
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410040
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004085
Y Coordinate:	0236271
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 40,TAXBLOCK 2341 (Continued) **S109942555**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

I64 **VERIZON NEW YORK INC-NY-90596** **TANKS** **S110772006**
NNW **325 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.087 mi.
461 ft. **Site 1 of 6 in cluster I**

TANKS:
Facility Id: 2-602947
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2014/02/16
UTM X: 590155.36233999999
UTM Y: 4518780.7532099998

I65 **350 GERARD CORPORATION** **UST** **U002223012**
North **350 GERARD AVENUE** **HIST UST** **N/A**
< 1/8 **BRONX, NY 10464**
0.089 mi.
468 ft. **Site 2 of 6 in cluster I**

UST:
Facility Id: 2-602280
Region: STATE
DEC Region: 2
Site Status: Unregulated
Program Type: PBS
Expiration Date: N/A
UTM X: 590216.99763999996
UTM Y: 4518890.0782500003

Affiliation Records:
Site Id: 24238
Affiliation Type: On-Site Operator
Company Name: 350 GERARD CORPORATION
Contact Type: Not reported
Contact Name: DAVID HOLAND
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 292-2275
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 24238
Affiliation Type: Mail Contact

350 GERARD CORPORATION (Continued) **U002223012**

Company Name:	350 GERARD CORPORATION
Contact Type:	Not reported
Contact Name:	MR. DAVID HOLAND
Address1:	259 BRUCKNER BOULEVARD
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10454
Country Code:	001
Phone:	(718) 585-8787
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	24238
Affiliation Type:	Owner
Company Name:	350 GERARD CORPORATION
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	259 BRUCKNER BOULEVARD
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10454
Country Code:	001
Phone:	(718) 585-8787
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	24238
Affiliation Type:	Emergency Contact
Company Name:	350 GERARD CORPORATION
Contact Type:	Not reported
Contact Name:	DAVID HOLAND
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 292-2275
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None

350 GERARD CORPORATION (Continued) **U002223012**

F00 - Pipe External Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I05 - Overfill - Vent Whistle
D01 - Pipe Type - Steel/Carbon Steel/Iron
I05 - Overfill - Vent Whistle
B00 - Tank External Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
C01 - Pipe Location - Aboveground

Tank Info:

Site ID:	24238
Tank Number:	1
Tank ID:	49709
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/16/1995
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

Site ID:	24238
Tank Number:	2
Tank ID:	49710
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/16/1995
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-602280
SPDES Number:	Not reported

350 GERARD CORPORATION (Continued) **U002223012**

Emergency Contact:	DAVID HOLAND
Emergency Telephone:	(718) 585-8787
Operator:	DAVID HOLAND
Operator Telephone:	(718) 292-2275
Owner Name:	350 GERARD CORPORATION
Owner Address:	259 BRUCKNER BOULEVARD
Owner City,St,Zip:	BRONX, NY 10454
Owner Telephone:	(718) 585-8787
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	350 GERARD CORPORATION
Mailing Address:	259 BRUCKNER BOULEVARD
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10454
Mailing Contact:	MR. DAVID HOLAND
Mailing Telephone:	(718) 585-8787
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	Not reported
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	MANUFACTURING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	06/16/1995
Expiration Date:	06/15/2000
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None

350 GERARD CORPORATION (Continued) **U002223012**

Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/16/1995
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	10000
Product Stored:	NOS 5 OR 6 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Vent Whistle
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/16/1995
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

I66 **WEDTECH CORP** **RCRA-NonGen** **1000398024**
North **350 GERARD AVE** **FINDS** **NYD982273757**
< 1/8 **BRONX, NY 10451** **MANIFEST**
0.089 mi.
468 ft. **Site 3 of 6 in cluster I**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	WEDTECH CORP
Facility address:	350 GERARD AVE BRONX, NY 104515432
EPA ID:	NYD982273757
Mailing address:	GERARD AVE BRONX, NY 10451
Contact:	Not reported
Contact address:	GERARD AVE BRONX, NY 10451
Contact country:	US

WEDTECH CORP (Continued) **1000398024**

Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: WEDTECH CORP
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: WEDTECH CORP
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: WEDTECH CORP
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: WEDTECH CORP
Classification: Not a generator, verified

Date form received by agency: 10/01/1987
Facility name: WEDTECH CORP

WEDTECH CORP (Continued) **1000398024**

Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 07/10/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

FINDS:

Registry ID: 110009474657

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

NY MANIFEST:
EPA ID: NYD982273757
Country: USA
Mailing Name: WEB TECH CORPORATION
Mailing Contact: WEB TECH CORPORATION
Mailing Address: 350 GERARD AVENUE
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip: 10451
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-993-0756

Document ID: NJA0398855
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: NJDEPS226
Trans2 State ID: Not reported
Generator Ship Date: 880104
Trans1 Recv Date: 880104
Trans2 Recv Date: Not reported
TSD Site Recv Date: 880104
Part A Recv Date: 880303
Part B Recv Date: 880112
Generator EPA ID: NYD982273757
Trans1 EPA ID: NJD054126164
Trans2 EPA ID: Not reported
TSDF ID: NJD065825341
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00165
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 003

WEDTECH CORP (Continued) **1000398024**

Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 88

J67 **A C A AMOCO #594** **RCRA-NonGen** **1000553884**
ENE **350 GRAND CONCOURSE BLVD** **FINDS** **NYD986963189**
< 1/8 **BRONX, NY 10451**
0.089 mi.
471 ft. **Site 1 of 7 in cluster J**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: A C A AMOCO #594
Facility address: 350 GRAND CONCOURSE BLVD
BRONX, NY 104515409
EPA ID: NYD986963189
Mailing address: GRAND CONCOURSE BLVD
BRONX, NY 10454
Contact: Not reported
Contact address: GRAND CONCOURSE BLVD
BRONX, NY 10454
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: A C A MANAGEMENT SERVICES
Owner/operator address: 728 BLACK HORSE PIKE
TURNERSVILLE, NJ 08012
Owner/operator country: US
Owner/operator telephone: (609) 227-6111
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: A C A MANAGEMENT SERVICES
Owner/operator address: 728 BLACK HORSE PIKE
TURNERSVILLE, NJ 08012
Owner/operator country: US
Owner/operator telephone: (609) 227-6111
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No

A C A AMOCO #594 (Continued) **1000553884**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: A C A AMOCO #594
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: A C A AMOCO #594
Classification: Not a generator, verified

Date form received by agency: 01/07/1992
Facility name: A C A AMOCO #594
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004472794

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

J68 **GRAND CONCOURSE PETROLEUM, LLC** **UST** **U003107160**
ENE **350 GRAND CONCOURSE** **HIST UST** **N/A**
< 1/8 **BRONX, NY 10451**
0.089 mi.
471 ft. **Site 2 of 7 in cluster J**

UST:
Facility Id: 2-600110
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2013/10/23
UTM X: 590348.91547000001
UTM Y: 4518703.1937899999

Affiliation Records:
Site Id: 22095
Affiliation Type: Emergency Contact
Company Name: ATLANTIS MANAGEMENT GROUP II, LLC

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Contact Type:	Not reported
Contact Name:	ENVIRONMENTAL HELPDESK
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(800) 997-7725
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	7/8/2009

Site Id:	22095
Affiliation Type:	Mail Contact
Company Name:	GILBARCO VEEDER-ROOT CMS
Contact Type:	Not reported
Contact Name:	COMPLIANCE MANAGEMENT SERVICES
Address1:	7300 W. FRIENDLY AVE., MS F-76
Address2:	PO BOX 22087
City:	GREENSBORO
State:	NC
Zip Code:	27420
Country Code:	001
Phone:	(800) 253-8054
Phone Ext:	Not reported
Email:	ATLANTIS@GILBARCO.COM
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Site Id:	22095
Affiliation Type:	On-Site Operator
Company Name:	GRAND CONCOURSE PETROLEUM, LLC
Contact Type:	Not reported
Contact Name:	STATION MANAGER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 401-0830
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Site Id:	22095
Affiliation Type:	Owner
Company Name:	ATLANTIS MANAGEMENT GROUP II, LLC
Contact Type:	OWNER'S AUTHORIZED AGENT
Contact Name:	JOSEPH WEISMAN
Address1:	555 S. COLUMBUS AVE., SUITE 201

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Address2:	Not reported
City:	MOUNT VERNON
State:	NY
Zip Code:	10550
Country Code:	001
Phone:	(914) 699-9500
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	1/5/2009

Equipment Records:

B02 - Tank External Protection - Original Sacrificial Anode
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
D01 - Pipe Type - Steel/Carbon Steel/Iron
C02 - Pipe Location - Underground/On-ground
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
A00 - Tank Internal Protection - None
K01 - Spill Prevention - Catch Basin
F00 - Pipe External Protection - None
D11 - Pipe Type - Flexible Piping
D11 - Pipe Type - Flexible Piping
F00 - Pipe External Protection - None
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
L08 - Piping Leak Detection - Tank Top Sump
F00 - Pipe External Protection - None
L08 - Piping Leak Detection - Tank Top Sump
C00 - Pipe Location - No Piping
I04 - Overfill - Product Level Gauge (A/G)
J01 - Dispenser - Submersible
J01 - Dispenser - Submersible
F00 - Pipe External Protection - None
K01 - Spill Prevention - Catch Basin
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
A00 - Tank Internal Protection - None
G04 - Tank Secondary Containment - Double-Walled (Underground)
D01 - Pipe Type - Steel/Carbon Steel/Iron
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
I04 - Overfill - Product Level Gauge (A/G)
B02 - Tank External Protection - Original Sacrificial Anode
G04 - Tank Secondary Containment - Double-Walled (Underground)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
G04 - Tank Secondary Containment - Double-Walled (Underground)
J01 - Dispenser - Submersible
G04 - Tank Secondary Containment - Double-Walled (Underground)
G04 - Tank Secondary Containment - Double-Walled (Underground)
L07 - Piping Leak Detection - Pressurized Piping Leak Detector
K01 - Spill Prevention - Catch Basin
F00 - Pipe External Protection - None
A03 - Tank Internal Protection - Fiberglass Liner (FRP)
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
B04 - Tank External Protection - Fiberglass
I02 - Overfill - High Level Alarm
I02 - Overfill - High Level Alarm
I04 - Overfill - Product Level Gauge (A/G)

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

L07 - Piping Leak Detection - Pressurized Piping Leak Detector
J01 - Dispenser - Submersible
C00 - Pipe Location - No Piping
C02 - Pipe Location - Underground/On-ground
H05 - Tank Leak Detection - In-Tank System (ATG)
C02 - Pipe Location - Underground/On-ground
G04 - Tank Secondary Containment - Double-Walled (Underground)
H05 - Tank Leak Detection - In-Tank System (ATG)
B02 - Tank External Protection - Original Sacrificial Anode
I02 - Overfill - High Level Alarm
J01 - Dispenser - Submersible
D11 - Pipe Type - Flexible Piping
A00 - Tank Internal Protection - None
I03 - Overfill - Automatic Shut-Off
I03 - Overfill - Automatic Shut-Off
B04 - Tank External Protection - Fiberglass
H05 - Tank Leak Detection - In-Tank System (ATG)
B04 - Tank External Protection - Fiberglass
I03 - Overfill - Automatic Shut-Off
L08 - Piping Leak Detection - Tank Top Sump
D01 - Pipe Type - Steel/Carbon Steel/Iron
J01 - Dispenser - Submersible
G04 - Tank Secondary Containment - Double-Walled (Underground)
G04 - Tank Secondary Containment - Double-Walled (Underground)
A00 - Tank Internal Protection - None
J01 - Dispenser - Submersible
B02 - Tank External Protection - Original Sacrificial Anode
F00 - Pipe External Protection - None
B02 - Tank External Protection - Original Sacrificial Anode
C00 - Pipe Location - No Piping
I04 - Overfill - Product Level Gauge (A/G)
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
J01 - Dispenser - Submersible
D01 - Pipe Type - Steel/Carbon Steel/Iron
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
C00 - Pipe Location - No Piping
E04 - Piping Secondary Containment - Double-Walled (Underground)
E04 - Piping Secondary Containment - Double-Walled (Underground)
E04 - Piping Secondary Containment - Double-Walled (Underground)
H04 - Tank Leak Detection - Groundwater Well
H04 - Tank Leak Detection - Groundwater Well
H04 - Tank Leak Detection - Groundwater Well
H04 - Tank Leak Detection - Groundwater Well
H04 - Tank Leak Detection - Groundwater Well

Tank Info:

Site ID:	22095
Tank Number:	001
Tank ID:	41289
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	4000
Tightness Test Method:	NN

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Next Test Date:	Not reported
Date Tank Closed:	12/1/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22095
Tank Number:	002
Tank ID:	41290
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	4000
Tightness Test Method:	19
Next Test Date:	Not reported
Date Tank Closed:	12/1/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	2/7/2001
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22095
Tank Number:	003
Tank ID:	41291
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	4000
Tightness Test Method:	19
Next Test Date:	Not reported
Date Tank Closed:	12/1/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	2/7/2001
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22095
Tank Number:	004
Tank ID:	41292
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	4000
Tightness Test Method:	19

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Next Test Date:	Not reported
Date Tank Closed:	12/1/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	2/7/2001
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22095
Tank Number:	005
Tank ID:	41293
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	4000
Tightness Test Method:	19
Next Test Date:	Not reported
Date Tank Closed:	12/1/2001
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	2/7/2001
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22095
Tank Number:	1
Tank ID:	62366
Tank Status:	In Service
Tank Model:	104
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	12000
Tightness Test Method:	14
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	7/8/2005
Register:	True
Modified By:	dxliving
Last Modified:	1/5/2009
Site ID:	22095
Tank Number:	2
Tank ID:	62367
Tank Status:	In Service
Tank Model:	104
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	12000
Tightness Test Method:	14

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	7/8/2005
Register:	True
Modified By:	dxliving
Last Modified:	1/5/2009
Site ID:	22095
Tank Number:	3
Tank ID:	62368
Tank Status:	In Service
Tank Model:	104
Pipe Model:	Not reported
Install Date:	12/1/2001
Capacity Gallons:	12000
Tightness Test Method:	14
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	7/8/2005
Register:	True
Modified By:	dxliving
Last Modified:	1/5/2009

HIST UST:

PBS Number:	2-600110
SPDES Number:	Not reported
Emergency Contact:	KELLY ACKERMAN
Emergency Telephone:	(800) 892-6626
Operator:	KELLY ACKERMAN
Operator Telephone:	(800) 892-6626
Owner Name:	BP PRODUCTS NORTH AMERICA, INC.
Owner Address:	300 INTERPACE PKWY.
Owner City,St,Zip:	PARSIPPANY, NJ 07054
Owner Telephone:	(973) 331-7000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	BP PRODUCTS NORTH AMERICA, INC.
Mailing Address:	300 INTERPACE PKWY.
Mailing Address 2:	Not reported
Mailing City,St,Zip:	PARSIPPANY, NJ 07054
Mailing Contact:	KELLY ACKERMAN
Mailing Telephone:	(973) 331-7000
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	350 GRAND CONCOURSE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/05/2001
Expiration Date:	10/30/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	36000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19901201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Sacrificial Anode
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Vault (w/access)
Leak Detection:	Groundwater Well
Overfill Prot:	Product Level Gauge
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/2001
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19901201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Sacrificial Anode
Pipe Location:	None
Pipe Type:	STEEL/IRON

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Pipe Internal:	None
Pipe External:	None
Second Containment:	Vault (w/access)
Leak Detection:	Groundwater Well
Overfill Prot:	Product Level Gauge
Dispenser:	Submersible
Date Tested:	02/07/2001
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/2001
Test Method:	Proeco Sewer Test or U2 Ullage
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19901201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Sacrificial Anode
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Vault (w/access)
Leak Detection:	Groundwater Well
Overfill Prot:	Product Level Gauge
Dispenser:	Submersible
Date Tested:	02/07/2001
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/2001
Test Method:	Proeco Sewer Test or U2 Ullage
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19901201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Sacrificial Anode
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Vault (w/access)

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Leak Detection:	Groundwater Well
Overfill Prot:	Product Level Gauge
Dispenser:	Submersible
Date Tested:	02/07/2001
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/2001
Test Method:	Proeco Sewer Test or U2 Ullage
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19901201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Sacrificial Anode
Pipe Location:	None
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	Vault (w/access)
Leak Detection:	Groundwater Well
Overfill Prot:	Product Level Gauge
Dispenser:	Submersible
Date Tested:	02/07/2001
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	12/01/2001
Test Method:	Proeco Sewer Test or U2 Ullage
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	20011201
Capacity (gals):	12000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Submersible

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	20011201
Capacity (gals):	12000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	3
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	20011201
Capacity (gals):	12000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Fiberglass reinforced plastic [FRP]
Tank Internal:	Fiberglass Liner (FRP)
Tank External:	Fiberglass
Pipe Location:	Underground
Pipe Type:	STAINLESS STEEL ALLOY
Pipe Internal:	Fiberglass Liner (FRP)
Pipe External:	Fiberglass
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Submersible
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data

GRAND CONCOURSE PETROLEUM, LLC (Continued) **U003107160**

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

J69 **LOT 42,TAXBLOCK 2341** **E DESIGNATION** **S109942572**
ENE **350 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.089 mi.
471 ft. **Site 3 of 7 in cluster J**

E DESIGNATION:

Tax Lot(s):	42
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G5
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	350 CONCOURSE RLTY CO
Lot Area:	000031100
Total Building Floor Area:	00000002900
Commercial Floor Area:	00000002900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000002900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001

LOT 42,TAXBLOCK 2341 (Continued) **S109942572**

Lot Frontage:	0311.95
Lot Depth:	0100.00
Building Frontage:	0030.00
Building Depth:	0050.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000182250
Total Assessed Value:	00000677250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	1993
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410042
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004114
Y Coordinate:	0236359
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	42
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040

LOT 42,TAXBLOCK 2341 (Continued) **S109942572**

Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G5
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	350 CONCOURSE RLTY CO
Lot Area:	000031100
Total Building Floor Area:	00000002900
Commercial Floor Area:	00000002900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000002900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0311.95
Lot Depth:	0100.00
Building Frontage:	0030.00
Building Depth:	0050.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000182250
Total Assessed Value:	00000677250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	1993
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410042
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004114
Y Coordinate:	0236359
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903

LOT 42,TAXBLOCK 2341 (Continued) **S109942572**

E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	42
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G5
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	350 CONCOURSE RLTY CO
Lot Area:	000031100
Total Building Floor Area:	00000002900
Commercial Floor Area:	00000002900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000002900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001

LOT 42,TAXBLOCK 2341 (Continued) **S109942572**

Lot Frontage:	0311.95
Lot Depth:	0100.00
Building Frontage:	0030.00
Building Depth:	0050.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000182250
Total Assessed Value:	00000677250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	1993
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410042
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004114
Y Coordinate:	0236359
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	42
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1004
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040

LOT 42,TAXBLOCK 2341 (Continued) **S109942572**

Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G5
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	350 CONCOURSE RLTY CO
Lot Area:	000031100
Total Building Floor Area:	00000002900
Commercial Floor Area:	00000002900
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000002900
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0311.95
Lot Depth:	0100.00
Building Frontage:	0030.00
Building Depth:	0050.00
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000182250
Total Assessed Value:	00000677250
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	2002
Year Built Code:	Not reported
Year Altered1:	1993
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023410042
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1004114
Y Coordinate:	0236359
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903

LOT 42,TAXBLOCK 2341 (Continued) **S109942572**

E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

J70 **BP AMOCO STATION #17782** **NY Spills** **S106002004**
ENE **350 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY**
0.089 mi.
471 ft. **Site 4 of 7 in cluster J**

NY Spills:

Site ID:	168726
Facility Addr2:	Not reported
Facility ID:	0111974
Spill Number:	0111974
Facility Type:	ER
SWIS:	0301
Investigator:	rjfeng
Referred To:	AWAIT SULFATE INJECTIONS & MONITORING
Spill Date:	2/20/2002
Reported to Dept:	3/20/2002
CID:	211
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	Not Closed
Remediation Phase:	4
Date Entered In Computer:	3/20/2002
Spill Record Last Update:	7/12/2011
Spiller Name:	BRAD FISHER
Spiller Company:	AMOCO 17782
Spiller Address:	350 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, ZZ
Spiller Company:	001
Contact Name:	BRAD FISHER
Contact Phone:	(914) 765-8198
DEC Region:	2
DER Facility ID:	142117
DEC Memo:	11/28/03 Reassigned from DeMeo to Foley. See spill #9814075 for info on former Merit station on nothern half of property. File review: Underground Storage Tank Excavation Assessment Report (Delta, 11/4/02) Five 4000gal(double-walled steel) gas USTs and an abandoned 550-gal(single-walled steel) UST excavated during raze and rebuild

BP AMOCO STATION #17782 (Continued) **S106002004**

activities. Replaced with three 12000gal gas USTs in a separate tank cavity. Lab analysis of the gasoline tank field post-ex soil samples identified MTBE in excess of TAGM in the four bottom samples (tank-2, tank-3, tank-4 and tank-5). MTBE concentrations ranged from 1500ppb(tank-5) to 7740ppb(tank-3). Total BTEX was non-detect in all soil samples. No soil was excavated during tank pulls. Delta proposes conducting a Geoprobe assessment in the vicinity of the former tank field to delineate soil concentrations. 12/31/03 Received SHAR (Delta, 12/22/03) Report only covers the southern half of the existing BP service station. The nothern half is managed by Amerada Hess, formerly occupied by a Merit station. Site plan shows 6 monitoring wells on the northern portion of the property.(see spill #9814075) 1360 tons of petroleum-impacted soils were removed during raze and rebuild. Six soil borings were advanced around the former tank field and pump islands to depths between 11.5 and 20ft bgs. Lab analysis of soil samples did not identify VOCs in excess of TAGM. Three soil borings were converted to temporary 1" wells. Groundwater samples collected identified between nine and fourteen VOCs in excess of GWQS in all three samples. MTBE concentrations ranged from 2820ppb(SB-1/water) to 11500ppb(SB-2/water). Delta installed three 2" permanent monitoring wells in June/July 2003 to depths between 19.9 and 21.4'bgs. Underlying bedrock was encountered in one of the three borings at 21.5'. Additional groundwater samples were collected. Lab analysis identified VOCs in excess of GWQS in all three samples. 1/5/04 Discussed site with J. Sun, PM for Hess(#9814075). He will look for signed STIP from Hess for northern section of property. May have existing remediation system on property. 1/29/04 Received 4Q2003 monitoring report(Delta, 1/21/04). Max BTEX 29936ppb(MW-5) and max MTBE 2860ppb(MW-4). MW-2 is clean. 1/29/04 Joe Sun sent out stip to Hess. 3/24/04 Hess stip executed. 4/22/04 Received 1Q2004 monitoring report. DTW 12.5-19'bgs. Total BTEX from 10ppb(MW-2) to 15962ppb(MW-1). MTBE from 6.9ppb(MW-2) to 1720ppb(MW-3). 10/14/04 2Q04 monitoring report received. DTW 13-18'bgs. BTEX from 12ppb(MW-2) to 16174ppb(MW-1). MTBE from 3ppb(MW-2) to 1160ppb(MW-1). 4/7/05 Received 3Q04 and 4Q04 monitoring reports. 3Q04- BTEX ranged from ND(MW-2) to 18124ppb(MW-1). MTBE ranged from ND(MW-2) to 424ppb(MW-3). 4Q04- BTEX ranged from 1ppb(MW-2) to 16084ppb(MW-1). MTBE ranged from 9ppb(MW-2) to 507ppb(MW-3). 11/9/05: Reviewed quarterly report dated 9/29/05. Three wells sampled on 6/10/05. No LNAPL present. Max BTEX is 22437ppb (MW1) and max MTBE is 328ppb(MW3). 11/25/05 3Q05 - DTW 11.82-19.30'bgs. No LNAPL present. BTEX from 0.5ppb(MW-2) to 9858ppb(MW-1). MTBE from 2ppb(MW-2) to 559ppb(MW-3). 3/28/06 4Q05 sampling conducted 12/28/05 on three MWs. DTW 11.74-17.91'bgs. BTEX from 34ppb(MW-2) to 31268ppb(MW-1). MTBE from ND(MW-1) to 131ppb(MW-3). MW-1 is problem well. Concentrations in downgradient well(MW-3) are fluctuating. Hess has system operating on northside of property. 6/8/2006 - Feng - project reassigned to RJFeng. (RJF) 9/29/2006 - Feng - Portfolio meeting with BP and Delta. The site has limited access to trucks due to the canopy. Delta will keep quarterly monitoring. (RJF) 1/4/2007 - Feng - 1Q2006, 10/18/2006, by Delta. Groundwater sampled and gauged 3/3/2006. 3 monitoring wells. DTW 12.23' to 18.31' bg. Flows southeast. No LNAPL. MW-1, 13,489 ppb BTEX, 23.8 ppb MTBE. MW-2, 1.4 ppb BTEX, 2.1 ppb MTBE. MW-3, 60.4 ppb BTEX, 81.4 ppb MTBE. (RJF) 2/6/2007 - Feng - 2Q2006, 12/11/2006, by Delta. Groundwater sampled and gauged 6/30/2006. 3 monitoring wells. DTW 10.82' to 17.93' bg. Flows east-southeast. No LNAPL. MW-1, 14,887 ppb BTEX, 8.6 ppb MTBE. MW-2,

BP AMOCO STATION #17782 (Continued) **S106002004**

133.62 ppb BTEX, 0.4 ppb MTBE. 16.69 ppb BTEX, 30.4 ppb MTBE. Checked with Hess PM, RAP for SVE and ORC socks approved, but not implemented yet. (RJF) 5/29/2007 - Feng - 3Q2006, 1/22/2007, by Delta. Groundwater sampled and gauged 9/26/2006. 3 monitoring wells. DTW 11.98' to 18.02' bg. Flows to southeast. LNAPL in MW-1 (0.02'). MW-1, 9,882 ppb BTEX, 7.7 ppb MTBE. MW-2, 0.45 ppb BTEX, 2 ppb MTBE. MW-3, 9.8 ppb BTEX, 20.6 ppb MTBE. (RJF) 8/15/2007 - Feng - 4Q2006, 7/2/2007. Groundwater sampled 12/13/2006. All 3 monitoring wells were sampled. DTW 12.09' to 18.14' bg. Flows to southeast. No LNAPL. MW-1, 17,027 ppb BTEX, <50 ppb MTBE. MW-2, BTEX ND, 1.7 ppb MTBE. MW-3, 21.7 ppb BTEX, 31.5 ppb MTBE. (RJF) 11/21/2007 - Feng - 1Q2007, 8/30/2007. Groundwater sampled 3/28/2007. All 3 monitoring wells were sampled. DTW 11.76' to 17.77' bg. Flows to southeast. No LNAPL. BTEX range ND to 10,616 ppb (MW-1). MTBE range 1.1 ppb to 13.6 ppb (MW-3). (RJF) 3/20/2008 - Feng - eDoc Quarterly Monitoring Report 3Q2007, 4Q2007 and 1Q2008. (RJF) 6/26/2008 - 3Q2007, 2/25/2008. Active service station. The monitoring well network was gauged and sampled on 8/22/007. The site was not sampled in 2Q2007. 3 monitoring wells were gauged and sampled. DTW 11.30' to 17.66' bg. Flows to southeast. No LNAPL. BTEX range ND to 9,528 ppb (MW-1). MTBE range ND to 14.2 ppb (MW-3). 4Q2007, 2/25/2008. Active service station. The monitoring well network was gauged and sampled 11/14/2007. 3 monitoring wells. DTW 12.27' to 18.54' bg. Flows to southeast. NO LNAPL. BTEX range ND to 10,323 ppb (MW-1). MTBE range N Dto 26.2 ppb (MW-3). 1Q2008, 3/10/2008. Active service station. The monitoring well network was gauged and sampled 2/7/2008. 3 monitoring wells. DTW 12.45' to 18.49' bg. Flows to southeast. NO LNAPL. BTEX range 1 ppb to 10,600 ppb (MW-1). MTBE range 1 ppb to 25 ppb (MW-3). (RJF) 10/29/2008 - 2Q2008, 9/20/2008, by Delta. Active station. The monitoring well network was gauged and sampled 6/27/2008. 3 wells were gauged. NO LNAPL. DTW 11.66' to 18.62' bg. Flows to southeast. 3 wells were sampled. BTEX range 0.67 ug/L to 9,770 ug/L (MW-1). MTBE range ND to 14.0 ug/L (MW-3). (RJF) 3/4/2009 - 3Q2008, 12/11/2008, by Delta. Active station. The monitoring well nework was gauged and sampled 9/4/2008. 3 wells were gauged. LNAPL in MW-1 (0.02'). DTW 11.95' to 18.09' bg. Flows to southeast. 3 wells were sampled. BTEX range ND to 10,540 ug/L (MW-1). MTBE range 1.1 ug/L to 7.2 ug/L (MW-3). 4Q2008, 1/30/2009, by Delta. Active station. The monitoring well network was gauged and sampled on 12/17/2008. 3 wells were gauged. LNAPL in MW-1 (0.03'). DTW 11.57' to 17.57' bg. Flows to southeast. 3 wells were sampled. BTEX range ND to 9,980 ug/L (MW-1). MTBE range ND to 8.3 ug/L (MW-3). (RJF) 8/14/2009 - Reviewed Drilling Work Plan, dated 6/29/2009, by Delta, pdf copy via email. Delta proposes to install 2 monitoring wells northwest and southwest of MW-1. Email comments to Delta requiring one more downgradient well at the east side of the canopy. Revision due 9/2009. (RJF) 9/1/2009 - 2Q2009, 8/5/2009, by Delta. Active station. The monitoring well network was gauged and sampled on 6/29/2009. 3 wells were gauged. NO LNAPL. DTW 10.87' to 17.20' bg. Flows to southeast. 3 wells were sampled. BTEX range ND to 10,407 ug/L (MW-1). MTBE range ND to 7.1 ug/L (MW-3). (RJF) 9/11/2009 - email from Delta. attached with the SHAR of 12/29/2003. Delta installed SB-6 at the east side of the canopy/tanks. The boring was advanced to 11.5 feet bgs. Weathered bedrock was encountered at approximately 8 feet bgs and there was no overburden saturation. soil sample taken from 9-11.5 feet, no VOCs/SVOCs detected. Delta requested not to install the well over there as required by DEC 8/14/2009. (RJF) 3Q2009, 12/7/2009, by ARCADIS. 3 wells were gauged

BP AMOCO STATION #17782 (Continued) **S106002004**

and sampled on 9/25/2009. LNAPL in MW-1 (0.01'). Max benzene 81 ug/L (MW-1). Max BTEX 6,200 ug/L (MW-1). Max MTBE 6.3 ug/L (MW-3). ARCADIS requests to reduce the monthly gauging to quarterly based on the intermittent nature of LNAPL occurrence in MW-1. 4Q2009, 2/5/2010, by ARCADIS. 3 wells were gauged and sampled on 12/30/2009. DTW 11.34-17.20' bg. Flows to east-southeast. NO LNAPL. max benzene 34 ug/L (MW-1). Max BTEX 7,900 ug/L (MW-1). Max MTBE 5.2 ug/L (MW-1). Due to project transition, the monthly guaging did not occur in October, November or January 2010, but has now resumed. Installation of 3 additional wells was proposed to DEC 12/2009 and will schedule field upon approval. 3/16/2010 - Reviewed Investigation Work Plan revision, dated 3/8/2010, by ARCADIS. ARCADIS proposes to install 3 monitoring wells, MW-4 west of the canopy, MW-5 south of the canopy in between MW-1 and MW-2, MW-6 east of the canopy. Work plan is approved. Report due 6/2010. (RJF) 5/21/2010 - 1Q2010, 4/28/2010, by ARCADIS. 3 wells were gauged and sampled on 3/12/2010. DTW 19.73-21.33' bg. Flows to east-southeast. NO LNAPL. Max benzene 52 ug/L (MW-1). Max BTEX 7,500J ug/L (MW-1). Max MTBE 4.5J (MW-1). The 3 new wells are scheduled to be installed in 5/2010. ARCADIS requests reduce monthly gauging to quarterly. 08/26/10: This spill case is transferred from R. Feng to J. Kolleeny. Reviewed Results of 2nd Quarter 2010 GW Monitoring and Subsurface Hydrocarbon Assessment Rpt by ARCADIS, both dated 8/16/10 (in eDocs). 2nd Quarter 2010 sampling shows high dissolved contam in well MW-1. Subsurface Invest Rpt. summarizes install'n & sampling of 3 new soil borings, two of which were converted into mon wells (3rd boring hit refusal on presumed bedrock w/o hitting GW). Borings found saturated zone soil contam at MW-4, and significant GW impacts at MW-4 and MW-5. ARCADIS proposed adding new wells to mon program, continued quarterly mon, and evaluation of remedial technologies, feasibility study and remedial action plan. I sent letter (in eDocs) to Jon Armstrong of BP, cc's to Ray Wagner and Andrew Korik of ARCADIS, asking for addt'l delin wells to north & west of most contaminated wells (MW-1, MW-4 & MW-5), with work plan for wells due by 9/17/10 and RAP due by 12/3/10. - J. Kolleeny 08/30/10: Spill no. at adjacent former Merit Station to north of site (cleanup being managed by Hess) is 9814075; see rpts in eDocs for GW data. - J. Kolleeny 09/01/10: On 8/27/10 received email from Ray Wagner of ARCADIS: "I believe we can accommodate you on request to add Former UST areas to site plans, where applicable, and we have this info. We will begin this process; please keep in mind there may be a little lag in updating some sites as we will be pulling figures from archive site files sent from Delta. I would like to have a call with you to discuss recently submitted investig rpt for BP station 17782 and your request for addt'l delin wells to west & north of MW-4. Merit site to north has wells just north of MW-4, and stepping out to west of MW-4 is limited due to subway and street. Please let me know if you would be available to discuss this later today or early next week." Spoke with Ray later that day, asked if he could send site plan showing northern half of site (former Merit Station), where cleanup is being managed by Hess. On 8/30/10, he sent figure and 2009 rpt by EnviroTrac showing wells on north portion of site and GW data. I sent email: "Thanks for fig. and rpt. Have you been able to find out anything about location of former USTs at former Amoco station?" He replied he would have that info by 9/1/10. On 9/1/10, received email from Andrew Korik of ARCADIS showing former UST locations on former Amoco & Merit portions of site (in eDocs). I sent email to Andrew & Ray of ARCADIS, cc to Jon Armstrong of BP:

BP AMOCO STATION #17782 (Continued) **S106002004**

"Thanks for sending site plans with former UST locations. I looked over fig. and 2009 EnviroTrac rpt sent few days ago by Ray, and I also looked at more recent EnviroTrac rpt (July 2010) for northern (former Merit sta.) portion of site, and I see that monitoring well "MW-4" on southwestern part of that site has either been destroyed or is not being sampled. Therefore, I believe that an addt'l well to north of ARCADIS well MW-4 on former Amoco site, near former property line, is warranted. In light of constraints posed by nearby subway & Grand Concourse, I will not at this time ask for addt'l delin wells west of contam area represented by wells MW-1, MW-4 & MW-5. Please contact me if you have questions." - JK 09/07/10: On 9/2/10, received email from Andrew Korik of ARCADIS with attached site plan showing proposed addt'l well location as requested (in eDocs). Email stated: "Per your rqst, see attached fig which shows location of one addt'l mon well proposed to be installed near former property boundary north of our existing MW-4. With your approval, we will schedule install'n & sampling of this well in accordance with procedures outlined in 3/8/10 Work Plan, approved by NYSDEC. Please contact me if you have any questions. Due to proximity of subway tunnel under street and portion of sidewalk, well may need to be moved 5 or 10 ft to east pending comments from NY MTA. Thank you." On 9/7/10, I sent email reply, with cc's to Ray Wagner of ARCADIS & Jon Armstrong of BP: "I would prefer if you could install new well about 5 ft to south of proposed location shown on attached drawing. However, I understand that final location of well may be largely determined by presence of subsurface utilities. Please consider this email as authorization to proceed with install'n of addt'l mon well. Well should be installed in accordance with procedures outlined in 03/08/10 Work Plan approved by NYSDEC. Feel free to contact me if you have any questions." Andrew wrote back: "Will try to install per your preference, assuming field conditions allow." - JK 11/22/10: Received email from Andrew Korik of ARCADIS: "Just wanted to update you on work at BP site 17782 at 350 Grand Concourse. We installed and sampled addt'l well along sidewalk as requested. I am just wrapping up combined 3rd quarter rpt/well install'n rpt and expect to have something to you next week. We are also reviewing remedial alternatives and will be developing a RAP shortly." - J. Kolleeny 03/01/11: Reviewed Results of 3rd Quarter 2010 GW Monitoring and Intall'n of Addt'l GW Mon Well rpt by ARCADIS dated 12/3/10 (in eDocs). Results of Sept. 2010 GW sampling show MW-1 had 4,050 ug/L total BTEX (down from 7,890 ug/L in June 2010), MW-4 had 6,390 ug/L tBTEX (down from 13,600 ug/L in July 2010). New well MW-6A was intalled as requested by DEC; soil samples showed VOC detections but no TAGM 4046 exceedances in sample at GW interface (12.5-13 ft bgs), but significant exceedances in soil sample from below water table (18-18.5 ft bgs), including 15 mg/kg ethylbenzene, 73 mg/kg m,p-xylene, 19 ug/L o-xylene, 42 mg/kg 1,2,4-trimethylbenzene, and 14 mg/kg 1,3,5-trimethylbenzene. GW sample from new well MW-6A, taken in Oct. 2010, was very contaminated, with 12,500 ug/L tBTEX and over 15,000 ug/L total VOCs. Rpt recommendations state quarterly GW monitoring will continue, with MW-6A added to mon program, and that RAP will be prepared and submitted to DEC in Jan. 2011. - J. Kolleeny 04/08/11: Reviewed 4th Quarter 2010 GW Monitoring and Analysis Rpt by ARCADIS, dated 3/7/11 (in eDocs). Results of Nov. and Dec. 2010 GW sampling show MW-1 had 6,150 ug/L total BTEX in Nov. 2010 (up from 4,050 ug/L in Sept. 2010) and increased to 10,700 ug/L tBTEX in Dec. 2010; MW-4 had 9,520 ug/L tBTEX in Nov. 2010 (up from 6390 ug/L in Sept. 2010) and increased to

BP AMOCO STATION #17782 (Continued) **S106002004**

10,600 ug/L tBTEX in Dec. 2010; MW-6A, not sampled in Nov. 2010, had 12,800 ug/L tBTEX in Dec. 2010 (up a little from 12,500 ug/L in Oct. 2010). Rpt recommendations state quarterly sampling & monthly gauging will continue, and RAP will be submitted in March 2011. - JK 04/11/11: Reviewed Remedial Action Work Plan for Anaerobic Biological Oxidation by ARCADIS, dated 2/28/11 (in eDocs). RAWP proposes injection of sulfate via 5 new injection wells, to enhance bioremediation and address persistent GW contam along west side of site. After 1st injection, one or two rounds of performance monitoring will be performed to determine frequency of addt'l injections. I sent approval letter (in eDocs) to Jon Armstrong of BP, cc's to Andrew Korik & Gene Choquette of ARCADIS. - J. Kolleeny 4/11/2011 - Spill transferred back to JFeng. 5/4/2011 - email from Andy Korik "June - we are scheduled to install the injection wells per the approved RAWP starting Monday May 9 at the 350 Grand Concourse site. Please call me if you have any questions. Can we change the monthly gauging to quarterly at these sites where we have not seen product in over 1 year?" 5/5/2011 - email to Andy Korik "Andy, Yes, you can switch from monthly gauging to quarterly gauging for this site. In yesterday's email you said the field work will start on Monday 5/9/2011, how many days are you expected to be in the field? June" email from Andy Korik "The first day will be coring and hand clearing of the borings. I expect the well installations will start on Tuesday and be finished on Thursday - so 4 days on site (3 if things go very quickly)." JF 5/17/2011 - received email attached with 1Q2011 quarterly report. eDoc. JF 5/25/2011 - email from Andy Korik of ARCADIS "June - here is notification that the injection wells were installed at 350 Grand Concourse. Injection well IW-03 could not be installed due to shallow refusal with 4 attempts. We can compensate by increasing injection volumes at the other 4 wells. Still waiting for USEPA approval to inject." Sulfate Injection Well Installation Notification was attached. eDoc. JF 7/11/2011 - 1Q2011, 5/17/2011, by ARCADIS. The groundwater samples were collected on 3/31/2011. 6 wells were sampled. MW-6A located in the north of MW-4 and west of the canopy was installed in 10/2010. NO LNAPL. The site is changed to quarterly gauging. Max BTEX 11,000 ug/L (MW-6A). Max MTBE 12 ug/L (MW-5). Sulfate Injection Well Installation Notification, 5/25/211, by ARCADIS. The installation of four sulfate injection wells took place during the week of May 9 through May 13, 2011. The approved RAWP specified that 5 injection wells to be installed; however, due to refusal at 1.5 to 5 feet depth during 4 attempts to install well IW-03, an injection well was not installed at the proposed IW-03 location. Injection volumes at IW-2 and IW-04 can be adjusted to compensated for the absense of IW-03. They submitted an Inventory of Injection Wells package to USEPA on 5/5/2011. Will notify DEC one week prior to the injection. No soil and groudwater samples taken. JF

Remarks: impacted soil discovered tank removal - will be excvated during rebuild

Material:

Site ID:	168726
Operable Unit ID:	848924
Operable Unit:	01
Material ID:	2099346
Material Code:	2645A
Material Name:	BTEX
Case No.:	Not reported

BP AMOCO STATION #17782 (Continued) **S106002004**

Material FA:	Oxygenates
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	True
Site ID:	168726
Operable Unit ID:	848924
Operable Unit:	01
Material ID:	2099345
Material Code:	1213A
Material Name:	MTBE (METHYL-TERT-BUTYL ETHER)
Case No.:	01634044
Material FA:	Hazardous Material
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	True
Site ID:	168726
Operable Unit ID:	848924
Operable Unit:	01
Material ID:	525990
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	True

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

H71 **LOT 49,TAXBLOCK 2345** **E DESIGNATION** **S109942629**
NE **349 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.089 mi.
472 ft. **Site 4 of 9 in cluster H**

E DESIGNATION:

Tax Lot(s):	49
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported

LOT 49,TAXBLOCK 2345 (Continued) **S109942629**

Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O5
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ALL CITY CP TRNSPRTNI
Lot Area:	000002436
Total Building Floor Area:	00000002202
Commercial Floor Area:	00000002202
Office Floor Area:	00000002202
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0042.00
Lot Depth:	0058.00
Building Frontage:	0042.00
Building Depth:	0052.42
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000018000
Total Assessed Value:	00000090900
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000

LOT 49,TAXBLOCK 2345 (Continued) **S109942629**

Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450049
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003897
Y Coordinate:	0236323
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	49
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O5
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ALL CITY CP TRNSPRTNI
Lot Area:	000002436
Total Building Floor Area:	00000002202

LOT 49,TAXBLOCK 2345 (Continued) **S109942629**

Commercial Floor Area:	00000002202
Office Floor Area:	00000002202
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0042.00
Lot Depth:	0058.00
Building Frontage:	0042.00
Building Depth:	0052.42
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000018000
Total Assessed Value:	00000090900
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450049
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003897
Y Coordinate:	0236323
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	49
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X

LOT 49,TAXBLOCK 2345 (Continued) **S109942629**

Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O5
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ALL CITY CP TRNSPRTNI
Lot Area:	000002436
Total Building Floor Area:	00000002202
Commercial Floor Area:	00000002202
Office Floor Area:	00000002202
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0042.00
Lot Depth:	0058.00
Building Frontage:	0042.00
Building Depth:	0052.42
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000018000
Total Assessed Value:	00000090900
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported

LOT 49,TAXBLOCK 2345 (Continued) **S109942629**

Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450049
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003897
Y Coordinate:	0236323
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	49
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	O5
Land Use Category:	05
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	ALL CITY CP TRNSPRTNI
Lot Area:	000002436
Total Building Floor Area:	00000002202

LOT 49,TAXBLOCK 2345 (Continued) **S109942629**

Commercial Floor Area:	00000002202
Office Floor Area:	00000002202
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0042.00
Lot Depth:	0058.00
Building Frontage:	0042.00
Building Depth:	0052.42
Proximity Code:	0
Irregular Lot Code:	N
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000018000
Total Assessed Value:	00000090900
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.90
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450049
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003897
Y Coordinate:	0236323
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

H72 **LOT 14,TAXBLOCK 2345** **E DESIGNATION** **S109942225**
NNE **356 WALTON AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.091 mi.
483 ft. **Site 5 of 9 in cluster H**

E DESIGNATION:

Tax Lot(s):	14
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000019214
Total Building Floor Area:	00000022294
Commercial Floor Area:	00000022294
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000022294
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0100.08
Lot Depth:	0168.42
Building Frontage:	0142.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y

LOT 14,TAXBLOCK 2345 (Continued) **S109942225**

Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000062100
Total Assessed Value:	00000161550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.16
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450014
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003880
Y Coordinate:	0236438
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	14
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported

LOT 14,TAXBLOCK 2345 (Continued) **S109942225**

All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000019214
Total Building Floor Area:	00000022294
Commercial Floor Area:	00000022294
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000022294
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0100.08
Lot Depth:	0168.42
Building Frontage:	0142.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000062100
Total Assessed Value:	00000161550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.16
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450014
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003880
Y Coordinate:	0236438
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005

LOT 14,TAXBLOCK 2345 (Continued) **S109942225**

Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	14
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000019214
Total Building Floor Area:	00000022294
Commercial Floor Area:	00000022294
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000022294
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0100.08
Lot Depth:	0168.42
Building Frontage:	0142.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5

LOT 14,TAXBLOCK 2345 (Continued) **S109942225**

Basement Type Grade:	5
Land Assessed Value:	00000062100
Total Assessed Value:	00000161550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.16
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450014
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003880
Y Coordinate:	0236438
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	14
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2

LOT 14,TAXBLOCK 2345 (Continued) **S109942225**

All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000019214
Total Building Floor Area:	00000022294
Commercial Floor Area:	00000022294
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000022294
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0100.08
Lot Depth:	0168.42
Building Frontage:	0142.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000062100
Total Assessed Value:	00000161550
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.16
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450014
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003880
Y Coordinate:	0236438
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006

LOT 14,TAXBLOCK 2345 (Continued) **S109942225**

Date of Mass Appraisal Data: 11/2005
Date of Political and Adm Data: 08/2005
Pluto-Base Map Indicator: 1

I73 **LOT 46,TAXBLOCK 2349** **E DESIGNATION** **S109942608**
NNW **329 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.092 mi.
487 ft. **Site 4 of 6 in cluster I**

E DESIGNATION:

Tax Lot(s):	46
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E1
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BORDEN REALTY CORP
Lot Area:	000029200
Total Building Floor Area:	00000031850
Commercial Floor Area:	00000031850
Office Floor Area:	00000004250
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000027600
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0105.66
Lot Depth:	0274.81

LOT 46,TAXBLOCK 2349 (Continued) **S109942608**

Building Frontage:	0100.44
Building Depth:	0274.81
Proximity Code:	1
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000111600
Total Assessed Value:	00000504000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1962
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490046
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003109
Y Coordinate:	0236659
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	46
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported

LOT 46,TAXBLOCK 2349 (Continued) **S109942608**

Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E1
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BORDEN REALTY CORP
Lot Area:	000029200
Total Building Floor Area:	00000031850
Commercial Floor Area:	00000031850
Office Floor Area:	00000004250
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000027600
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0105.66
Lot Depth:	0274.81
Building Frontage:	0100.44
Building Depth:	0274.81
Proximity Code:	1
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000111600
Total Assessed Value:	00000504000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1962
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490046
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003109
Y Coordinate:	0236659
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005

LOT 46,TAXBLOCK 2349 (Continued) **S109942608**

Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	46
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E1
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BORDEN REALTY CORP
Lot Area:	000029200
Total Building Floor Area:	00000031850
Commercial Floor Area:	00000031850
Office Floor Area:	00000004250
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000027600
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0105.66
Lot Depth:	0274.81
Building Frontage:	0100.44

LOT 46,TAXBLOCK 2349 (Continued) **S109942608**

Building Depth:	0274.81
Proximity Code:	1
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000111600
Total Assessed Value:	00000504000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1962
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490046
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003109
Y Coordinate:	0236659
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	46
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported

LOT 46,TAXBLOCK 2349 (Continued) **S109942608**

Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E1
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	BORDEN REALTY CORP
Lot Area:	000029200
Total Building Floor Area:	00000031850
Commercial Floor Area:	00000031850
Office Floor Area:	00000004250
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000027600
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0105.66
Lot Depth:	0274.81
Building Frontage:	0100.44
Building Depth:	0274.81
Proximity Code:	1
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000111600
Total Assessed Value:	00000504000
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1962
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0001.09
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490046
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003109
Y Coordinate:	0236659
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005

LOT 46,TAXBLOCK 2349 (Continued) **S109942608**

Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

I74 **LOT 100,TAXBLOCK 2349** **E DESIGNATION** **S109942166**
NNW **333 EXTERIOR STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.097 mi.
512 ft. **Site 5 of 6 in cluster I**

E DESIGNATION:

Tax Lot(s):	100
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	1
Owner, Type of Code:	P
Owner Name:	METRO AFFILIATES INC
Lot Area:	000147900
Total Building Floor Area:	00000007000
Commercial Floor Area:	00000007000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000007000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7

LOT 100,TAXBLOCK 2349 (Continued) **S109942166**

Number of Buildings:	00002
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0228.33
Lot Depth:	0336.58
Building Frontage:	0099.00
Building Depth:	0072.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000424350
Total Assessed Value:	00000648000
Land Exempt Value:	00000000000
Total Exempt Value:	00000132300
Year Built:	1989
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.05
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490100
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003111
Y Coordinate:	0237044
Zoning Map:	06A
Sanborn Map:	209N051
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	100
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07

LOT 100,TAXBLOCK 2349 (Continued) **S109942166**

City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	1
Owner, Type of Code:	P
Owner Name:	METRO AFFILIATES INC
Lot Area:	000147900
Total Building Floor Area:	00000007000
Commercial Floor Area:	00000007000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000007000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0228.33
Lot Depth:	0336.58
Building Frontage:	0099.00
Building Depth:	0072.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000424350
Total Assessed Value:	00000648000
Land Exempt Value:	00000000000
Total Exempt Value:	00000132300
Year Built:	1989
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.05
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490100
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003111

LOT 100,TAXBLOCK 2349 (Continued) **S109942166**

Y Coordinate:	0237044
Zoning Map:	06A
Sanborn Map:	209N051
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	100
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Window Wall Attenuation & Alternate Ventilation
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	1
Owner, Type of Code:	P
Owner Name:	METRO AFFILIATES INC
Lot Area:	000147900
Total Building Floor Area:	00000007000
Commercial Floor Area:	00000007000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000007000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002

LOT 100,TAXBLOCK 2349 (Continued) **S109942166**

Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0228.33
Lot Depth:	0336.58
Building Frontage:	0099.00
Building Depth:	0072.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000424350
Total Assessed Value:	00000648000
Land Exempt Value:	00000000000
Total Exempt Value:	00000132300
Year Built:	1989
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.05
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490100
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003111
Y Coordinate:	0237044
Zoning Map:	06A
Sanborn Map:	209N051
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	100
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2003
School District:	07
City Council District:	17

LOT 100,TAXBLOCK 2349 (Continued) **S109942166**

Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	1
Owner, Type of Code:	P
Owner Name:	METRO AFFILIATES INC
Lot Area:	000147900
Total Building Floor Area:	00000007000
Commercial Floor Area:	00000007000
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000007000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0228.33
Lot Depth:	0336.58
Building Frontage:	0099.00
Building Depth:	0072.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000424350
Total Assessed Value:	00000648000
Land Exempt Value:	00000000000
Total Exempt Value:	00000132300
Year Built:	1989
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.05
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023490100
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003111
Y Coordinate:	0237044

LOT 100,TAXBLOCK 2349 (Continued) **S109942166**

Zoning Map:	06A
Sanborn Map:	209N051
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

K75 **LOT 11,TAXBLOCK 2340** **E DESIGNATION** **S109942171**
SE **2564 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.104 mi.
550 ft. **Site 1 of 6 in cluster K**

E DESIGNATION:

Tax Lot(s):	11
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	47
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	CAFFREY JAMES
Lot Area:	000018091
Total Building Floor Area:	00000056190
Commercial Floor Area:	00000056190
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000

LOT 11,TAXBLOCK 2340 (Continued) **S109942171**

Storage Floor Area:	00000056190
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	005.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0061.17
Lot Depth:	0222.42
Building Frontage:	0074.67
Building Depth:	0090.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000049050
Total Assessed Value:	00000715500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.11
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023400011
Condominium Number:	00000
Census Tract 2:	0047
X Coordinate:	1004045
Y Coordinate:	0235369
Zoning Map:	06A
Sanborn Map:	209N067
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	11
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems

LOT 11,TAXBLOCK 2340 (Continued) **S109942171**

Borough Code:	BX
Community District:	201
Census Tract:	47
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	CAFFREY JAMES
Lot Area:	000018091
Total Building Floor Area:	00000056190
Commercial Floor Area:	00000056190
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000056190
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	005.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0061.17
Lot Depth:	0222.42
Building Frontage:	0074.67
Building Depth:	0090.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000049050
Total Assessed Value:	00000715500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.11
Maximum Allowable Far:	02.00

LOT 11,TAXBLOCK 2340 (Continued) **S109942171**

Borough Code:	2
Borough Tax Block And Lot:	2023400011
Condominium Number:	00000
Census Tract 2:	0047
X Coordinate:	1004045
Y Coordinate:	0235369
Zoning Map:	06A
Sanborn Map:	209N067
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	11
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	47
Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	CAFFREY JAMES
Lot Area:	000018091
Total Building Floor Area:	00000056190
Commercial Floor Area:	00000056190
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000

LOT 11,TAXBLOCK 2340 (Continued) **S109942171**

Storage Floor Area:	00000056190
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	005.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0061.17
Lot Depth:	0222.42
Building Frontage:	0074.67
Building Depth:	0090.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000049050
Total Assessed Value:	00000715500
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0003.11
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023400011
Condominium Number:	00000
Census Tract 2:	0047
X Coordinate:	1004045
Y Coordinate:	0235369
Zoning Map:	06A
Sanborn Map:	209N067
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

H76 **368 WALTON AVENUE** **NY Spills** **S102147079**
NNE **368 WALTON AVENUE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.106 mi.
558 ft. **Site 6 of 9 in cluster H**

NY Spills:

Site ID:	191735
Facility Addr2:	Not reported
Facility ID:	9307897
Spill Number:	9307897
Facility Type:	ER
SWIS:	0301
Investigator:	SMSANGES
Referred To:	Not reported
Spill Date:	8/6/1993
Reported to Dept:	9/29/1993
CID:	Not reported
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	DEC
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	4/10/2002
Remediation Phase:	0
Date Entered In Computer:	9/29/1993
Spill Record Last Update:	6/30/2003
Spiller Name:	Not reported
Spiller Company:	U-HAUL
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	159916
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SANGESLAND" 4/10/2002 - Mr. Levent Eskicakit at ATC (212-353-8280)submitted a Site Closure Letter (with backup data) in October 2000. Sangesland requested additional rounds of groundwater sampling which was done in Feb 2001, Sept 2001 and January 2002. Samples were taken from 3 wells (MW1, MW2, MW3) The results showed continued declines in BTEX and MTBE levels over time. Samples from the three wells from Feb 2001, Sept 2001 and Jan 2002 all show non-detect for BTEX. In only the Feb 2001 sample there were trace levels of a couple of VOC's, but these were all non-detect by the Sept 2001 sampling. MTBE levels in MW1 have dropped over these last three sampling cycles from 458 (ug/l) to 199 and finally to 138 (Jan 2002) MTBE levels in MW2 have been trace (<5 ug/l) for this period. MTBE levels in MW3 were trace and are now non-detect. Based on this information, the NYSDEC is closing this site out with a "No Further Action" letter. The only exceedance of state standards at this time is for MTBE in MW1. Based on the historical data, the NYSDEC believes

368 WALTON AVENUE (Continued) **S102147079**

this value will attenuate over time.
Remarks: SITE DISABLED / JUNK VEHICLES.

Material:
Site ID: 191735
Operable Unit ID: 989092
Operable Unit: 01
Material ID: 394149
Material Code: 0022
Material Name: Waste Oil/Used Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 0
Units: Pounds
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

NY Hist Spills:
Region of Spill: 2
Spill Number: 9307897
Investigator: GRIFFIN
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 08/06/1993 14:30
Reported to Dept Date/Time: 09/29/93 09:45
SWIS: 60
Spiller Name: Not reported
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Housekeeping
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 01
Spill Notifier: DEC
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False

368 WALTON AVENUE (Continued) **S102147079**

Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/16/97
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 09/29/93
Date Spill Entered In Computer Data File: Not reported
Update Date: 10/16/97
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: False
Units: Pounds
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: WASTE OIL
Class Type: WASTE OIL
Times Material Entry In File: 9509
CAS Number: Not reported
Last Date: 19940927
DEC Remarks: CLOSED DUE TO INSUFFICIENT INFORMATION
Remark: SITE DISABLED / JUNK VEHICLES.

H77 **U HAUL #803-68** **NY Spills** **S104952744**
NNE **368 WALTON AVE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.106 mi.
558 ft. **Site 7 of 9 in cluster H**

NY Spills:
Site ID: 207038
Facility Addr2: Not reported
Facility ID: 0012172
Spill Number: 0012172
Facility Type: ER
SWIS: 0301
Investigator: MXTIPPLE
Referred To: Not reported
Spill Date: 10/23/2000
Reported to Dept: 2/12/2001
CID: 281
Spill Cause: Unknown
Water Affected: Not reported

U HAUL #803-68 (Continued) **S104952744**

Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	6/30/2003
Remediation Phase:	0
Date Entered In Computer:	2/12/2001
Spill Record Last Update:	6/30/2003
Spiller Name:	REID RINER
Spiller Company:	U-HAUL
Spiller Address:	368 WALTON AVE
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	001
Contact Name:	REID RINER
Contact Phone:	(602) 263-6647
DEC Region:	2
DER Facility ID:	171834
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIPPLE" 6/30/03 TIPPLE UPDATING// SEE SPILL # 93-07897
Remarks:	SOIL AND GROUNDWATER SAMPLES FROM ABOVE LOCATION REVEAL CONTAMINATION. CALLER HAS SPOKEN TO REGIONAL OFFICE 2 AND WILL FOLLOW UP WITH THEM.

Material:

Site ID:	207038
Operable Unit ID:	833548
Operable Unit:	01
Material ID:	542452
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

U HAUL #803-68 (Continued) **S104952744**

NY Hist Spills:

Region of Spill:	2
Spill Number:	0012172
Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/23/2000 12:00
Reported to Dept Date/Time:	02/12/01 14:49
SWIS:	60
Spiller Name:	U-HAUL
Spiller Contact:	REID RINER
Spiller Phone:	(602) 263-6647
Spiller Contact:	REID RINER
Spiller Phone:	(602) 263-6647
Spiller Address:	368 WALTON AVE
Spiller City,St,Zip:	BRONX, NY
Spill Cause:	Unknown
Reported to Dept:	Groundwater
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Other
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	02/12/01
Date Spill Entered In Computer Data File:	Not reported
Update Date:	02/13/01
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0

U HAUL #803-68 (Continued) **S104952744**

Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: SOIL AND GROUNDWATER SAMPLES FROM ABOVE LOCATION REVEAL CONTAMINATION. CALLER HAS SPOKEN TO REGIONAL OFFICE 2 AND WILL FOLLOW UP WITH THEM.

H78 **U-HAUL CO OF METRO NY** **UST** **U000416592**
NNE **368 WALTON AVENUE** **HIST UST** **N/A**
< 1/8 **BRONX, NY 10451**
0.106 mi.
558 ft. **Site 8 of 9 in cluster H**

UST:
Facility Id: 2-084042
Region: STATE
DEC Region: 2
Site Status: Unregulated
Program Type: PBS
Expiration Date: N/A
UTM X: 590320.04772000003
UTM Y: 4518887.1496000001

Affiliation Records:
Site Id: 1923
Affiliation Type: Owner
Company Name: U-HAUL CO OF METRO NEW YORK
Contact Type: Not reported
Contact Name: Not reported
Address1: 230 WEST 230TH STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10463-9998
Country Code: 001
Phone: (212) 562-8700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 1923
Affiliation Type: Mail Contact
Company Name: U-HAUL CO OF METRO NEW YORK
Contact Type: Not reported
Contact Name: SUPER FACILITY MANAGER
Address1: 368 WALTON AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (718) 402-9688
Phone Ext: Not reported

U-HAUL CO OF METRO NY (Continued) **U000416592**

Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	1923
Affiliation Type:	On-Site Operator
Company Name:	U-HAUL CO OF METRO NY
Contact Type:	Not reported
Contact Name:	JUANITA GILES
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 402-9688
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	1923
Affiliation Type:	Emergency Contact
Company Name:	U-HAUL CO OF METRO NEW YORK
Contact Type:	Not reported
Contact Name:	WILLIAM NEWTON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 562-8700
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None

Tank Info:

Site ID:	1923

Tank Number:	001
Tank ID:	3174
Tank Status:	Closed - In Place

U-HAUL CO OF METRO NY (Continued) **U000416592**

Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	03
Next Test Date:	Not reported
Date Tank Closed:	6/1/1997
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	1/1/1994
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-084042
SPDES Number:	Not reported
Emergency Contact:	WILLIAM NEWTON
Emergency Telephone:	(718) 562-8700
Operator:	JUANITA GILES
Operator Telephone:	(718) 402-9688
Owner Name:	U-HAUL CO OF METRO NEW YORK
Owner Address:	230 WEST 230TH STREET
Owner City,St,Zip:	BRONX, NY 10463-9998
Owner Telephone:	(212) 562-8700
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	U-HAUL CO OF METRO NEW YORK
Mailing Address:	368 WALTON AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	SUPER FACILITY MANAGER
Mailing Telephone:	(718) 402-9688
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	368 WALTON AVENUE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	12/14/1993
Expiration Date:	03/24/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY

U-HAUL CO OF METRO NY (Continued) **U000416592**

County Code:	60
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Gravity
Date Tested:	01/01/1994
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	06/01/1997
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

K79 **LOT 28,TAXBLOCK 2322** **E DESIGNATION** **S109942393**
SSE **2522 PARK AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.107 mi.
566 ft. **Site 2 of 6 in cluster K**

E DESIGNATION:

Tax Lot(s):	28
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	49
Census Block:	1010
School District:	07
City Council District:	17
Fire Company:	E060
Health Area:	23
Police Precinct:	040
Zone District 1:	M2-1
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported

LOT 28,TAXBLOCK 2322 (Continued) **S109942393**

Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M2-1
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G9
Land Use Category:	07
Number of Easements:	1
Owner, Type of Code:	Not reported
Owner Name:	DOVER GARAGE II, INC.
Lot Area:	000033640
Total Building Floor Area:	00000014100
Commercial Floor Area:	00000014100
Office Floor Area:	00000005000
Retail Floor Area:	00000000000
Garage Floor Area:	00000009100
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00002
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00002
Lot Frontage:	0269.33
Lot Depth:	0164.17
Building Frontage:	0050.00
Building Depth:	0040.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000103950
Total Assessed Value:	00000202950
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1988
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.42
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023220028
Condominium Number:	00000
Census Tract 2:	0049
X Coordinate:	1003716
Y Coordinate:	0235162
Zoning Map:	06A
Sanborn Map:	209S002
Tax Map:	20902
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005

LOT 28,TAXBLOCK 2322 (Continued) **S109942393**

Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

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80 SSW < 1/8 0.107 mi. 566 ft.

233 MAJOR DEGAN EXPWY **NY Spills** **S102672636**
233 MAJOR DEEGAN EXPWY **NY Hist Spills** **N/A**
BRONX, NY

NY Spills:

Site ID:	312768
Facility Addr2:	Not reported
Facility ID:	9409277
Spill Number:	9409277
Facility Type:	ER
SWIS:	0301
Investigator:	MCTIBBE
Referred To:	Not reported
Spill Date:	10/12/1994
Reported to Dept:	10/12/1994
CID:	Not reported
Spill Cause:	Traffic Accident
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Fire Department
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/22/1996
Remediation Phase:	0
Date Entered In Computer:	11/3/1994
Spill Record Last Update:	7/6/2004
Spiller Name:	Not reported
Spiller Company:	UNKNOWN TRACTOR TRAILER
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller Company:	999
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	252179
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIBBE" handled by fdny and nyc dep. CLEANED BY RP.
Remarks:	40 GALLONS INTO STORM DRAIN SURFACE SPILLAGE IN DIKED AREA.

Material:

Site ID:	312768
Operable Unit ID:	1003230
Operable Unit:	01

233 MAJOR DEGAN EXPWY (Continued) **S102672636**

Material ID:	378698
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	100
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9409277
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/12/1994 09:35
Reported to Dept Date/Time:	10/12/94 10:31
SWIS:	60
Spiller Name:	UNKNOWN TRACTOR TRAILER
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Traffic Accident
Reported to Dept:	In Sewer
Water Affected:	Not reported
Spill Source:	07
Spill Notifier:	Fire Department
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False

233 MAJOR DEGAN EXPWY (Continued) **S102672636**

Spill Class: Not reported
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 11/03/94
Date Spill Entered In Computer Data File: Not reported
Update Date: / /
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 100
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Remark: 40 GALLONS INTO STORM DRAIN SURFACE SPILLAGE IN DIKED AREA.

K81 **NYCDEP** **MANIFEST** **1009235626**
SE **PARK AVE & E 138TH ST** **N/A**
< 1/8 **BRONX, NY**
0.109 mi.
576 ft. **Site 3 of 6 in cluster K**

NY MANIFEST:
EPA ID: NYP003660982
Country: USA
Mailing Name: NYCDEP
Mailing Contact: CHRISTOPHER HAAS
Mailing Address: PARK AVE & E 138TH ST
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip: 10451
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 718-595-4664

Document ID: NYG2262573
Manifest Status: Not reported
Trans1 State ID: NYD077444263
Trans2 State ID: Not reported
Generator Ship Date: 03/28/2000
Trans1 Recv Date: 03/28/2000

NYCDEP (Continued) **1009235626**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/28/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP003660982
Trans1 EPA ID:	NYD077444263
Trans2 EPA ID:	Not reported
TSDF ID:	NY68235AK
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00018
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2000

K82 **ON THE STREET** **NY Spills** **S106470056**
SE **EAST 138TH ST./ PARK AVE** **N/A**
< 1/8 **BRONX, NY**
0.109 mi.
576 ft. **Site 4 of 6 in cluster K**

NY Spills:

Site ID:	235475
Facility Addr2:	Not reported
Facility ID:	0402844
Spill Number:	0402844
Facility Type:	ER
SWIS:	0301
Investigator:	TJDEMEO
Referred To:	Not reported
Spill Date:	6/15/2004
Reported to Dept:	6/15/2004
CID:	444
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Unknown
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	6/28/2004
Remediation Phase:	0
Date Entered In Computer:	6/15/2004
Spill Record Last Update:	6/28/2004
Spiller Name:	MAHENDAR RAMNARINE
Spiller Company:	ON THE STREET
Spiller Address:	EAST 138TH ST./ PARK AVE
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	001
Contact Name:	MAHENDAR RAMNARINE
Contact Phone:	(718) 595-4784

ON THE STREET (Continued) **S106470056**

DEC Region: 2
DER Facility ID: 193957
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "DEMEO" 6/29/04 TJD Drum emptied during drum run on 6/23/04. No further action required. Spill closed.
Remarks: 55 GAL DRUM SPILLED

Material:
Site ID: 235475
Operable Unit ID: 884404
Operable Unit: 01
Material ID: 490454
Material Code: 0015
Material Name: Motor Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 55
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

H83 **LOT 18,TAXBLOCK 2345** **E DESIGNATION** **S109942282**
NE **367 GRAND CONCOURSE** **N/A**
< 1/8 **BRONX, NY 10451**
0.109 mi.
578 ft. **Site 9 of 9 in cluster H**

E DESIGNATION:
Tax Lot(s): 18
E-No: E-227
Effective Date: 6/30/2009
Satisfaction Date: Not reported
Ceqr Number: 08DCP071X
Ulurp Number: 090303ZMX
Zoning Map No: 6a
Description: Window Wall Attenuation & Alternate Ventilation
Borough Code: BX
Community District: 201
Census Tract: 57
Census Block: 2008
School District: 07
City Council District: 17
Fire Company: L017
Health Area: 23

LOT 18,TAXBLOCK 2345 (Continued) **S109942282**

Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000016300
Total Building Floor Area:	00000036463
Commercial Floor Area:	00000036463
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000036463
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0100.00
Lot Depth:	0168.42
Building Frontage:	0100.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000306450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1928
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0002.24
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450018
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003907
Y Coordinate:	0236542
Zoning Map:	06A
Sanborn Map:	209N054

LOT 18,TAXBLOCK 2345 (Continued) **S109942282**

Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	18
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Air Quality - #2 Fuel Oil or #4 Fuel Oil or Natural Gas for HVAC systems
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000016300
Total Building Floor Area:	00000036463
Commercial Floor Area:	00000036463
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000036463
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000

LOT 18,TAXBLOCK 2345 (Continued) **S109942282**

Non and Residential Units:	00001
Lot Frontage:	0100.00
Lot Depth:	0168.42
Building Frontage:	0100.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000306450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1928
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0002.24
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450018
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003907
Y Coordinate:	0236542
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

Tax Lot(s):	18
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23

LOT 18,TAXBLOCK 2345 (Continued) **S109942282**

Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000016300
Total Building Floor Area:	00000036463
Commercial Floor Area:	00000036463
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000036463
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0100.00
Lot Depth:	0168.42
Building Frontage:	0100.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000306450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1928
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0002.24
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450018
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003907
Y Coordinate:	0236542
Zoning Map:	06A
Sanborn Map:	209N054

LOT 18,TAXBLOCK 2345 (Continued) **S109942282**

Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1
Tax Lot(s):	18
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Exhaust stack location limitations
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2008
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	G2
Land Use Category:	10
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	AREC 9, LLC
Lot Area:	000016300
Total Building Floor Area:	00000036463
Commercial Floor Area:	00000036463
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000036463
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	002.00
Residential Units:	00000
Non and Residential Units:	00001

LOT 18,TAXBLOCK 2345 (Continued) **S109942282**

Lot Frontage:	0100.00
Lot Depth:	0168.42
Building Frontage:	0100.00
Building Depth:	0157.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000099000
Total Assessed Value:	00000306450
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1928
Year Built Code:	Not reported
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0002.24
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023450018
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003907
Y Coordinate:	0236542
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

K84 **LOT 8,TAXBLOCK 2340** **E DESIGNATION** **S109942771**
SE **201 EAST 138 STREET** **N/A**
< 1/8 **BRONX, NY 10451**
0.110 mi.
579 ft. **Site 5 of 6 in cluster K**

E DESIGNATION:

Tax Lot(s):	8
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	47

LOT 8,TAXBLOCK 2340 (Continued) **S109942771**

Census Block:	2009
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E9
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	P
Owner Name:	2550 PARK AVENUE ASSO
Lot Area:	000003921
Total Building Floor Area:	00000003887
Commercial Floor Area:	00000003887
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000000000
Factory Floor Area:	00000000000
Other Floor Area:	00000003887
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001
Number of Floors:	001.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0026.00
Lot Depth:	0091.00
Building Frontage:	0026.00
Building Depth:	0090.08
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	3
Basement Type Grade:	5
Land Assessed Value:	00000015840
Total Assessed Value:	00000069300
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0000.99
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023400008
Condominium Number:	00000

LOT 8,TAXBLOCK 2340 (Continued) **S109942771**

Census Tract 2:	0047
X Coordinate:	1003930
Y Coordinate:	0235358
Zoning Map:	06A
Sanborn Map:	209N067
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

J85 **MERRITT STATION** **NY Spills** **S103828392**
NE **370 GRAND CONCORSE AVE** **NY Hist Spills** **N/A**
< 1/8 **BRONX, NY**
0.111 mi.
588 ft. **Site 5 of 7 in cluster J**

NY Spills:

Site ID:	202878
Facility Addr2:	Not reported
Facility ID:	9814075
Spill Number:	9814075
Facility Type:	ER
SWIS:	0301
Investigator:	AAOBLIGA
Referred To:	STRE/WELL STRIPPER SYSTEM
Spill Date:	2/17/1999
Reported to Dept:	2/22/1999
CID:	270
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Gasoline Station
Spill Notifier:	Affected Persons
Cleanup Ceased:	3/16/2004
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	Not Closed
Remediation Phase:	5
Date Entered In Computer:	2/22/1999
Spill Record Last Update:	8/31/2011
Spiller Name:	SCOTT CULLINAN
Spiller Company:	HESS/MERIT STATION
Spiller Address:	370 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, NY
Spiller Company:	001
Contact Name:	SCOTT CULLINAN
Contact Phone:	(610) 527-7900
DEC Region:	2

MERRITT STATION (Continued) **S103828392**

DER Facility ID: 168750

DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SUN" 1/5/04 BPAmoco in operation and taking responsibility for southern half of property. Reference spill #0111974.(KMF). 11/26/2003 Reassigned from O'Dowd to Sun. 01/29/2004-Sun-File Update by Sun: Sun sent a Stipulation Agreement to Hess requiring the complete delineation of the contamination, including the restoration of MW-1 and MW-8, and submittal of the Operation, Maintenance and Monitoring Plan. The Department approves the remedial action plan prepared by EnviroTrac, dated July, 2001. The Department set a deadline of 2/20/04 for the Respondent to return the signed Stipulation Agreement. (WJS) 03/26/04- The Stipulation Agreement was signed by Hess on 03/10/04 and executed by the Department on 03/24/04. (WJS) 08/11/04-File Update by Sun: On 08/11/04 Sun approves the Investigation Plan submiited July 8, 2004 by Michael Matri, Project Manager for Hess Corp.The two soil borings/monitoring wells proposed in the Investigation Plan will be used to replace well MW-8 and will be located east and west of the former MW-8 location. The approved letter was mailed to Hess on 08/11/04. (WJS) 05/09/05-File Update by Sun: On 05/05/05, thr Department held a project review meeting with Hess' Project Manager (Mike Matri) and his consultant (EnviroTrac). Per Mike Matri, EnviroTrac has contacted Metropolitan Transportation Authority (MTA) in order to obtain access to delineate along the eastern (up-gradient) portion of the site adjacent to the MTA New York City Transit subway. Currently, Hess drilling contractor, Submmit Drilling Co., Inc., is obtaing the necessary Railroad Protective Liability Policy to satisfy MTA's insurance requirements. The delineation will be conducted once the work is approved by the MTA.(WJS) 10/27/05: Site reassigned from Sun to Andersen. 10/27/05: Reviewed the second quarterly 2005 update report dated 8/19/05. Additional delineation is still in progress. 12/6/05: Reviewed quarterly report dated 11/22/05. Six monitoring wells sampled on October 6, 2005. Max BTEX 3,309.4 ppb (MW13) and max MTBE 1,250ppb (MW13). Additional delineation delayed while waiting for MTA permit. 1/26/06: 1/25/06 meeting with Quantum, NYSDEC, and ET. Additional delineation is currently awaiting an MTA permit. 3/29/06: Received email from Thomas Bosshard of EnviroTrac : The two (2) up-gradient monitoring wells at the referenced site have been successfully installed. The new monitoring wells will be incorporated into the site's quarterly groundwater monitoring schedule with the second quarter 2006 sampling event scheduled for April 2006. The monitoring well installations and April 2006 groundwater monitoring event will be summarized in the site's next quarterly Update Report. 6/12/06: Reviewed the first quarterly 2006 update report. Groundwater samples collected on January 19, 2006. Max BTEX 6,032 ppb (MW12), max MTBE 2,830 ppb (MW12). Upgradient on-site wells installed in March. Installation of a well downgradient of MW12 and a RAP required by September 12, 2006. 6/30/06: Meeting on 6/28/06 with Hess, NYSDEC, Quantum, EnviroTrac and GSC. Hess will ask for access to the adjacent RR yard to delineate. ORC may be utilized as a remedial method. 7/12/06: Reviewed second quarterly 2006 report. ORM socks in MW12 and 13. ORC socks will be installed in MW15 and MW16. Groundwater samples collected on 4/4/06. Max BTEX 13,571 ppb (MW15). Max MTBE 964 ppb (MW12). 8/23/06: Received email from Erin Goelz of ET. Delineation not possible in the metronorth area east of the site. Delineation possible on Park Avenue, but this is far from the site. Three wells on Park Avenue were proposed. Wells not required by the Department

MERRITT STATION (Continued) **S103828392**

because they are far from the site. RAP due 9/12/06. 8/29/06: Spoke with Ed Russo. A request for an extension for RAP submission will be required because pilot testing will be conducted on site. Local treatment is not feasible due to subsurface piping on site and the subway nearby. An email request for an extension will be submitted. Power supply at the site may be problematic, ConEdison will be contacted. This site is currently a BP gasoline station. 9/8/06: Received email from Ed Russo. Requested extension until November 30 to submit RAP in order to complete SVE pilot testing on MW's 12 and 13. SVE test tentatively scheduled for October 15. ORC socks will be installed in MW 15 and 16 ASAP. Extension approved. 10/5/06: Received update report dated 9/27/06. Wells sampled on 7/13/06. Fluctuating concentrations. Max BTEX 81,251ppb (MW15), max MTBE 1,650 ppb (MW12). ORM socks installed in MW 15 and 16. Contamination may be in the bedrock. RAP due 11/30/06. 12/7/06: RAP conditionally approved. SVE will be used in six wells, STRE in MW 15 and 16 because could not trench in this area, ORC socks in six wells. Conditions of approval: 1) more agressive groundwater remedial strategy for MW MW 12, 15, 16, and 2)treatment method air effluent. 12/28/06: Reviewed update report dated 12/20/06. Fluctuating gw concentrations. Max BTEX 39,412 ppb (MW15), max MTBE 718 ppb (MW12). 1/17/07: Meeting on 1/16/07. This is the only Hess site not being transferred to Delta. A RAP addedum will be submitted addressing gw contamination. 3/13/07: Reviewed update report. Wells sampled on 1/11/07. Max BTEX 31,608 ppb (MW15), max MTBE 1,140 ppb (MW12). Fluctuating groundwater concentrations. ORM socks installed in MW9, and MW12-MW16. SVE system not installed yet. Emailed Hess, EnviroTrac regarding the SVE implementation schedule, and for details on the existing Well Stripper system on site. 3/15/07: Received email from Ed Russo:" I sent you an email on 2/23 summarizing the well stripper, how it works, etc. Please confirm that you received that email. If not, I will resend it. If you did receive it and have further questions or comments, let me know and I will provide you with any additional information you may need. As for the schedule, we are currently working with BP (who currently operates the site) in an effort to connect our system to the BP station's existing electrical system. This would obviously save a great deal of time since CONED has been very slow to provide us new power drops for some of our other recent systems. We are also working with BP on an access agreement to install the system. Once these issues have been resolved, the system will be installed. Due to the fact that most of the subsurface work is already done, the system install will be very quick once the access and electrical issues are finalized." 3/16/07: Received email from Ed Russo:"attached are a picture of the well stripper and a pdf document summarizing how the well stripper works. As you discussed with Dawn Coughlin of Hess at your recent meeting, we are proposing to install permanent well strippers in MW-12 and MW-13 and bring a portable well stripper to the site for periodic full day remediation events (permanent well strippers cannot be installed in MW-15 or MW-16 since these wells are not connected to the remediation system). The permanent well strippers within MW-12 and MW-13 will be sampled (influent and effluent) on a monthly basis during system O&M events and the portable well stripper will be sampled for influent and effluent during the periodic remediation events. Note that we are in the process of working with BP to get access to the site to install the system. In order to expedite the install once access is obtained, we will be ordering the equipment so that we can prepare the shed to be delivered to the site once access

MERRITT STATION (Continued) **S103828392**

is granted." 7/31/07: Received email from Ed Russo:"GW sampling was conducted on the site about 2 weeks ago. We should get data from the lab this week and will prepare an update report for submittal to you right away. As far as the system goes, we have received approval from BP (the current owner/operator of the site) to install the system. Our electrician is working on getting power from CONED. We have ordered all equipment and are working on building the shed in house so that once electrical power is available, we can deliver the system to the site and connect it/start it up. Once we get closer to a start date, I will be in contact with you to schedule start-up so you can be onsite if you'd like." 9/5/07: Reviewed quarterly report. Flucating groundwater concentrations. Wells sampled on 7/20/07. Max BTEX 47,580 ppb (MW15). Max MTBE 681 ppb (MW12). ORM socks replaced in MW9 and MW12 - MW16. SVE system and well strippers not installed yet. Short term remediation events planned for MW15 and MW16. Emailed Ed Russo to followup on system startup date and initiation of short term remediation events. 10/9/07: Received email from Ed Russo:"we have scheduled an on-site meeting with representatives of BP, Delta Consultants (BP's consultant), and EnviroTrac for Monday October 15th. BP and Delta wanted to be fully aware of our proposed work before agreeing to let us proceed. We expect to get the approval to proceed with the sitework at that meeting. The shed for the remediation system and the control panel have been completed in our shop and can be mobilized to the site once we obtain the access. Our electrician is ready to go and can get to the site within about a week once we obtain access and CONED involvement will be minimal since we will be connecting to BP's station electric for our system electrical requirements. In addition, since the majority of the subsurface work was done a few years ago during the construction of the BP station, only minimal site work is required, so we expect to be able to start the system and short-term remediation events within 4-6 weeks of access approval. I will send you an update of our progress following the October 15th meeting. Edward E. Russo Senior Project Manager EnviroTrac Ltd. 5 Old Dock Road Yaphank, NY 11980 P: 631.924.3001 F: 631.924.5001 http://www.envirotrac.com" 2/14/08: Received email from Ed Russo:"We wanted to let you know that the SVE/Well Stripper system was activated at the referenced site on January 29, 2008. Preliminary data indicates that the system is effectively removing BTEX and MTBE from onsite wells. The initial start-up period will last another week or so and then system O&M will continue on a monthly basis thereafter. A full round of groundwater sampling will be conducted this month and a report summarizing that data and all system data collected to date will be submitted to you before April 30, 2008. If you would like to visit the site to see the system or if you have any questions or comments, please give me a call at (631) 924-3001" 3/12/08: Reviewed Fourth Quarterly 2007 update report dated November 27,2007. Wells sampled on 10/16/07. Max BTEX 16,839 ppb (MW15), max MTBE 727 ppb (MW12). System startup data will be submitted in next report. 4/15/08: Reviewed update report dated April 8th, 2008. SVE and well strippers (WS) in operation, and short term remediation events and WS being conducted in MW-15 and MW-16. Maximum BTEX concentration 3,779 ppb (MW16), maximum MTBE concentration 325 ppb (MW12). General downward trend in contamination. 8/7/08 - Carlson: Reviewed July 2008 Hydrogeologic Status Report. Wells sampled on 6/30/08. Maximum BTEX concentration 54,315 ppb (MW15). SVE/WS system in operation. Fluctuating concentrations. 10/22/08 - Carlson: Meeting with Hess, Envirotrac,

MERRITT STATION (Continued) **S103828392**

and NYSDEC. 11/17/08 - Carlson: Reviewed October 2008 Update Report. Wells sampled on 8/26/08. Fluctuating concentrations in some wells. Maximum BTEC concentration 1,068 ppb (MW12). System in operation. 2/20/09 - Carlson: Reviewed January 2009 Update Report. SVE and WS in operation. High effluent concentrations in MW15. Effluent concentraions were not measured from MW12,13. Wells sampled on 11/24/08. Hot well MW12 was not sampled (why?). 3/18/09 - Carlson: Meeting with Hess and Envirotrac. Not enough water to sample WS effluent in some cases. 5/7/09 - Carlson: Reviewed April 2009 Update Report. SVE/WS in operation, and monthly STRE from MW15. Wells sampled on 2/27/09. Maximum BTEX concentration 390 ppb (MW15). Strong decreasing trends. 5/28/09 - Carlson: Received email from Ed Russo:" while out at the site this week conducting routine GW sampling, our technician noted product (0.18') in MW-15. This well, and the entire site, has cleaned up dramatically since the system was activated and short term remediation events commenced a couple of years ago. As you can see from the attached photo, the product appears to be fresh gasoline. Our technician has taken a sample of the product and the GW within the well. We will analyze the GW for BTEX/MTBE as well as ethanol and conduct a fingerprint analysis on the product to try to confirm that it is a new release since this site is an active BP station. The technician did not note any indication of a surface spill and the well seal and manhole have been reported to be in good condition. Once we get results of the ethanol analysis and fingerprint analysis, we will let you know. If it appears that this may be a new release, we would need to notify BP." 8/7/09 - Carlson: Reviewed July 2009 update report. SVE/WS in operation. STRE on MW15 but high concentrations - effluent should be monitored. MW15 fingerprinting results not included. 8/17/09 - Carlson: Reviewed fingerprinting results of product identified in MW15. Product was found to be weathered gasoline from the old release. 8/19/09 - Carlson: Meeting with Hess. System in operation. 11/17/09 - Carlson: Reviewed October 2009 Update Report. Large decrease in concentration in MW15. System in operation. 1/27/2010 - Carlson: Meeting with Hess. Well stripper wells are often dry. 2/5/2010 - Carlson: Reviewed update report. Low dissolved concentrations. 5/20/2010 - Carlson: Meeting with Hess. 5/27/2010 - Carlson: Reviewed update report. SVE to be shut down due to low recovery. 8/13/2010 - Carlson: Reviewed July 2010 Update Report. Spike in concentration in MW15. SVE shut down due to low recovery. STRE/well stripper on MW15 monthly. 8/30/2011 - Obligado - Hess is still duing well stripper STRE on wells MW-12 and MW-15 monthly.

Remarks: CONTAMINATED SOIL DISCOVERED DURING TANK UPGRADE

Material:

Site ID:	202878
Operable Unit ID:	1074951
Operable Unit:	01
Material ID:	310783
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

MERRITT STATION (Continued) **S103828392**

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9814075
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	02/17/1999 10:00
Reported to Dept Date/Time:	02/22/99 11:27
SWIS:	60
Spiller Name:	MERRITT STATION
Spiller Contact:	SCOTT CULLINAN
Spiller Phone:	(610) 527-7900
Spiller Contact:	SCOTT CULLINAN
Spiller Phone:	(610) 527-7900
Spiller Address:	370 GRAND CONCORSE AVE
Spiller City,St,Zip:	BRONX, NY
Spill Cause:	Unknown
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	05
Spill Notifier:	Affected Persons
PBS Number:	2-297437
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	02/22/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	02/22/99
Is Updated:	False

MERRITT STATION (Continued) **S103828392**

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Remark: CONTAMINATED SOIL DISCOVERED DURING TANK UPGRADE

J86 **MERIT GRAND CONCOURSE** **UST** **U001839205**
NE **370 GRAND CONCOURSE** **HIST UST** **N/A**
< 1/8 **BRONX, NY 10451**
0.111 mi.
588 ft. **Site 6 of 7 in cluster J**

UST:
Facility Id: 2-297437
Region: STATE
DEC Region: 2
Site Status: Unregulated
Program Type: PBS
Expiration Date: N/A
UTM X: 590362.90040000004
UTM Y: 4518733.2752200002

Affiliation Records:
Site Id: 13736
Affiliation Type: Emergency Contact
Company Name: MERIT OIL OF NEW YORK INC
Contact Type: Not reported
Contact Name: G STEININGER-DIVISION MANAGER
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (516) 731-4100
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

MERIT GRAND CONCOURSE (Continued) **U001839205**

Site Id:	13736
Affiliation Type:	Owner
Company Name:	MERIT OIL OF NEW YORK INC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	551 W LANCASTER AVE
Address2:	Not reported
City:	HAVERFORD
State:	PA
Zip Code:	19041
Country Code:	001
Phone:	(610) 527-7900
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	13736
Affiliation Type:	On-Site Operator
Company Name:	MERIT GRAND CONCOURSE
Contact Type:	Not reported
Contact Name:	MERIT OIL OF NEW YORK, INC
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 590-7363
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	13736
Affiliation Type:	Mail Contact
Company Name:	MERIT OIL OF NEW YORK INC.
Contact Type:	Not reported
Contact Name:	ENGINEERING DEPARTMENT
Address1:	551 W LANCASTER AVE
Address2:	Not reported
City:	HAVERFORD
State:	PA
Zip Code:	19041
Country Code:	001
Phone:	(610) 527-7900
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

C00 - Pipe Location - No Piping
H99 - Tank Leak Detection - Other

MERIT GRAND CONCOURSE (Continued) **U001839205**

G00 - Tank Secondary Containment - None
H99 - Tank Leak Detection - Other
A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
F00 - Pipe External Protection - None
I01 - Overfill - Float Vent Valve
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
H99 - Tank Leak Detection - Other
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
D00 - Pipe Type - No Piping
G00 - Tank Secondary Containment - None
I01 - Overfill - Float Vent Valve
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
I01 - Overfill - Float Vent Valve
B00 - Tank External Protection - None
B00 - Tank External Protection - None
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
I01 - Overfill - Float Vent Valve
H99 - Tank Leak Detection - Other
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction
I01 - Overfill - Float Vent Valve
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction
H99 - Tank Leak Detection - Other
G00 - Tank Secondary Containment - None
H99 - Tank Leak Detection - Other
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
J02 - Dispenser - Suction
C02 - Pipe Location - Underground/On-ground
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
I01 - Overfill - Float Vent Valve
B00 - Tank External Protection - None
C02 - Pipe Location - Underground/On-ground
B00 - Tank External Protection - None

Tank Info:

Site ID:	13736
Tank Number:	1
Tank ID:	30650
Tank Status:	Closed - Removed

MERIT GRAND CONCOURSE (Continued) **U001839205**

Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1977
Capacity Gallons:	4000
Tightness Test Method:	20
Next Test Date:	Not reported
Date Tank Closed:	11/1/1998
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	7/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	13736
Tank Number:	2
Tank ID:	30651
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1977
Capacity Gallons:	4000
Tightness Test Method:	20
Next Test Date:	Not reported
Date Tank Closed:	11/1/1998
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	7/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	13736
Tank Number:	3
Tank ID:	30652
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1977
Capacity Gallons:	4000
Tightness Test Method:	20
Next Test Date:	Not reported
Date Tank Closed:	11/1/1998
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	7/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	13736
Tank Number:	4
Tank ID:	30653
Tank Status:	Closed - Removed

MERIT GRAND CONCOURSE (Continued) **U001839205**

Tank Model: Not reported
Pipe Model: Not reported
Install Date: 11/1/1977
Capacity Gallons: 4000
Tightness Test Method: 20
Next Test Date: Not reported
Date Tank Closed: 11/1/1998
Tank Location: 5
Tank Type: Steel/carbon steel
Date Test: 7/1/1997
Register: True
Modified By: TRANSLAT
Last Modified: 3/4/2004

Site ID: 13736

Tank Number: 5
Tank ID: 30654
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 11/1/1977
Capacity Gallons: 4000
Tightness Test Method: 20
Next Test Date: Not reported
Date Tank Closed: 11/1/1998
Tank Location: 5
Tank Type: Steel/carbon steel
Date Test: 7/1/1997
Register: True
Modified By: TRANSLAT
Last Modified: 3/4/2004

Site ID: 13736

Tank Number: 6
Tank ID: 30655
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 11/1/1977
Capacity Gallons: 550
Tightness Test Method: 20
Next Test Date: Not reported
Date Tank Closed: 11/1/1998
Tank Location: 5
Tank Type: Steel/carbon steel
Date Test: 7/1/1997
Register: True
Modified By: TRANSLAT
Last Modified: 3/4/2004

HIST UST:
PBS Number: 2-297437
SPDES Number: Not reported
Emergency Contact: G STEININGER-DIVISION MANAGER
Emergency Telephone: (516) 731-4100

MERIT GRAND CONCOURSE (Continued) **U001839205**

Operator:	MERIT OIL OF NEW YORK, INC
Operator Telephone:	(212) 590-7363
Owner Name:	MERIT OIL OF NEW YORK INC
Owner Address:	551 W LANCASTER AVE
Owner City,St,Zip:	HAVERFORD, PA 19041
Owner Telephone:	(610) 527-7900
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	MERIT OIL OF NEW YORK INC.
Mailing Address:	551 W LANCASTER AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	HAVERFORD, PA 19041
Mailing Contact:	ENGINEERING DEPARTMENT
Mailing Telephone:	(610) 527-7900
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	370 GRAND CONCOURSE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/02/1997
Expiration Date:	11/16/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771101
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	Other

MERIT GRAND CONCOURSE (Continued) **U001839205**

Overfill Prot:	Float Vent Valve
Dispenser:	Suction
Date Tested:	07/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1998
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771101
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Float Vent Valve
Dispenser:	Suction
Date Tested:	07/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1998
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	3
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771101
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Float Vent Valve
Dispenser:	Suction
Date Tested:	07/01/1997

MERIT GRAND CONCOURSE (Continued) **U001839205**

Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	11/01/1998
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	4
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771101
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Float Vent Valve
Dispenser:	Suction
Date Tested:	07/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1998
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	5
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771101
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Float Vent Valve
Dispenser:	Suction
Date Tested:	07/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1998

MERIT GRAND CONCOURSE (Continued) **U001839205**

Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	6
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19771101
Capacity (gals):	550
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	None
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Float Vent Valve
Dispenser:	0
Date Tested:	07/01/1997
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	11/01/1998
Test Method:	USTest 2000
Deleted:	False
Updated:	True
Lat/long:	Not reported

J87 **MERIT OIL CORP** **RCRA-SQG 1000263797**
NE **370 GRAND CONCOURSE AVE** **FINDS NYD982185928**
< 1/8 **BRONX, NY 10451** **MANIFEST**
0.111 mi. **MANIFEST**
588 ft. **Site 7 of 7 in cluster J**

RCRA-SQG:

Date form received by agency:	01/01/2007
Facility name:	MERIT OIL CORP
Facility address:	370 GRAND CONCOURSE AVE BRONX, NY 104515409
EPA ID:	NYD982185928
Mailing address:	W LANCASTER AVE HAVERFORD, NY 19041
Contact:	Not reported
Contact address:	W LANCASTER AVE HAVERFORD, NY 19041
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of

MERIT OIL CORP (Continued) **1000263797**

hazardous waste at any time

Owner/Operator Summary:
- Owner/operator name: MERIT OIL CORP
- Owner/operator address: NOT REQUIRED
  NOT REQUIRED, WY 99999
- Owner/operator country: US
- Owner/operator telephone: (212) 555-1212
- Legal status: Private
- Owner/Operator Type: Operator
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

- Owner/operator name: MERIT OIL CORP
- Owner/operator address: NOT REQUIRED
  NOT REQUIRED, WY 99999
- Owner/operator country: US
- Owner/operator telephone: (212) 555-1212
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

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

Historical Generators:
- Date form received by agency: 01/01/2006
- Facility name: MERIT OIL CORP
- Classification: Conditionally Exempt Small Quantity Generator

- Date form received by agency: 07/08/1999
- Facility name: MERIT OIL CORP
- Classification: Not a generator, verified

- Date form received by agency: 05/11/1987
- Facility name: MERIT OIL CORP
- Classification: Large Quantity Generator

- Violation Status: No violations found

FINDS:

MERIT OIL CORP (Continued) **1000263797**

Registry ID: 110001565789

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

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

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

NJ MANIFEST:

Manifest Code:	NJA5246558
EPA ID:	NYD982185928
Date Shipped:	20060628
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000023036
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	060628
Date Trans2 Transported Waste:	000000
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	060629
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	08220625
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No

MERIT OIL CORP (Continued) **1000263797**

Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

Manifest Code:	NJA5246515
EPA ID:	NYD982185928
Date Shipped:	20060209
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000023036
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	060209
Date Trans2 Transported Waste:	000000
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	060209
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	04040621
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	Not reported
Manifest Year:	Not reported
Quantity:	Not reported
Unit:	Not reported
Hand Code:	Not reported

Manifest Code:	001274618JJK
EPA ID:	NYD982185928
Date Shipped:	8/30/200
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000023036
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported

MERIT OIL CORP (Continued) **1000263797**

Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	8/30/2
Date Trans2 Transported Waste:	Not reported
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	8/30/2
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	Not reported
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No
Reason Load Was Rejected:	Not reported
Waste Code:	D018
Manifest Year:	2007 New Jersey Manifest Data
Quantity:	200
Unit:	P
Hand Code:	H14

Manifest Code:	NJA5246462
EPA ID:	NYD982185928
Date Shipped:	20051110
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000023036
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	051110
Date Trans2 Transported Waste:	000000
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	051110
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported
Data Entry Number:	02240621
Reference Manifest Number:	Not reported
Was Load Rejected (Y/N):	No

MERIT OIL CORP (Continued) **1000263797**

Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

Manifest Code: 001274874JJK
EPA ID: NYD982185928
Date Shipped: 10/31/2008
TSDF EPA ID: NJD991291105
Transporter EPA ID: NJR000023036
Transporter 2 EPA ID: Not reported
Transporter 3 EPA ID: Not reported
Transporter 4 EPA ID: Not reported
Transporter 5 EPA ID: Not reported
Transporter 6 EPA ID: Not reported
Transporter 7 EPA ID: Not reported
Transporter 8 EPA ID: Not reported
Transporter 10 EPA ID: Not reported
Date Trans1 Transported Waste: 10/31/2008
Date Trans2 Transported Waste: Not reported
Date Trans3 Transported Waste: Not reported
Date Trans4 Transported Waste: Not reported
Date Trans5 Transported Waste: Not reported
Date Trans6 Transported Waste: Not reported
Date Trans7 Transported Waste: Not reported
Date Trans8 Transported Waste: Not reported
Date Trans9 Transported Waste: Not reported
Date Trans10 Transported Waste: Not reported
Date TSDF Received Waste: 10/31/2008
Tranporter 1 Decal: Not reported
Tranporter 2 Decal: Not reported
Data Entry Number: Not reported
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: D018
Manifest Year: 2008 New Jersey Manifest Data
Quantity: 200
Unit: P
Hand Code: H141

NY MANIFEST:
EPA ID: NYD982185928
Country: USA
Mailing Name: BP PRODUCTS MERIT OIL INC
Mailing Contact: FRANK LO BELLO
Mailing Address: PO BOX 80249
Mailing Address 2: Not reported
Mailing City: RANCHO SANTA MARGARITA
Mailing State: CA
Mailing Zip: 92688

MERIT OIL CORP (Continued) **1000263797**

Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	949-460-5200

Document ID:	NJA5246462
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	11/10/2005
Trans1 Recv Date:	11/10/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/10/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	56247
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	Not reported

Document ID:	06
Manifest Status:	NJA5246515
Trans1 State ID:	NYD982185928
Trans2 State ID:	Not reported
Generator Ship Date:	NJD991291105
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJR000023036
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DM
Container Type:	200
Handling Method:	P
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported

MERIT OIL CORP (Continued) **1000263797**

Year:	Not reported
Document ID:	06
Manifest Status:	NJA5246558
Trans1 State ID:	NYD982185928
Trans2 State ID:	Not reported
Generator Ship Date:	NJD991291105
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJR000023036
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DM
Container Type:	200
Handling Method:	P
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported
Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	8/30/2007
Trans1 Recv Date:	8/30/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	8/30/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	Not reported
Quantity:	200
Units:	P - Pounds
Number of Containers:	1
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	001274618JJK

MERIT OIL CORP (Continued) **1000263797**

Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	Y
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	NJA5246462
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	11/10/2005
Trans1 Recv Date:	11/10/2005
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	11/10/2005
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	56247
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2005

Document ID:	NJA5246558
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	06/28/2006
Trans1 Recv Date:	06/28/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/29/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	S6247
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.

MERIT OIL CORP (Continued) **1000263797**

Specific Gravity:	01.00
Year:	2006

Document ID:	NJA5246515
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	02/09/2006
Trans1 Recv Date:	02/09/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/09/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	56247
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	2007-08-30
Trans1 Recv Date:	2007-08-30
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2007-08-30
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	Not reported
Quantity:	200.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2007
Manifest Tracking Num:	001274618JJK
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	Y
Discr Residue Ind:	N
Discr Partial Reject Ind:	N

MERIT OIL CORP (Continued) **1000263797**

Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	NJA5246515
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	02/09/2006
Trans1 Recv Date:	02/09/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/09/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	56247
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJR000023036
Trans2 State ID:	Not reported
Generator Ship Date:	2008-10-31
Trans1 Recv Date:	2008-10-31
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-10-31
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD982185928
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	Not reported
Quantity:	200.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001274874JJK
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N

MERIT OIL CORP (Continued) **1000263797**

Discr Type Ind:	Y
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

L88 **LOT 110,TAXBLOCK 2344** **E DESIGNATION** **S109942188**
North **370 GERARD AVENUE** **N/A**
< 1/8 **BRONX, NY 10451**
0.112 mi.
592 ft. **Site 1 of 7 in cluster L**

E DESIGNATION:

Tax Lot(s):	110
E-No:	E-227
Effective Date:	6/30/2009
Satisfaction Date:	Not reported
Ceqr Number:	08DCP071X
Ulurp Number:	090303ZMX
Zoning Map No:	6a
Description:	Hazardous Materials* Phase I and Phase II Testing Protocol
Borough Code:	BX
Community District:	201
Census Tract:	57
Census Block:	2006
School District:	07
City Council District:	17
Fire Company:	L017
Health Area:	23
Police Precinct:	040
Zone District 1:	M1-2
Zone District 2:	Not reported
Commercial Overlay1:	Not reported
Commercial Overlay2:	Not reported
Special Purpose District1:	Not reported
Special Purpose District2:	Not reported
All Components1:	M1-2
All Components2:	Not reported
Split Boundary Indicator:	N
Building Class:	E3
Land Use Category:	06
Number of Easements:	0
Owner, Type of Code:	Not reported
Owner Name:	DEUTSCH, MOSHE
Lot Area:	000006550
Total Building Floor Area:	00000014400
Commercial Floor Area:	00000014400
Office Floor Area:	00000000000
Retail Floor Area:	00000000000
Garage Floor Area:	00000000000
Storage Floor Area:	00000014400
Factory Floor Area:	00000000000
Other Floor Area:	00000000000
Floor Area,Total Bld Source Code:	7
Number of Buildings:	00001

LOT 110,TAXBLOCK 2344 (Continued) **S109942188**

Number of Floors:	004.00
Residential Units:	00000
Non and Residential Units:	00001
Lot Frontage:	0050.00
Lot Depth:	0129.33
Building Frontage:	0050.00
Building Depth:	0072.00
Proximity Code:	0
Irregular Lot Code:	Y
Lot Type:	5
Basement Type Grade:	5
Land Assessed Value:	00000027585
Total Assessed Value:	00000126900
Land Exempt Value:	00000000000
Total Exempt Value:	00000000000
Year Built:	1931
Year Built Code:	E
Year Altered1:	0000
Year Altered2:	0000
Historic District Name:	Not reported
Landmark Name:	Not reported
Built Floor Area Ratio-Far:	0002.20
Maximum Allowable Far:	02.00
Borough Code:	2
Borough Tax Block And Lot:	2023440110
Condominium Number:	00000
Census Tract 2:	0057
X Coordinate:	1003637
Y Coordinate:	0236654
Zoning Map:	06A
Sanborn Map:	209N054
Tax Map:	20903
E Designation No:	Not reported
Date of RPAD Data:	11/2005
Date of DCAS Data:	01/2006
Date of Zoning Data:	11/2005
Date of Major Property Data:	11/2005
Date of Landmark Data:	12/2005
Date of Base Map Data:	01/2006
Date of Mass Appraisal Data:	11/2005
Date of Political and Adm Data:	08/2005
Pluto-Base Map Indicator:	1

I89 **CONSOLIDATED EDISON** **MANIFEST** **1009243206**
North **355 EXTERIOR ST OPEXCAV** **N/A**
1/8-1/4 **BRONX, NY**
0.125 mi.
661 ft. **Site 6 of 6 in cluster I**

NY MANIFEST:

EPA ID:	NYP004125738
Country:	USA
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY

CONSOLIDATED EDISON (Continued) **1009243206**

Mailing Zip:	10003
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808
Document ID:	NYE1582803
Manifest Status:	Not reported
Trans1 State ID:	12446JT
Trans2 State ID:	Not reported
Generator Ship Date:	10/18/2004
Trans1 Recv Date:	10/18/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/20/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004125738
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID:	NYD077444
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2004

L90 **BARKLEY BUILDING** **RCRA-NonGen** **1000871755**
North **385 GERARD AVE - 5TH & 6TH FL** **FINDS** **NY0000095927**
1/8-1/4 **BRONX, NY 10451**
0.129 mi.
682 ft. **Site 2 of 7 in cluster L**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	BARKLEY BUILDING
Facility address:	385 GERARD AVE - 5TH & 6TH FL BRONX, NY 10451
EPA ID:	NY0000095927
Mailing address:	YORK AVE - MEMORIAL SLOAN KETTERING CANCER CENTER NEW YORK, NY 10021
Contact:	Not reported
Contact address:	YORK AVE - MEMORIAL SLOAN NEW YORK, NY 10021
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Private
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	HELMSLEY SPEAR

BARKLEY BUILDING (Continued) **1000871755**

Owner/operator address: 60 E 42ND ST - LINCOLN BLDG
NEW YORK, NY 10165
Owner/operator country: US
Owner/operator telephone: (212) 880-0511
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: HELMSLEY SPEAR
Owner/operator address: 60 E 42ND ST - LINCOLN BLDG
NEW YORK, NY 10165
Owner/operator country: US
Owner/operator telephone: (212) 880-0511
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: BARKLEY BUILDING
Classification: Not a generator, verified

Date form received by agency: 12/05/1996
Facility name: BARKLEY BUILDING
Classification: Not a generator, verified

Date form received by agency: 12/21/1993
Facility name: BARKLEY BUILDING
Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 11/21/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported

BARKLEY BUILDING (Continued) **1000871755**

Evaluation lead agency: EPA

Evaluation date: 07/10/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

FINDS:

Registry ID: 110007983450

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

K91 **LOS PEGUERO REPAIR SHOP** **UST U004046171**
SE **209 EAST 138TH STREET** **AST N/A**
1/8-1/4 **BRONX, NY 10451**
0.130 mi.
688 ft. **Site 6 of 6 in cluster K**

UST:
Facility Id: 2-607817
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2016/04/15
UTM X: 590296.84198000003
UTM Y: 4518520.8628099998

Affiliation Records:
Site Id: 29669
Affiliation Type: On-Site Operator
Company Name: LOS PEGUERO REPAIR SHOP
Contact Type: Not reported
Contact Name: SOCRATES PEGUERO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 665-7151
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 4/15/2011

Site Id: 29669
Affiliation Type: Owner
Company Name: SOCRATES PEGUERO

LOS PEGUERO REPAIR SHOP (Continued) **U004046171**

Contact Type:	Not reported
Contact Name:	Not reported
Address1:	2625 THIRD AVE. 10A
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Site Id:	29669
Affiliation Type:	Emergency Contact
Company Name:	SOCRATES PEGUERO
Contact Type:	Not reported
Contact Name:	SOCRATES PEGUERO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Site Id:	29669
Affiliation Type:	Mail Contact
Company Name:	LOS PEGUERO REPAIR SHOP
Contact Type:	Not reported
Contact Name:	SOCRATES PEGUERO
Address1:	209 EAST 138TH STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	LOSPEGUERO209@HOTMAIL.COM
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Equipment Records:

F01 - Pipe External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None

LOS PEGUERO REPAIR SHOP (Continued) **U004046171**

I00 - Overfill - None
I05 - Overfill - Vent Whistle
C00 - Pipe Location - No Piping
E01 - Piping Secondary Containment - Diking (Aboveground)
D00 - Pipe Type - No Piping
A00 - Tank Internal Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
C03 - Pipe Location - Aboveground/Underground Combination
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G01 - Tank Secondary Containment - Diking (Aboveground)
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
F01 - Pipe External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
B01 - Tank External Protection - Painted/Asphalt Coating
C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None
C03 - Pipe Location - Aboveground/Underground Combination
I05 - Overfill - Vent Whistle
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D00 - Pipe Type - No Piping
G00 - Tank Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	29669
Tank Number:	200
Tank ID:	63563
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	1500
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	4/1/2002
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

LOS PEGUERO REPAIR SHOP (Continued) **U004046171**

Site ID: 29669

Tank Number: 300
Tank ID: 63564
Tank Status: Closed - In Place
Tank Model: Not reported
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 550
Tightness Test Method: NN
Next Test Date: Not reported
Date Tank Closed: 4/1/2002
Tank Location: 5
Tank Type: Steel/carbon steel
Date Test: Not reported
Register: True
Modified By: TRANSLAT
Last Modified: 3/4/2004

Site ID: 29669

Tank Number: 400
Tank ID: 63565
Tank Status: Closed - In Place
Tank Model: Not reported
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 550
Tightness Test Method: NN
Next Test Date: Not reported
Date Tank Closed: 4/1/2002
Tank Location: 5
Tank Type: Steel/carbon steel
Date Test: Not reported
Register: True
Modified By: TRANSLAT
Last Modified: 3/4/2004

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-607817
Program Type: PBS
UTM X: 590296.84198000003
UTM Y: 4518520.8628099998
Expiration Date: 2016/04/15

Affiliation Records:
Site Id: 29669
Affiliation Type: On-Site Operator
Company Name: LOS PEGUERO REPAIR SHOP
Contact Type: Not reported
Contact Name: SOCRATES PEGUERO
Address1: Not reported
Address2: Not reported
City: Not reported

LOS PEGUERO REPAIR SHOP (Continued) **U004046171**

State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Site Id:	29669
Affiliation Type:	Owner
Company Name:	SOCRATES PEGUERO
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	2625 THIRD AVE. 10A
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Site Id:	29669
Affiliation Type:	Emergency Contact
Company Name:	SOCRATES PEGUERO
Contact Type:	Not reported
Contact Name:	SOCRATES PEGUERO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Site Id:	29669
Affiliation Type:	Mail Contact
Company Name:	LOS PEGUERO REPAIR SHOP
Contact Type:	Not reported
Contact Name:	SOCRATES PEGUERO
Address1:	209 EAST 138TH STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001

LOS PEGUERO REPAIR SHOP (Continued) **U004046171**

Phone:	(718) 665-7151
Phone Ext:	Not reported
Email:	LOSPEGUERO209@HOTMAIL.COM
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/15/2011

Equipment Records:

F01 - Pipe External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
I00 - Overfill - None
I05 - Overfill - Vent Whistle
C00 - Pipe Location - No Piping
E01 - Piping Secondary Containment - Diking (Aboveground)
D00 - Pipe Type - No Piping
A00 - Tank Internal Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
C03 - Pipe Location - Aboveground/Underground Combination
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G01 - Tank Secondary Containment - Diking (Aboveground)
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
F01 - Pipe External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
B01 - Tank External Protection - Painted/Asphalt Coating
C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None
C03 - Pipe Location - Aboveground/Underground Combination
I05 - Overfill - Vent Whistle
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D00 - Pipe Type - No Piping
G00 - Tank Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
L00 - Piping Leak Detection - None

Tank Info:

Tank Number:	001
Tank Id:	63562
Tank Location:	1

LOS PEGUERO REPAIR SHOP (Continued) **U004046171**

Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	1500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	4/1/2002
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

Tank Number:	1
Tank Id:	238826
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/3/2009
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	4/15/2011

L92 **385 GERARD AVE** **AST** **A100157589**
North **385 GERARD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.131 mi.
693 ft. **Site 3 of 7 in cluster L**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-400319
Program Type:	PBS
UTM X:	590237.6385
UTM Y:	4518959.00055
Expiration Date:	2012/12/01

Affiliation Records:

Site Id:	19096
Affiliation Type:	Owner
Company Name:	385 GERARD AVE LLC, C/O R SQUARED MGT LLC
Contact Type:	MGR
Contact Name:	MICHAEL P. CAMPBELL
Address1:	555 MADISON AVE 12TH FLR
Address2:	Not reported
City:	NEW YORK
State:	NY

385 GERARD AVE (Continued) **A100157589**

Zip Code:	10022
Country Code:	001
Phone:	(212) 527-3030
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	1/29/2008

Site Id:	19096
Affiliation Type:	Emergency Contact
Company Name:	385 GERARD AVE LLC, C/O R SQUARED MGT LLC
Contact Type:	Not reported
Contact Name:	RAUL VASQUEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 232-4807
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	1/29/2008

Site Id:	19096
Affiliation Type:	Mail Contact
Company Name:	385 GERARD AVE LLC, C/O R SQUARED MGT LLC
Contact Type:	MGR
Contact Name:	MICHAEL P. CAMPBELL
Address1:	555 MADISON AVE 12TH FLR
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10022
Country Code:	001
Phone:	(212) 527-3030
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	msbaptis
Date Last Modified:	1/29/2008

Site Id:	19096
Affiliation Type:	On-Site Operator
Company Name:	385 GERARD AVE
Contact Type:	Not reported
Contact Name:	RAUL VASQUEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 665-2551

385 GERARD AVE (Continued) **A100157589**

Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Equipment Records:

H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
A00 - Tank Internal Protection - None
C01 - Pipe Location - Aboveground
I05 - Overfill - Vent Whistle
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
D01 - Pipe Type - Steel/Carbon Steel/Iron
G03 - Tank Secondary Containment - Vault (w/o access)

Tank Info:

Tank Number: 001
Tank Id: 24609
Tank Location: 1
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 4/10/1941
Capacity Gallons: 10000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: msbaptis
Last Modified: 1/29/2008

L93 **SPORT SCREEN INC** **RCRA-NonGen** **1000446217**
North **385 GERARD AVE** **FINDS** **NYD986905537**
1/8-1/4 **BRONX, NY 10451**
0.131 mi.
693 ft. **Site 4 of 7 in cluster L**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: SPORT SCREEN INC
Facility address: 385 GERARD AVE
BRONX, NY 10451
EPA ID: NYD986905537
Mailing address: GERARD AVE
BRONX, NY 10451
Contact: Not reported
Contact address: GERARD AVE
BRONX, NY 10451
Contact country: US
Contact telephone: Not reported
Contact email: Not reported

SPORT SCREEN INC (Continued) **1000446217**

EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: SPORT SCREEN INC
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: SPORT SCREEN INC
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: SPORT SCREEN INC
Classification: Not a generator, verified

Date form received by agency: 12/17/1996
Facility name: SPORT SCREEN INC
Classification: Not a generator, verified

Date form received by agency: 06/04/1990
Facility name: SPORT SCREEN INC
Classification: Large Quantity Generator

SPORT SCREEN INC (Continued) **1000446217**

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 11/21/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 07/10/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

FINDS:

Registry ID: 110004493673

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

L94 **NORTHEAST LAMP RECYCLING INC** **RCRA-NonGen** **1007880968**
North **385 GERARD AVE - MAIN FLOOR** **NYR000128769**
1/8-1/4 **BRONX, NY 10451**
0.131 mi.
693 ft. **Site 5 of 7 in cluster L**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: NORTHEAST LAMP RECYCLING INC
Facility address: 385 GERARD AVE - MAIN FLOOR
BRONX, NY 10451
EPA ID: NYR000128769
Mailing address: MAIN ST - PO BOX 680
EAST WINDSOR, NY 060880680
Contact: RAYMOND W GRACZYK
Contact address: MAIN ST - PO BOX 680
EAST WINDSOR, NY 060880680
Contact country: US
Contact telephone: (860) 292-1992
Telephone ext.: 104
Contact email: RAY@NLRLAMP.COM
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: NO NAME FOUND
Owner/operator address: Not reported
Not reported

NORTHEAST LAMP RECYCLING INC (Continued) **1007880968**

Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: 11/04/2004
Owner/Op end date: Not reported

Owner/operator name: EDGE MANAGEMENT LLC
Owner/operator address: 5TH AVE
NEW YORK, NY 10017
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 11/04/2004
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: NORTHEAST LAMP RECYCLING INC
Classification: Not a generator, verified

Date form received by agency: 11/09/2004
Facility name: NORTHEAST LAMP RECYCLING INC
Classification: Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

L95 **SPORT SCREEN INC** **RCRA-NonGen** **1000842790**
North **385 GERARD AVE 2ND FLOOR** **NYD987011434**
1/8-1/4 **BRONX, NY 10451**
0.131 mi.
693 ft. **Site 6 of 7 in cluster L**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: SPORT SCREEN INC
Facility address: 385 GERARD AVE 2ND FLOOR
BRONX, NY 104515441
EPA ID: NYD987011434
Mailing address: GERARD AVE 2ND FLOOR

SPORT SCREEN INC (Continued) **1000842790**

BRONX, NY 10451
Contact: Not reported
Contact address: GERARD AVE 2ND FLOOR
BRONX, NY 10451
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: UNKNOWN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, NY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: UNKNOWN
Owner/operator address: NOT REQUIRED
NOT REQUIRED, NY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: SPORT SCREEN INC
Classification: Not a generator, verified

Date form received by agency: 07/08/1999

SPORT SCREEN INC (Continued) **1000842790**

Facility name: SPORT SCREEN INC
Classification: Not a generator, verified

Date form received by agency: 08/10/1992
Facility name: SPORT SCREEN INC
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 07/10/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

L96 **S & S INDUSTRIES INC-385 GERARD AVE** **RCRA-NonGen** **1000130658**
North **385 GERARD AVENUE** **FINDS** **NYD052801990**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.131 mi.
693 ft. **Site 7 of 7 in cluster L**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: S & S INDUSTRIES INC
Facility address: 385 GERARD AVE
BRONX, NY 10451
EPA ID: NYD052801990
Mailing address: GERARD AVE
BRONX, NY 10451
Contact: JEROME WESTON
Contact address: GERARD AVE
BRONX, NY 10451
Contact country: US
Contact telephone: (718) 585-1333
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: Not reported
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: Not reported
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: S & S INDUSTRIES INC
Classification: Not a generator, verified

Date form received by agency: 03/20/1998
Facility name: S & S INDUSTRIES INC
Site name: S & S INDUSTRIES, INC.
Classification: Large Quantity Generator

Date form received by agency: 03/28/1996
Facility name: S & S INDUSTRIES INC
Classification: Large Quantity Generator

Date form received by agency: 03/31/1994
Facility name: S & S INDUSTRIES INC
Classification: Large Quantity Generator

Date form received by agency: 03/01/1992
Facility name: S & S INDUSTRIES INC
Site name: S&S INDUSTRIES
Classification: Large Quantity Generator

Date form received by agency: 03/01/1990
Facility name: S & S INDUSTRIES INC
Site name: S & S INDUSTRIES
Classification: Large Quantity Generator

Date form received by agency: 01/19/1981
Facility name: S & S INDUSTRIES INC
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - General

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Date violation determined: 01/07/1999
Date achieved compliance: 03/23/1999
Violation lead agency: EPA
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 02/23/1999
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: EPA
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 08/11/1993
Date achieved compliance: 03/03/1994
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/11/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: LDR - General
Date violation determined: 08/11/1993
Date achieved compliance: 03/03/1994
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 08/11/1993
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 12/23/1987
Date achieved compliance: 03/11/1988
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 02/02/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Evaluation Action Summary:
Evaluation date: 01/07/1999
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Area of violation: Generators - General
Date achieved compliance: 03/23/1999
Evaluation lead agency: EPA

Evaluation date: 07/07/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 03/03/1994
Evaluation lead agency: State

Evaluation date: 07/07/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: LDR - General
Date achieved compliance: 03/03/1994
Evaluation lead agency: State

Evaluation date: 12/23/1987
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 03/11/1988
Evaluation lead agency: State

FINDS:

Registry ID: 110000322678

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

The NEI (National Emissions Inventory) database contains information on stationary and mobile sources that emit criteria air pollutants and their precursors, as well as hazardous air pollutants (HAPs).

US EPA TRIS (Toxics Release Inventory System) contains information from facilities on the amounts of over 300 listed toxic chemicals that these facilities release directly to air, water, land, or that are transported off-site.

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

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

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

NY MANIFEST:

EPA ID:	NYD052801990
Country:	USA
Mailing Name:	S & S INDUSTRIES
Mailing Contact:	P. JAMES
Mailing Address:	385 GERARD AVENUE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-585-1333

Document ID:	NJA1142360
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910507
Trans1 Recv Date:	910507
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910509
Part A Recv Date:	910520
Part B Recv Date:	910528
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	03570
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA0993503
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	910318
Trans1 Recv Date:	910318
Trans2 Recv Date:	910318
TSD Site Recv Date:	910319
Part A Recv Date:	910326
Part B Recv Date:	910401
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	02418
Units:	P - Pounds
Number of Containers:	006

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA1119991
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	910409
Trans1 Recv Date:	910409
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910411
Part A Recv Date:	910417
Part B Recv Date:	910424
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	02975
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1218542
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910604
Trans1 Recv Date:	910604
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910606
Part A Recv Date:	910611
Part B Recv Date:	910626
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	04165
Units:	P - Pounds
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA1857011
Manifest Status:	Completed copy
Trans1 State ID:	2809

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Trans2 State ID:	Not reported
Generator Ship Date:	940419
Trans1 Recv Date:	940419
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940419
Part A Recv Date:	940503
Part B Recv Date:	940502
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	NJD002454544
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002454544
Waste Code:	F001 - UNKNOWN
Quantity:	00250
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	94

Document ID:	INA1305190
Manifest Status:	Not reported
Trans1 State ID:	NJD986607380
Trans2 State ID:	Not reported
Generator Ship Date:	10/20/1998
Trans1 Recv Date:	10/20/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/29/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	IND000646943
Trans2 EPA ID:	Not reported
TSDF ID:	TAP321
Waste Code:	D019 - CARBON TETRACHLORIDE 0.5 MG/L TCLP
Quantity:	10200
Units:	P - Pounds
Number of Containers:	017
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NYA3847972
Manifest Status:	Completed copy
Trans1 State ID:	PLATE#
Trans2 State ID:	Not reported
Generator Ship Date:	870127
Trans1 Recv Date:	870127
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870127
Part A Recv Date:	870202
Part B Recv Date:	870212
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	NYD000824334

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01265
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	023
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	87

Document ID:	NJA1125007
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910703
Trans1 Recv Date:	910703
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910709
Part A Recv Date:	910715
Part B Recv Date:	910724
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	04165
Units:	P - Pounds
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA0982174
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910110
Trans1 Recv Date:	910110
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910116
Part A Recv Date:	910125
Part B Recv Date:	910208
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	04760
Units:	P - Pounds
Number of Containers:	008
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Year: 91

Document ID: NJA0802655
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: NJDEPS869
Generator Ship Date: 910129
Trans1 Recv Date: 910129
Trans2 Recv Date: 910130
TSD Site Recv Date: 910131
Part A Recv Date: 910212
Part B Recv Date: 910220
Generator EPA ID: NYD052801990
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: ILD051060408
TSDF ID: NJD002182897
Waste Code: F001 - UNKNOWN
Quantity: 07140
Units: P - Pounds
Number of Containers: 012
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 91

Document ID: NJA1128176
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 910730
Trans1 Recv Date: 910730
Trans2 Recv Date: Not reported
TSD Site Recv Date: 910801
Part A Recv Date: 910809
Part B Recv Date: 910819
Generator EPA ID: NYD052801990
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F001 - UNKNOWN
Quantity: 03570
Units: P - Pounds
Number of Containers: 006
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 91

Document ID: NYG0254439
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: 1A375
Trans2 State ID: Not reported
Generator Ship Date: 970926
Trans1 Recv Date: 970926

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	971003
Part A Recv Date:	Not reported
Part B Recv Date:	971029
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	NY0000291823
Trans2 EPA ID:	Not reported
TSDF ID:	ALD070513767
Waste Code:	F001 - UNKNOWN
Quantity:	00990
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	018
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	97

Document ID:	NYA6456438
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PLATE#
Trans2 State ID:	9082-GF
Generator Ship Date:	880318
Trans1 Recv Date:	880318
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880318
Part A Recv Date:	880329
Part B Recv Date:	880426
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F001 - UNKNOWN
Quantity:	00605
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	88

Document ID:	NYA6458562
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PLATE#
Trans2 State ID:	IC1244
Generator Ship Date:	880624
Trans1 Recv Date:	880624
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880624
Part A Recv Date:	880629
Part B Recv Date:	880719
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Quantity:	00660
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	012
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	88

Document ID:	NJA1221020
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910924
Trans1 Recv Date:	910924
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910926
Part A Recv Date:	911008
Part B Recv Date:	911010
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	02975
Units:	P - Pounds
Number of Containers:	005
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA1332787
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS103
Generator Ship Date:	911113
Trans1 Recv Date:	911113
Trans2 Recv Date:	911115
TSD Site Recv Date:	911115
Part A Recv Date:	Not reported
Part B Recv Date:	911204
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	NJD000813477
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	01190
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Document ID:	NJA1143262
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	911206
Trans1 Recv Date:	911206
Trans2 Recv Date:	911211
TSD Site Recv Date:	911211
Part A Recv Date:	Not reported
Part B Recv Date:	920103
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	ILD051060408
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	01191
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA1216553
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910906
Trans1 Recv Date:	910906
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910911
Part A Recv Date:	910919
Part B Recv Date:	910925
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	04165
Units:	P - Pounds
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NJA1320942
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	911018
Trans1 Recv Date:	911018
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	911023
Part A Recv Date:	Not reported

S & S INDUSTRIES INC-385 GERARD AVE (Continued) **1000130658**

Part B Recv Date:	911108
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F001 - UNKNOWN
Quantity:	03570
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Document ID:	NYC1480959
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	10214PNY
Generator Ship Date:	920408
Trans1 Recv Date:	920408
Trans2 Recv Date:	920413
TSD Site Recv Date:	920414
Part A Recv Date:	920420
Part B Recv Date:	920604
Generator EPA ID:	NYD052801990
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	NYD980769947
TSDF ID:	KYD053348108
Waste Code:	F001 - UNKNOWN
Quantity:	04169
Units:	P - Pounds
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	92

Click this hyperlink while viewing on your computer to access
69 additional NY_MANIFEST: record(s) in the EDR Site Report.

97
NE
1/8-1/4
0.136 mi.
717 ft.

388-390 GRAND CONCOURSE **AST** **A100175287**
388-390 GRAND CONCOURSE **N/A**
BRONX, NY 10451

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Facility Id:	2-601186
Program Type:	PBS
UTM X:	590380.42324000003
UTM Y:	4518777.2266300004
Expiration Date:	N/A

Affiliation Records:

388-390 GRAND CONCOURSE (Continued) **A100175287**

Site Id:	23156
Affiliation Type:	Mail Contact
Company Name:	NYC HPD
Contact Type:	Not reported
Contact Name:	ASST COMMR - PROPERY DISPOSITION &FINANCE
Address1:	100 GOLD ST
Address2:	9Y-3
City:	NEW YORK
State:	NY
Zip Code:	10038
Country Code:	001
Phone:	(212) 863-8590
Phone Ext:	Not reported
Email:	ALEXANDJ@HPD.NYC.GOV
Fax Number:	Not reported
Modified By:	CGFREEDM
Date Last Modified:	8/8/2011

Site Id:	23156
Affiliation Type:	On-Site Operator
Company Name:	388-390 GRAND CONCOURSE
Contact Type:	Not reported
Contact Name:	N/A
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	CGFREEDM
Date Last Modified:	8/8/2011

Site Id:	23156
Affiliation Type:	Emergency Contact
Company Name:	NYC HPD
Contact Type:	Not reported
Contact Name:	DEREK PARSONS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(917) 559-4337
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	9/1/2011

Site Id:	23156
Affiliation Type:	Owner
Company Name:	NYC HPD

388-390 GRAND CONCOURSE (Continued) **A100175287**

Contact Type:	EXEC DIR OF ENV POLICY & IMPLEMENTATION
Contact Name:	JOHN E. GEARRITY
Address1:	100 GOLD ST
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10038
Country Code:	001
Phone:	(212) 863-8590
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	CGFREEDM
Date Last Modified:	8/8/2011

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
I05 - Overfill - Vent Whistle
C03 - Pipe Location - Aboveground/Underground Combination
B01 - Tank External Protection - Painted/Asphalt Coating
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping

Tank Info:

Tank Number:	1
Tank Id:	44884
Tank Location:	1
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1905
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	12/31/1998
Register:	True
Modified By:	CGFREEDM
Last Modified:	8/8/2011

M98 **U S A PORTABLE SERVICE** **RCRA-NonGen** **1007571140**
SSE **180 CANAL ST W** **NYR000127035**
1/8-1/4 **BRONX, NY 10459**
0.155 mi.
820 ft. **Site 1 of 8 in cluster M**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	U S A PORTABLE SERVICE
Facility address:	180 CANAL ST W BRONX, NY 10459
EPA ID:	NYR000127035

U S A PORTABLE SERVICE (Continued) **1007571140**

Mailing address:	LONGWOOD AVE #31 BRONX, NY 10459
Contact:	DIANA REYES
Contact address:	LONGWOOD AVE #31 BRONX, NY 10459
Contact country:	US
Contact telephone:	(917) 709-3093
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	U S A PORTABLE SERVICE
Owner/operator address:	W CANAL ST BRONX, NY 10459
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	08/14/2004
Owner/Op end date:	Not reported

Owner/operator name:	ANGEL J MERCADO
Owner/operator address:	LONGWOOD AVE #31 BRONX, NY 10459
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	08/14/2004
Owner/Op end date:	Not reported

Handler Activities Summary:

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

Historical Generators:

Date form received by agency:	01/01/2006
Facility name:	U S A PORTABLE SERVICE
Classification:	Not a generator, verified

Date form received by agency: 08/17/2004

U S A PORTABLE SERVICE (Continued) **1007571140**

Facility name: U S A PORTABLE SERVICE
Classification: Not a generator, verified

Violation Status: No violations found

M99 **UNITED PARCEL SERVICE** **HIST UST** **1000474247**
SSE **180 CANAL PLACE** **AST** **N/A**
1/8-1/4 **BRONX, NY 10454** **HIST AST**
0.155 mi.
820 ft. **Site 2 of 8 in cluster M**

HIST UST:

PBS Number:	2-198528
SPDES Number:	Not reported
Emergency Contact:	MIKE MCINERNEY
Emergency Telephone:	(212) 229-0968
Operator:	MIKE ROCCI
Operator Telephone:	(212) 229-0950
Owner Name:	UNITED PARCEL SERVICE
Owner Address:	643 W 43RD STREET
Owner City,St,Zip:	NYC, NY 10036
Owner Telephone:	(212) 631-6444
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	UNITED PARCEL SERVICE
Mailing Address:	643 WEST 43RD STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NYC, NY 10036
Mailing Contact:	PLANT. ENG.DEPT.5TH FLOOR
Mailing Telephone:	(212) 631-6444
Owner Mark:	First Owner
Facility Status:	4 - Subpart 360-14 only (active)
Facility Addr2:	180 CANAL ST WEST
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/24/1987
Expiration Date:	08/24/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	250
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	True
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	002
Tank Location:	UNDERGROUND

UNITED PARCEL SERVICE (Continued) **1000474247**

Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550

UNITED PARCEL SERVICE (Continued) **1000474247**

Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	006
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported

UNITED PARCEL SERVICE (Continued) **1000474247**

Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	007
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL

UNITED PARCEL SERVICE (Continued) **1000474247**

Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	009
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	010
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking

UNITED PARCEL SERVICE (Continued) **1000474247**

Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Facility Id:	2-198528
Program Type:	PBS
UTM X:	590323.82955999998
UTM Y:	4518424.7781199999
Expiration Date:	N/A

Affiliation Records:

Site Id:	6585
Affiliation Type:	Mail Contact
Company Name:	PLANT ENGINEERING DEPT.
Contact Type:	Not reported
Contact Name:	UNITED PARCEL SERVICE
Address1:	643 WEST 43RD STREET
Address2:	5TH FLOOR
City:	NEW YORK
State:	NY
Zip Code:	10036
Country Code:	001
Phone:	(212) 631-6444
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	6585
Affiliation Type:	On-Site Operator
Company Name:	UNITED PARCEL SERVICE
Contact Type:	Not reported
Contact Name:	TRICIA DIXON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(973) 445-6437
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving

UNITED PARCEL SERVICE (Continued) **1000474247**

Date Last Modified: 3/28/2008

Site Id: 6585
Affiliation Type: Owner
Company Name: UNITED PARCEL SERVICE
Contact Type: DISTRICT PLANT ENGINEER MANAGER
Contact Name: DAVE VAN HOOK
Address1: 643 W 43RD STREET
Address2: Not reported
City: NEW YORK
State: NY
Zip Code: 10036
Country Code: 001
Phone: (212) 631-6444
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: dxliving
Date Last Modified: 3/28/2008

Site Id: 6585
Affiliation Type: Emergency Contact
Company Name: UNITED PARCEL SERVICE
Contact Type: Not reported
Contact Name: DAVE VAN HOOK
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 631-6326
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 3/26/2009

Equipment Records:

A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction

UNITED PARCEL SERVICE (Continued) **1000474247**

H00 - Tank Leak Detection - None
D02 - Pipe Type - Galvanized Steel
H00 - Tank Leak Detection - None
J00 - Dispenser - None
J02 - Dispenser - Suction
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
B00 - Tank External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
C00 - Pipe Location - No Piping
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
B00 - Tank External Protection - None
I00 - Overfill - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
I00 - Overfill - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
I00 - Overfill - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None

UNITED PARCEL SERVICE (Continued) **1000474247**

I04 - Overfill - Product Level Gauge (A/G)
J00 - Dispenser - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
C01 - Pipe Location - Aboveground
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
I00 - Overfill - None
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)

Tank Info:

Tank Number:	001
Tank Id:	12364
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1995
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	8/27/2007
Register:	True
Modified By:	dxliving
Last Modified:	3/28/2008

Tank Number:	002
Tank Id:	86494
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1995
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	8/27/2007

UNITED PARCEL SERVICE (Continued) **1000474247**

Register:	True
Modified By:	dxliving
Last Modified:	3/28/2008

HIST AST:

PBS Number:	2-198528
SWIS Code:	6001
Operator:	MIKE ROCCI
Facility Phone:	(212) 229-0950
Facility Addr2:	180 CANAL ST WEST
Facility Type:	Not reported
Emergency:	MIKE MCINERNEY
Emergency Tel:	(212) 229-0968
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	UNITED PARCEL SERVICE
Owner Address:	643 W 43RD STREET
Owner City,St,Zip:	NYC, NY 10036
Federal ID:	Not reported
Owner Tel:	(212) 631-6444
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	PLANT. ENG.DEPT.5TH FLOOR
Mailing Name:	UNITED PARCEL SERVICE
Mailing Address:	643 WEST 43RD STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NYC, NY 10036
Mailing Telephone:	(212) 631-6444
Owner Mark:	First Owner
Facility Status:	4 - Subpart 360-14 only (active)
Certification Flag:	False
Certification Date:	08/24/1987
Expiration:	08/24/1992
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	250
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	True
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19951101
Capacity (Gal):	250
Product Stored:	USED OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0

UNITED PARCEL SERVICE (Continued) **1000474247**

Tank External:	01
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	None
Leak Detection:	00
Overfill Protection:	00
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	05/01/1990
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

N100 **220 E 138 ST** **UST** **U000401944**
SE **220 EAST 138TH STREET** **HIST UST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.161 mi.
850 ft. **Site 1 of 8 in cluster N**

UST:

Facility Id:	2-318825
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS
Expiration Date:	N/A
UTM X:	590378.60566999996
UTM Y:	4518460.1873599999

Affiliation Records:

Site Id:	14720
Affiliation Type:	Emergency Contact
Company Name:	CANAL PLACE REALTY LLC
Contact Type:	Not reported
Contact Name:	STUART POLINSKY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(212) 768-1435
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/5/2007

Site Id:	14720
Affiliation Type:	On-Site Operator
Company Name:	220 E 138 ST
Contact Type:	Not reported

220 E 138 ST (Continued) **U000401944**

Contact Name:	SKATE KEY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(914) 497-2749
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/5/2007

Site Id:	14720
Affiliation Type:	Owner
Company Name:	CANAL PLACE REALTY LLC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	575 MADISON AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10022
Country Code:	001
Phone:	(212) 768-1435
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/5/2007

Site Id:	14720
Affiliation Type:	Mail Contact
Company Name:	ACTION REMEDIATION
Contact Type:	Not reported
Contact Name:	KEVIN O'CONNOR
Address1:	3010 BURNS AVENUE
Address2:	Not reported
City:	WANTAGH
State:	NY
Zip Code:	11793
Country Code:	001
Phone:	(516) 781-3000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/5/2007

Equipment Records:

F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
J00 - Dispenser - None

220 E 138 ST (Continued) **U000401944**

H00 - Tank Leak Detection - None
H99 - Tank Leak Detection - Other
C02 - Pipe Location - Underground/On-ground
E00 - Piping Secondary Containment - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
I00 - Overfill - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
E00 - Piping Secondary Containment - None
I00 - Overfill - None
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
J00 - Dispenser - None
K00 - Spill Prevention - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
E00 - Piping Secondary Containment - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
H00 - Tank Leak Detection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
B00 - Tank External Protection - None
K00 - Spill Prevention - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
F00 - Pipe External Protection - None
I00 - Overfill - None
C00 - Pipe Location - No Piping
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
K00 - Spill Prevention - None
C02 - Pipe Location - Underground/On-ground
A00 - Tank Internal Protection - None
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:
Site ID: 14720

Tank Number: 001
Tank ID: 16733
Tank Status: Closed - In Place

220 E 138 ST (Continued) **U000401944**

Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	3000
Tightness Test Method:	03
Next Test Date:	Not reported
Date Tank Closed:	3/1/1996
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	2/1/1996
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	14720
Tank Number:	1
Tank ID:	210719
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	3/1/1996
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	12/5/2007
Site ID:	14720
Tank Number:	2
Tank ID:	210720
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	3/1/1996
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	12/5/2007
Site ID:	14720
Tank Number:	3
Tank ID:	210721
Tank Status:	Closed - Removed

220 E 138 ST (Continued) **U000401944**

Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	3/1/1996
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	12/5/2007
Site ID:	14720
Tank Number:	4
Tank ID:	210722
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	3/1/1996
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	12/5/2007

HIST UST:

PBS Number:	2-318825
SPDES Number:	Not reported
Emergency Contact:	MALCOLM K SUSS
Emergency Telephone:	(914) 356-1130
Operator:	GOTHAM PLASTICS CO INC
Operator Telephone:	(212) 585-1650
Owner Name:	GOTHAM PLASTICS CO INC
Owner Address:	220 E 138 ST
Owner City,St,Zip:	BRONX, NY 10451
Owner Telephone:	(212) 585-1650
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	GOTHAM PLASTICS CO INC
Mailing Address:	220 E 138 ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	Not reported
Mailing Telephone:	(212) 585-1650
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	220 E 138 ST
SWIS ID:	6001

220 E 138 ST (Continued) **U000401944**

Old PBS Number:	Not reported
Facility Type:	MANUFACTURING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/23/1992
Expiration Date:	07/20/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-In Place
Install Date:	Not reported
Capacity (gals):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	Other
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	02/01/1996
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	03/01/1996
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

N101 **IESI NY CORP - CANAL PLACE RECYCLING FACILITY** **SWRCY** **S109375830**
SE **246 - 266 CANAL PLACE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.163 mi.
859 ft. **Site 2 of 8 in cluster N**

SWRCY:

Region:	2
Facility Address 2:	Not reported
Phone Number:	2126650770
Owner Type:	Private
Owner Name:	IESI NY Corporation
Owner Address:	1099 Wall Street West; Suite 250
Owner Address 2:	Not reported
Owner City,St,Zip:	Lyndhurst, NJ 7071
Owner Email:	Not reported
Owner Phone:	2014433000
Contact Name:	Joseph LoVerde
Contact Address:	Not reported
Contact Address 2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	jloverde@iesi.com
Contact Phone:	2014333000
Activity Desc:	Recylables handling and recovery facilities
Activity Number:	[03M28]
Active:	Yes
East Coordinate:	594251
North Coordinate:	4519615
Accuracy Code:	4.3 - Utilization of Digital Orthophoto Quads
Regulatory Status:	Not reported
Permit #:	2-6004-00035
Auth. Date:	Not reported
Expiration Date:	Not reported
Waste Types:	Not reported

O102 **BARBOUR THREADS, INC.** **AST** **U003396364**
NNE **135 EAST 144TH STREET** **HIST AST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.163 mi.
859 ft. **Site 1 of 9 in cluster O**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-601909
Program Type:	PBS
UTM X:	590328.53764999995
UTM Y:	4518985.1139599998
Expiration Date:	2007/03/05

Affiliation Records:

Site Id:	23871
Affiliation Type:	Mail Contact
Company Name:	COATS NORTH AMERICA
Contact Type:	Not reported
Contact Name:	MIKE BELL
Address1:	P.O. BOX 670
Address2:	Not reported
City:	TOCCOA

BARBOUR THREADS, INC. (Continued) **U003396364**

State:	GA
Zip Code:	30577
Country Code:	001
Phone:	(706) 886-2141
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	3/25/2004

Site Id:	23871
Affiliation Type:	Owner
Company Name:	COATS NORTH AMERICA
Contact Type:	DIRECTOR, ENVIRONMENTAL ENGINEERING
Contact Name:	MIKE BELL
Address1:	3430 TORINGDON WAY
Address2:	Not reported
City:	CHARLOTTE
State:	NC
Zip Code:	28277
Country Code:	001
Phone:	(704) 329-5800
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	3/25/2004

Site Id:	23871
Affiliation Type:	On-Site Operator
Company Name:	BARBOUR THREADS, INC.
Contact Type:	Not reported
Contact Name:	COATS NORTH AMERICA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 585-6413
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	3/25/2004

Site Id:	23871
Affiliation Type:	Emergency Contact
Company Name:	Not reported
Contact Type:	Not reported
Contact Name:	FRED MOORE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999

BARBOUR THREADS, INC. (Continued) **U003396364**

Phone:	(212) 794-0070
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	3/25/2004

Equipment Records:

C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
G01 - Tank Secondary Containment - Diking (Aboveground)

Tank Info:

Tank Number:	001
Tank Id:	48275
Tank Location:	1
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	3/1/1988
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	kxtang
Last Modified:	3/25/2004

HIST AST:

PBS Number:	2-601909
SWIS Code:	6001
Operator:	BARBOUR THREADS
Facility Phone:	(718) 585-6413
Facility Addr2:	Not reported
Facility Type:	MANUFACTURING
Emergency:	R.S. HEGAN
Emergency Tel:	(860) 379-0786
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	HICKING PENTECOST LLC (SEE ZIP FOR PHONE CODES)
Owner Address:	19 STANWELL ROAD, PENARTH
Owner City,St,Zip:	SOUTH GLAMORGAN CF64 2EZ, UK 01144
Federal ID:	Not reported
Owner Tel:	(256) 237-9461
Owner Type:	Corporate/Commercial

BARBOUR THREADS, INC. (Continued) **U003396364**

Owner Subtype:	Not reported
Mailing Contact:	DAVE SUNDSTROM
Mailing Name:	BARBOUR INDUSTRIES, INC.
Mailing Address:	20 BLUE MOUNTAIN AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	ANNISTEN, AL 36201
Mailing Telephone:	(256) 237-9461
Owner Mark:	Second Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	03/23/1999
Expiration:	03/05/2002
Renew Flag:	False
Renew Date:	20011113
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19880301
Capacity (Gal):	3000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	Not reported
Overfill Protection:	Not reported
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

O103 **ROCKET JEWELRY BOX INC** **HIST UST** **U001838312**
NNE **125 EAST 144TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.164 mi.
865 ft. **Site 2 of 9 in cluster O**

HIST UST:

PBS Number:	2-207209
SPDES Number:	Not reported
Emergency Contact:	MICHAEL KAPLAN
Emergency Telephone:	(914) 273-9817
Operator:	TEDDY MARTIN
Operator Telephone:	(718) 292-5370
Owner Name:	M&N PARTNERSHIP LTD
Owner Address:	125 EAST 144TH STREET
Owner City,St,Zip:	BRONX, NY 10451
Owner Telephone:	(718) 292-5370
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	M&N PARTNERSHIP LTD
Mailing Address:	125 EAST 144TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	MIKE KAPLAN
Mailing Telephone:	(718) 292-5370
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	12E EAST 144TH STREET
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	05/15/2000
Expiration Date:	01/07/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	3000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19530701
Capacity (gals):	3000

ROCKET JEWELRY BOX INC (Continued) **U001838312**

Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	03/14/2000
Next Test Date:	03/14/2005
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Gilbarco Precision
Deleted:	False
Updated:	True
Lat/long:	Not reported

O104 **ROCKET JEWELRY BOX INC** **UST** **U004077060**
NNE **125 EAST 144TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.164 mi.
865 ft. **Site 3 of 9 in cluster O**

UST:

Facility Id:	2-207209
Region:	STATE
DEC Region:	2
Site Status:	Active
Program Type:	PBS
Expiration Date:	2008/01/07
UTM X:	590288.28488000005
UTM Y:	4519000.4433399998

Affiliation Records:

Site Id:	7341
Affiliation Type:	Emergency Contact
Company Name:	M&N PARTNERSHIP LTD
Contact Type:	Not reported
Contact Name:	MICHAEL KAPLAN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 292-5370
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	5/11/2004

Site Id:	7341
Affiliation Type:	Owner

ROCKET JEWELRY BOX INC (Continued) **U004077060**

Company Name:	M&N PARTNERSHIP LTD
Contact Type:	SECRETARY
Contact Name:	MICHAEL KAPLAN
Address1:	125 EAST 144TH STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 292-5370
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	5/11/2004

Site Id:	7341
Affiliation Type:	On-Site Operator
Company Name:	ROCKET JEWELRY BOX INC
Contact Type:	Not reported
Contact Name:	TIMOTHY CLARK
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 292-5370
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	5/11/2004

Site Id:	7341
Affiliation Type:	Mail Contact
Company Name:	ROCKET JEWELRY BOX INC.
Contact Type:	Not reported
Contact Name:	RICHARD S. PARDO
Address1:	125 EAST 144TH STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 292-5370
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	kxtang
Date Last Modified:	5/11/2004

Equipment Records:

A00 - Tank Internal Protection - None
B99 - Tank External Protection - Other
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping

ROCKET JEWELRY BOX INC (Continued) **U004077060**

D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
I04 - Overfill - Product Level Gauge (A/G)
G03 - Tank Secondary Containment - Vault (w/o access)
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

Tank Info:

Site ID:	7341
Tank Number:	001
Tank ID:	24956
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1953
Capacity Gallons:	3000
Tightness Test Method:	18
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	3/14/2000
Register:	True
Modified By:	kxtang
Last Modified:	5/11/2004

O105 **PANORAMIC INDUSTRIES INC** **HIST UST** **U000403087**
North **120 E 144TH ST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.164 mi.
868 ft. **Site 4 of 9 in cluster O**

HIST UST:

PBS Number:	2-209775
SPDES Number:	Not reported
Emergency Contact:	MALCOLM RODRIGUES
Emergency Telephone:	(212) 733-3226
Operator:	PANORAMIC INDUSTRIES INC
Operator Telephone:	(212) 993-5100
Owner Name:	PANORAMIC INDUSTRIES INC
Owner Address:	120 E 144TH ST
Owner City,St,Zip:	BRONX, NY 10451
Owner Telephone:	(212) 993-5100
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	PANORAMIC INDUSTRIES INC
Mailing Address:	120 E 144TH ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	Not reported
Mailing Telephone:	(212) 993-5100
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	120 E 144TH ST
SWIS ID:	6001

PANORAMIC INDUSTRIES INC (Continued) **U000403087**

Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	08/21/1992
Expiration Date:	08/24/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	10000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	19791101
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	19791101
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel

PANORAMIC INDUSTRIES INC (Continued) **U000403087**

Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

O106 **PANORAMIC INDUSTRIES INC** **UST** **U004076795**
North **120 E 144TH ST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.164 mi.
868 ft. **Site 5 of 9 in cluster O**

UST:

Facility Id:	2-209775
Region:	STATE
DEC Region:	2
Site Status:	Active
Program Type:	PBS
Expiration Date:	1997/08/24
UTM X:	590280.85360000003
UTM Y:	4519003.2733800001

Affiliation Records:

Site Id:	7557
Affiliation Type:	Owner
Company Name:	PANORAMIC INDUSTRIES INC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	120 E 144TH ST
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(212) 993-5100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	7557
Affiliation Type:	Mail Contact
Company Name:	PANORAMIC INDUSTRIES INC
Contact Type:	Not reported

PANORAMIC INDUSTRIES INC (Continued) **U004076795**

Contact Name:	Not reported
Address1:	120 E 144TH ST
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(212) 993-5100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	7557
Affiliation Type:	Emergency Contact
Company Name:	PANORAMIC INDUSTRIES INC
Contact Type:	Not reported
Contact Name:	MALCOLM RODRIGUES
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 733-3226
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	7557
Affiliation Type:	On-Site Operator
Company Name:	PANORAMIC INDUSTRIES INC
Contact Type:	Not reported
Contact Name:	PANORAMIC INDUSTRIES INC
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 993-5100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
A00 - Tank Internal Protection - None

PANORAMIC INDUSTRIES INC (Continued) **U004076795**

G03 - Tank Secondary Containment - Vault (w/o access)
D02 - Pipe Type - Galvanized Steel
I04 - Overfill - Product Level Gauge (A/G)
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
C00 - Pipe Location - No Piping
A00 - Tank Internal Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction

Tank Info:

Site ID:	7557
Tank Number:	001
Tank ID:	18666
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1979
Capacity Gallons:	5000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

Site ID:	7557
Tank Number:	002
Tank ID:	18667
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1979
Capacity Gallons:	5000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

P107 **ECOLOGY RECYCLING PLANT** **SWRCY** **S105842268**
ESE **321 CANAL PLACE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.167 mi.
883 ft. **Site 1 of 4 in cluster P**

SWRCY:

Region:	2
Facility Address 2:	Not reported
Phone Number:	2126650770
Owner Type:	Not reported
Owner Name:	Not reported
Owner Address:	Not reported
Owner Address 2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	ANTHONY LACAVALLA
Contact Address:	Not reported
Contact Address 2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Recylables handling and recovery facilities
Activity Number:	[03M27]
Active:	No
East Coordinate:	Not reported
North Coordinate:	Not reported
Accuracy Code:	Not reported
Regulatory Status:	Not reported
Permit #:	2-6004-00040
Auth. Date:	Not reported
Expiration Date:	Not reported
Waste Types:	Not reported

P108 **AJAX AUTOMOTIVE** **RCRA-NonGen** **1001119736**
East **329 CANAL PL** **FINDS** **NYR000030262**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.170 mi.
899 ft. **Site 2 of 4 in cluster P**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	AJAX AUTOMOTIVE
Facility address:	329 CANAL PL BRONX, NY 10451
EPA ID:	NYR000030262
Mailing address:	CANAL PL BRONX, NY 10451
Contact:	JACK LACAVALLA
Contact address:	CANAL PL BRONX, NY 10451
Contact country:	US
Contact telephone:	(718) 933-1170
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

AJAX AUTOMOTIVE (Continued) **1001119736**

Owner/Operator Summary:
Owner/operator name: JACK LACAVALLA
Owner/operator address: 2630 PARK AVE
BRONX, NY 10451
Owner/operator country: US
Owner/operator telephone: (718) 665-0770
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: JACK LACAVALLA
Owner/operator address: 2630 PARK AVE
BRONX, NY 10451
Owner/operator country: US
Owner/operator telephone: (718) 665-0770
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: AJAX AUTOMOTIVE
Classification: Not a generator, verified

Date form received by agency: 10/03/1996
Facility name: AJAX AUTOMOTIVE
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004529127

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of

AJAX AUTOMOTIVE (Continued) **1001119736**

events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NY MANIFEST:

EPA ID:	NYR000030262
Country:	USA
Mailing Name:	AJAX AUTOMOTIVE
Mailing Contact:	JACK LACAVALLA
Mailing Address:	329 CANAL PLACE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-933-1170

Document ID:	NYC3998970
Manifest Status:	Completed copy
Trans1 State ID:	AM6252NY
Trans2 State ID:	Not reported
Generator Ship Date:	970728
Trans1 Recv Date:	970728
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970807
Part A Recv Date:	970818
Part B Recv Date:	970820
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NCD077840148
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00224
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	NYC4548194
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	AM6252NY
Trans2 State ID:	Not reported
Generator Ship Date:	971020

AJAX AUTOMOTIVE (Continued) **1001119736**

Trans1 Recv Date:	971020
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	971104
Part A Recv Date:	971113
Part B Recv Date:	971203
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	SCD077995488
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00224
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	NYC4928962
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	AM6252NY
Trans2 State ID:	Not reported
Generator Ship Date:	971209
Trans1 Recv Date:	971209
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	971218
Part A Recv Date:	971229
Part B Recv Date:	980309
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	SCD077995488
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	NYC4896000
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	AM6252NY
Trans2 State ID:	Not reported
Generator Ship Date:	971117
Trans1 Recv Date:	971117
Trans2 Recv Date:	Not reported

AJAX AUTOMOTIVE (Continued) **1001119736**

TSD Site Recv Date:	971202
Part A Recv Date:	971203
Part B Recv Date:	971224
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	SCD077995488
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	SCC0917970
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	AM6252NY
Trans2 State ID:	Not reported
Generator Ship Date:	970919
Trans1 Recv Date:	970919
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970925
Part A Recv Date:	970930
Part B Recv Date:	971229
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	SCD077995488
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00224
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	NYC5017533
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	03/09/1998
Trans1 Recv Date:	03/09/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/18/1998
Part A Recv Date:	Not reported

AJAX AUTOMOTIVE (Continued) **1001119736**

Part B Recv Date:	Not reported
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	SCD077995488
Trans2 EPA ID:	Not reported
TSDF ID:	JE4550NY
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F005 - UNKNOWN
Quantity:	00112
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NYC4955444
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	01/12/1998
Trans1 Recv Date:	01/12/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/12/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	SCD077995488
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F005 - UNKNOWN
Quantity:	00116
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NYC4979283
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported

AJAX AUTOMOTIVE (Continued) **1001119736**

Generator Ship Date:	02/10/1998
Trans1 Recv Date:	02/10/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	02/11/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	SCD077995488
Trans2 EPA ID:	Not reported
TSDF ID:	AM6252NY
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F005 - UNKNOWN
Quantity:	00224
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NYC5229371
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	05/04/1998
Trans1 Recv Date:	05/04/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/12/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	SCD077995488
Trans2 EPA ID:	Not reported
TSDF ID:	JE4550NY
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F005 - UNKNOWN
Quantity:	00224
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

AJAX AUTOMOTIVE (Continued) **1001119736**

Document ID:	NYC5269836
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	06/01/1998
Trans1 Recv Date:	06/01/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/09/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	SCD077995488
Trans2 EPA ID:	Not reported
TSDF ID:	JE4552NY
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F005 - UNKNOWN
Quantity:	00448
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NYC5300820
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	08/24/1998
Trans1 Recv Date:	08/24/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	09/01/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	SCD077995488
Trans2 EPA ID:	Not reported
TSDF ID:	JE4550NY
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F005 - UNKNOWN
Quantity:	00224
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels

AJAX AUTOMOTIVE (Continued) **1001119736**

Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NYC5307265
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: Not reported
Generator Ship Date: 06/29/1998
Trans1 Recv Date: 06/29/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/07/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYR000030262
Trans1 EPA ID: SCD077995488
Trans2 EPA ID: Not reported
TSDF ID: JE4550NY
Waste Code: F005 - UNKNOWN
Quantity: 00036
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Waste Code: F005 - UNKNOWN
Quantity: 00224
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NYC4991286
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: Not reported
Generator Ship Date: 04/03/1998
Trans1 Recv Date: 04/03/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 04/15/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYR000030262
Trans1 EPA ID: SCD077995488
Trans2 EPA ID: Not reported
TSDF ID: JE4550NY
Waste Code: F005 - UNKNOWN
Quantity: 00036
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00

AJAX AUTOMOTIVE (Continued) **1001119736**

Year: 98

Document ID: NYC5344571
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: Not reported
Generator Ship Date: 07/27/1998
Trans1 Recv Date: 07/27/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 08/04/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYR000030262
Trans1 EPA ID: SCD077995488
Trans2 EPA ID: Not reported
TSDF ID: JE4550NY
Waste Code: F005 - UNKNOWN
Quantity: 00036
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NYC4480290
Manifest Status: Completed copy
Trans1 State ID: NYLP3931
Trans2 State ID: Not reported
Generator Ship Date: 970407
Trans1 Recv Date: 970407
Trans2 Recv Date: Not reported
TSD Site Recv Date: 970417
Part A Recv Date: 970417
Part B Recv Date: 970502
Generator EPA ID: NYR000030262
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NCD077840148
Waste Code: F005 - UNKNOWN
Quantity: 00036
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00224
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 97

AJAX AUTOMOTIVE (Continued) **1001119736**

Document ID:	NYC3999802
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYLP3931
Trans2 State ID:	Not reported
Generator Ship Date:	961213
Trans1 Recv Date:	961213
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	961219
Part A Recv Date:	970114
Part B Recv Date:	970107
Generator EPA ID:	NYR000030262
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NCD077840148
Waste Code:	F005 - UNKNOWN
Quantity:	00036
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00336
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	96

M109 **UNITED PARCEL SERVICE** **RCRA-SQG** **1000994430**
SSE **180 CANAL PL** **FINDS** **NYD986902997**
1/8-1/4 **BRONX, NY 10454** **UST**
0.172 mi. **MANIFEST**
910 ft. **Site 3 of 8 in cluster M**

RCRA-SQG:

Date form received by agency:	01/01/2007
Facility name:	UNITED PARCEL SERVICE
Facility address:	180 CANAL PL BRONX, NY 10454
EPA ID:	NYD986902997
Mailing address:	GREENWICH ST NEW YORK, NY 10013
Contact:	Not reported
Contact address:	GREENWICH ST NEW YORK, NY 10013
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

UNITED PARCEL SERVICE (Continued) **1000994430**

Owner/Operator Summary:
Owner/operator name: UNITED PARCEL SERVICE
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: UNITED PARCEL SERVICE
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: UNITED PARCEL SERVICE
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/19/1995
Facility name: UNITED PARCEL SERVICE
Classification: Not a generator, verified

Date form received by agency: 05/30/1990
Facility name: UNITED PARCEL SERVICE
Classification: Small Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 02/18/2011

UNITED PARCEL SERVICE (Continued) **1000994430**

Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

FINDS:

Registry ID: 110004447796

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

UST:
Facility Id: 2-198528
Region: STATE
DEC Region: 2
Site Status: Unregulated
Program Type: PBS
Expiration Date: N/A
UTM X: 590323.82955999998
UTM Y: 4518424.7781199999

Affiliation Records:
Site Id: 6585
Affiliation Type: Mail Contact
Company Name: PLANT ENGINEERING DEPT.
Contact Type: Not reported
Contact Name: UNITED PARCEL SERVICE
Address1: 643 WEST 43RD STREET
Address2: 5TH FLOOR
City: NEW YORK
State: NY
Zip Code: 10036
Country Code: 001
Phone: (212) 631-6444
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 6585
Affiliation Type: On-Site Operator
Company Name: UNITED PARCEL SERVICE
Contact Type: Not reported
Contact Name: TRICIA DIXON
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001

UNITED PARCEL SERVICE (Continued) **1000994430**

Phone:	(973) 445-6437
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	3/28/2008

Site Id:	6585
Affiliation Type:	Owner
Company Name:	UNITED PARCEL SERVICE
Contact Type:	DISTRICT PLANT ENGINEER MANAGER
Contact Name:	DAVE VAN HOOK
Address1:	643 W 43RD STREET
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10036
Country Code:	001
Phone:	(212) 631-6444
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	3/28/2008

Site Id:	6585
Affiliation Type:	Emergency Contact
Company Name:	UNITED PARCEL SERVICE
Contact Type:	Not reported
Contact Name:	DAVE VAN HOOK
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 631-6326
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	3/26/2009

Equipment Records:

A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None

UNITED PARCEL SERVICE (Continued) **1000994430**

H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
D02 - Pipe Type - Galvanized Steel
H00 - Tank Leak Detection - None
J00 - Dispenser - None
J02 - Dispenser - Suction
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
B00 - Tank External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
C00 - Pipe Location - No Piping
H00 - Tank Leak Detection - None
I00 - Overfill - None
B00 - Tank External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
B00 - Tank External Protection - None
I00 - Overfill - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
I00 - Overfill - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
I00 - Overfill - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
I00 - Overfill - None
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel

UNITED PARCEL SERVICE (Continued) **1000994430**

F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
I04 - Overfill - Product Level Gauge (A/G)
J00 - Dispenser - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
C01 - Pipe Location - Aboveground
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
I00 - Overfill - None
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)

Tank Info:

Site ID:	6585
Tank Number:	002-A
Tank ID:	86498
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	003
Tank ID:	12365
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	004
Tank ID:	12366
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	005
Tank ID:	12367
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	006
Tank ID:	12368
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	007
Tank ID:	12369
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	008
Tank ID:	12370
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	009
Tank ID:	12371
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	6585
Tank Number:	010
Tank ID:	12372
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	5/1/1990
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

NY MANIFEST:

EPA ID:	NYD986902997
Country:	USA
Mailing Name:	UNITED PARCEL SERVICE
Mailing Contact:	MIKE MCINERNEY
Mailing Address:	643 W 43RD STREET
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10036
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-742-6406
Document ID:	INA1261692
Manifest Status:	Not reported
Trans1 State ID:	IND058484114
Trans2 State ID:	Not reported
Generator Ship Date:	10/13/1998
Trans1 Recv Date:	10/13/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	10/19/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	IND093219012

UNITED PARCEL SERVICE (Continued) **1000994430**

Trans2 EPA ID: Not reported
TSDF ID: Not reported
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00470
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NYG2687769
Manifest Status: Not reported
Trans1 State ID: IND058484114
Trans2 State ID: Not reported
Generator Ship Date: 11/04/2003
Trans1 Recv Date: 11/04/2003
Trans2 Recv Date: Not reported
TSD Site Recv Date: 11/17/2003
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND093219012
Trans2 EPA ID: Not reported
TSDF ID: Not reported
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00100
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 2003

Document ID: INA0931090
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 941107
Trans1 Recv Date: 941107
Trans2 Recv Date: Not reported
TSD Site Recv Date: 941116
Part A Recv Date: 941118
Part B Recv Date: 941205
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND058484114
Trans2 EPA ID: Not reported
TSDF ID: IND093219012
Waste Code: D008 - LEAD 5.0 MG/L TCLP
Quantity: 01000
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100

UNITED PARCEL SERVICE (Continued) **1000994430**

Year: 94

Document ID: INA0931005
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 941010
Trans1 Recv Date: 941010
Trans2 Recv Date: Not reported
TSD Site Recv Date: 941019
Part A Recv Date: 941222
Part B Recv Date: 941107
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND058484114
Trans2 EPA ID: Not reported
TSDF ID: IND093219012
Waste Code: D008 - LEAD 5.0 MG/L TCLP
Quantity: 01000
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: L Landfill.
Specific Gravity: 100
Year: 94

Document ID: INA0931004
Manifest Status: Completed copy
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 941010
Trans1 Recv Date: 941010
Trans2 Recv Date: Not reported
TSD Site Recv Date: 941019
Part A Recv Date: 941222
Part B Recv Date: 941031
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND058484114
Trans2 EPA ID: Not reported
TSDF ID: IND093219012
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00005
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 94

Document ID: INA1230686
Manifest Status: Not reported
Trans1 State ID: IND058484114
Trans2 State ID: Not reported
Generator Ship Date: 01/06/1998
Trans1 Recv Date: 01/06/1998

UNITED PARCEL SERVICE (Continued) **1000994430**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/12/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	IND093219012
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00440
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	INA1200489
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	971104
Trans1 Recv Date:	971104
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	971117
Part A Recv Date:	971120
Part B Recv Date:	971204
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	IND058484114
Trans2 EPA ID:	Not reported
TSDF ID:	IND093219012
Waste Code:	U154 - METHANOL
Quantity:	00005
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00004
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00008
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	INA1155022

UNITED PARCEL SERVICE (Continued) **1000994430**

Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	970708
Trans1 Recv Date:	970708
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970712
Part A Recv Date:	970805
Part B Recv Date:	970731
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	IND058484114
Trans2 EPA ID:	Not reported
TSDF ID:	IND093219012
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00490
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	INA1249896
Manifest Status:	Not reported
Trans1 State ID:	IND058484114
Trans2 State ID:	Not reported
Generator Ship Date:	12/15/1998
Trans1 Recv Date:	12/15/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	12/22/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	IND093219012
Trans2 EPA ID:	Not reported
TSDF ID:	Not reported
Waste Code:	D035 - METHYL ETHYL KETONE 200.0 MG/L TCLP
Quantity:	00019
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	INA1249532
Manifest Status:	Not reported
Trans1 State ID:	IND058484114
Trans2 State ID:	Not reported
Generator Ship Date:	08/04/1998
Trans1 Recv Date:	08/04/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/04/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Generator EPA ID: NYD986902997
Trans1 EPA ID: IND093219012
Trans2 EPA ID: Not reported
TSDF ID: Not reported
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00290
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: INA1256287
Manifest Status: Not reported
Trans1 State ID: IND058484114
Trans2 State ID: Not reported
Generator Ship Date: 06/30/1998
Trans1 Recv Date: 06/30/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/07/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND093219012
Trans2 EPA ID: Not reported
TSDF ID: Not reported
Waste Code: U154 - METHANOL
Quantity: 00017
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NYC5020176
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: Not reported
Generator Ship Date: 03/16/1998
Trans1 Recv Date: 03/16/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 03/20/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD986902997
Trans1 EPA ID: NYD000708198
Trans2 EPA ID: Not reported
TSDF ID: NYJE5256
Waste Code: D039 - TETRACHLOROETHYLENE 0.73 MG/L TCLP
Quantity: 00017
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 001
Container Type: DM - Metal drums, barrels

UNITED PARCEL SERVICE (Continued) **1000994430**

Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 01.00
Year: 98

Document ID: NYG2685249
Manifest Status: Not reported
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 01/26/2004
Trans1 Recv Date: 01/26/2004
Trans2 Recv Date: Not reported
TSD Site Recv Date: 02/07/2004
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND058484114
Trans2 EPA ID: Not reported
TSDF ID: IND093219
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00120
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 2004

Document ID: NYG2685825
Manifest Status: Not reported
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 04/20/2004
Trans1 Recv Date: 04/20/2004
Trans2 Recv Date: Not reported
TSD Site Recv Date: 05/01/2004
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD986902997
Trans1 EPA ID: IND058484114
Trans2 EPA ID: Not reported
TSDF ID: IND093219
Waste Code: D006 - CADMIUM 1.0 MG/L TCLP
Quantity: 00300
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 2004

Document ID: Not reported
Manifest Status: Not reported
Trans1 State ID: IND058484114
Trans2 State ID: Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Generator Ship Date:	2008-05-06
Trans1 Recv Date:	2008-05-06
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-05-14
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	OHD980613541
Waste Code:	Not reported
Quantity:	85.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	000169069WAS
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	IND058484114
Trans2 State ID:	Not reported
Generator Ship Date:	2008-04-08
Trans1 Recv Date:	2008-04-08
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-04-15
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	OHD980613541
Waste Code:	Not reported
Quantity:	48.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	000174934WAS
Import Ind:	N
Export Ind:	N

UNITED PARCEL SERVICE (Continued) **1000994430**

Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	IND058484114
Trans2 State ID:	Not reported
Generator Ship Date:	2008-06-03
Trans1 Recv Date:	2008-06-03
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-06-13
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	OHD980613541
Waste Code:	Not reported
Quantity:	53.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	000180675WAS
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	IND058484114
Trans2 State ID:	Not reported
Generator Ship Date:	2008-02-11
Trans1 Recv Date:	2008-02-11
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2008-02-26
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Generator EPA ID:	NYD986902997
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	IND093219012
Waste Code:	Not reported
Quantity:	400.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	000168403WAS
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H061

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	IND058484114
Generator Ship Date:	2010-01-06
Trans1 Recv Date:	2010-01-06
Trans2 Recv Date:	2010-02-12
TSD Site Recv Date:	2010-02-23
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	IND093219012
Waste Code:	Not reported
Quantity:	345.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2010
Manifest Tracking Num:	000288216WAS
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported

UNITED PARCEL SERVICE (Continued) **1000994430**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H061

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJD054126164
Trans2 State ID:	Not reported
Generator Ship Date:	2010-01-06
Trans1 Recv Date:	2010-01-06
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2010-02-12
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD986902997
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	OHD980613541
Waste Code:	Not reported
Quantity:	85.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2010
Manifest Tracking Num:	000288215WAS
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Click this hyperlink while viewing on your computer to access
122 additional NY_MANIFEST: record(s) in the EDR Site Report.

Q110 **METRO AFFILIATES** **UST** **U004063535**
North **399 EXTERIOR STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.177 mi.
934 ft. **Site 1 of 4 in cluster Q**

UST:

Facility Id:	2-508675
Region:	STATE
DEC Region:	2
Site Status:	Active
Program Type:	PBS
Expiration Date:	2016/01/09
UTM X:	590161.81241999997
UTM Y:	4518927.1770799998

METRO AFFILIATES (Continued) **U004063535**

Affiliation Records:

Site Id:	21702
Affiliation Type:	Mail Contact
Company Name:	AMBOY BUS COMPANY, INC.
Contact Type:	Not reported
Contact Name:	ANTHONY BORSELLINO
Address1:	46-81 METROPOLITAN AVENUE
Address2:	Not reported
City:	RIDGEWOOD
State:	NY
Zip Code:	11385
Country Code:	001
Phone:	(718) 416-7620
Phone Ext:	206
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/28/2011

Site Id:	21702
Affiliation Type:	Owner
Company Name:	METRO AFFILLIATES
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	46-81 METROPOLITAN AVENUE
Address2:	Not reported
City:	RIDGEWOOD
State:	NY
Zip Code:	11385
Country Code:	001
Phone:	(718) 416-7620
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	4/28/2011

Site Id:	21702
Affiliation Type:	Emergency Contact
Company Name:	METRO AFFILLIATES
Contact Type:	Not reported
Contact Name:	ANTHONY BORSELLINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 416-1300
Phone Ext:	206
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	10/27/2010

Site Id:	21702
Affiliation Type:	On-Site Operator

METRO AFFILIATES (Continued) **U004063535**

Company Name:	METRO AFFILIATES
Contact Type:	Not reported
Contact Name:	DANNY NARRY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 585-8592
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	10/27/2010

Equipment Records:

G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
K00 - Spill Prevention - None
E09 - Piping Secondary Containment - Modified Double-Walled (Aboveground)
J00 - Dispenser - None
G04 - Tank Secondary Containment - Double-Walled (Underground)
G04 - Tank Secondary Containment - Double-Walled (Underground)
G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
D00 - Pipe Type - No Piping
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
K00 - Spill Prevention - None
F00 - Pipe External Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
E00 - Piping Secondary Containment - None
E00 - Piping Secondary Containment - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None
D00 - Pipe Type - No Piping
K00 - Spill Prevention - None
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None

METRO AFFILIATES (Continued) **U004063535**

K01 - Spill Prevention - Catch Basin
I04 - Overfill - Product Level Gauge (A/G)
K00 - Spill Prevention - None
B00 - Tank External Protection - None
K01 - Spill Prevention - Catch Basin
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
E09 - Piping Secondary Containment - Modified Double-Walled (Aboveground)
B00 - Tank External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
E09 - Piping Secondary Containment - Modified Double-Walled (Aboveground)
I03 - Overfill - Automatic Shut-Off
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
E00 - Piping Secondary Containment - None
I03 - Overfill - Automatic Shut-Off
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
L09 - Piping Leak Detection - Exempt Suction Piping
D10 - Pipe Type - Copper
J02 - Dispenser - Suction
D10 - Pipe Type - Copper
J02 - Dispenser - Suction
I00 - Overfill - None
D02 - Pipe Type - Galvanized Steel
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G01 - Tank Secondary Containment - Diking (Aboveground)
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
B02 - Tank External Protection - Original Sacrificial Anode
H05 - Tank Leak Detection - In-Tank System (ATG)
H05 - Tank Leak Detection - In-Tank System (ATG)
B02 - Tank External Protection - Original Sacrificial Anode
I00 - Overfill - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None

METRO AFFILIATES (Continued) **U004063535**

J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
D10 - Pipe Type - Copper
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
L09 - Piping Leak Detection - Exempt Suction Piping
G01 - Tank Secondary Containment - Diking (Aboveground)
L09 - Piping Leak Detection - Exempt Suction Piping
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
I02 - Overfill - High Level Alarm
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
F02 - Pipe External Protection - Original Sacrificial Anode
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
C02 - Pipe Location - Underground/On-ground
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	21702
Tank Number:	001
Tank ID:	39447
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	2/1/1998
Capacity Gallons:	4000
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	5/5/2011
Register:	True
Modified By:	BKFALVEY
Last Modified:	5/16/2011
Site ID:	21702
Tank Number:	002
Tank ID:	39448
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	2/1/1998
Capacity Gallons:	4000
Tightness Test Method:	21
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	5/5/2011
Register:	True

METRO AFFILIATES (Continued) **U004063535**

Modified By: BKFALVEY
Last Modified: 5/16/2011

Q111 **METRO AFFILIATES** **HIST UST** **U000411469**
North **399 EXTERIOR STREET** **AST** **N/A**
1/8-1/4 **BRONX, NY 10451** **HIST AST**
0.177 mi.
934 ft. **Site 2 of 4 in cluster Q**

HIST UST:

PBS Number:	2-508675
SPDES Number:	Not reported
Emergency Contact:	MCVEIGH, WILLIAM
Emergency Telephone:	(718) 946-7100
Operator:	METRO AFFILIATES
Operator Telephone:	(718) 497-6523
Owner Name:	METRO AFFILLIATES
Owner Address:	46-81 METROPOLITAN AVENUE
Owner City,St,Zip:	RIDGEWOOD, NY 11385
Owner Telephone:	(718) 456-9530
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	ATLANTIC EXPRESS TRANSPORTATION GROUP, INC.
Mailing Address:	1752 SHORE PARKWAY
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11214
Mailing Contact:	BILL MCVEIGH
Mailing Telephone:	(718) 946-7100
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	399 EXTERIOR STREET
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	01/05/2001
Expiration Date:	01/09/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	8825
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2
Tank Id:	001

METRO AFFILIATES (Continued) **U000411469**

Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19980201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	12
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	26
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Suction
Date Tested:	07/13/2000
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19980201
Capacity (gals):	4000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	12
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	26
Second Containment:	Vault (w/access)
Leak Detection:	14
Overfill Prot:	High Level Alarm, Product Level Gauge
Dispenser:	Suction
Date Tested:	07/13/2000
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	21
Deleted:	False
Updated:	True
Lat/long:	Not reported

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-508675

METRO AFFILIATES (Continued) **U000411469**

Program Type: PBS
UTM X: 590161.81241999997
UTM Y: 4518927.1770799998
Expiration Date: 2016/01/09

Affiliation Records:

Site Id: 21702
Affiliation Type: Mail Contact
Company Name: AMBOY BUS COMPANY, INC.
Contact Type: Not reported
Contact Name: ANTHONY BORSELLINO
Address1: 46-81 METROPOLITAN AVENUE
Address2: Not reported
City: RIDGEWOOD
State: NY
Zip Code: 11385
Country Code: 001
Phone: (718) 416-7620
Phone Ext: 206
Email: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 4/28/2011

Site Id: 21702
Affiliation Type: Owner
Company Name: METRO AFFILLIATES
Contact Type: Not reported
Contact Name: Not reported
Address1: 46-81 METROPOLITAN AVENUE
Address2: Not reported
City: RIDGEWOOD
State: NY
Zip Code: 11385
Country Code: 001
Phone: (718) 416-7620
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: NRLOMBAR
Date Last Modified: 4/28/2011

Site Id: 21702
Affiliation Type: Emergency Contact
Company Name: METRO AFFILLIATES
Contact Type: Not reported
Contact Name: ANTHONY BORSELLINO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 416-1300
Phone Ext: 206
Email: Not reported
Fax Number: Not reported
Modified By: MSBAPTIS

METRO AFFILIATES (Continued) **U000411469**

Date Last Modified: 10/27/2010

Site Id: 21702
Affiliation Type: On-Site Operator
Company Name: METRO AFFILIATES
Contact Type: Not reported
Contact Name: DANNY NARRY
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 585-8592
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: MSBAPTIS
Date Last Modified: 10/27/2010

Equipment Records:

G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
K00 - Spill Prevention - None
E09 - Piping Secondary Containment - Modified Double-Walled (Aboveground)
J00 - Dispenser - None
G04 - Tank Secondary Containment - Double-Walled (Underground)
G04 - Tank Secondary Containment - Double-Walled (Underground)
G00 - Tank Secondary Containment - None
F06 - Pipe External Protection - Wrapped
D00 - Pipe Type - No Piping
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
B00 - Tank External Protection - None
K00 - Spill Prevention - None
F00 - Pipe External Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
E00 - Piping Secondary Containment - None
E00 - Piping Secondary Containment - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None
D00 - Pipe Type - No Piping
K00 - Spill Prevention - None
B01 - Tank External Protection - Painted/Asphalt Coating

METRO AFFILIATES (Continued) **U000411469**

B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
C01 - Pipe Location - Aboveground
H00 - Tank Leak Detection - None
K01 - Spill Prevention - Catch Basin
I04 - Overfill - Product Level Gauge (A/G)
K00 - Spill Prevention - None
B00 - Tank External Protection - None
K01 - Spill Prevention - Catch Basin
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
E09 - Piping Secondary Containment - Modified Double-Walled (Aboveground)
B00 - Tank External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
E09 - Piping Secondary Containment - Modified Double-Walled (Aboveground)
I03 - Overfill - Automatic Shut-Off
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
E00 - Piping Secondary Containment - None
I03 - Overfill - Automatic Shut-Off
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
L09 - Piping Leak Detection - Exempt Suction Piping
D10 - Pipe Type - Copper
J02 - Dispenser - Suction
D10 - Pipe Type - Copper
J02 - Dispenser - Suction
I00 - Overfill - None
D02 - Pipe Type - Galvanized Steel
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
G01 - Tank Secondary Containment - Diking (Aboveground)
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
B02 - Tank External Protection - Original Sacrificial Anode
H05 - Tank Leak Detection - In-Tank System (ATG)
H05 - Tank Leak Detection - In-Tank System (ATG)
B02 - Tank External Protection - Original Sacrificial Anode
I00 - Overfill - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None

METRO AFFILIATES (Continued) **U000411469**

J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
D10 - Pipe Type - Copper
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
L09 - Piping Leak Detection - Exempt Suction Piping
G01 - Tank Secondary Containment - Diking (Aboveground)
L09 - Piping Leak Detection - Exempt Suction Piping
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
I02 - Overfill - High Level Alarm
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I02 - Overfill - High Level Alarm
F02 - Pipe External Protection - Original Sacrificial Anode
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
C02 - Pipe Location - Underground/On-ground
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
G09 - Tank Secondary Containment - Modified Double-Walled (Aboveground)
L00 - Piping Leak Detection - None

Tank Info:

Tank Number:	003
Tank Id:	53242
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	7/1/2002
Register:	True
Modified By:	NRLOMBAR
Last Modified:	9/28/2004

Tank Number:	004
Tank Id:	53243
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported

METRO AFFILIATES (Continued) **U000411469**

Date Tank Closed:	7/1/2002
Register:	True
Modified By:	NRLOMBAR
Last Modified:	9/28/2004

Tank Number:	005
Tank Id:	53244
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1990
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	7/1/2002
Register:	True
Modified By:	NRLOMBAR
Last Modified:	9/28/2004

Tank Number:	006
Tank Id:	180248
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/2002
Capacity Gallons:	700
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	4/28/2011

Tank Number:	007
Tank Id:	180249
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/2002
Capacity Gallons:	700
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR

METRO AFFILIATES (Continued) **U000411469**

Last Modified: 4/28/2011

Tank Number: 008
Tank Id: 180250
Tank Location: 3
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 7/1/2002
Capacity Gallons: 275
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: NRLOMBAR
Last Modified: 4/28/2011

Tank Number: 009
Tank Id: 180251
Tank Location: 3
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 7/1/2002
Capacity Gallons: 275
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: NRLOMBAR
Last Modified: 4/28/2011

HIST AST:
PBS Number: 2-508675
SWIS Code: 6001
Operator: METRO AFFILIATES
Facility Phone: (718) 497-6523
Facility Addr2: 399 EXTERIOR STREET
Facility Type: OTHER
Emergency: MCVEIGH, WILLIAM
Emergency Tel: (718) 946-7100
Old PBSNO: Not reported
Date Inspected: Not reported
Inspector: Not reported
Result of Inspection: Not reported
Owner Name: METRO AFFILLIATES
Owner Address: 46-81 METROPOLITAN AVENUE
Owner City,St,Zip: RIDGEWOOD, NY 11385
Federal ID: Not reported
Owner Tel: (718) 456-9530
Owner Type: Corporate/Commercial

METRO AFFILIATES (Continued) **U000411469**

Owner Subtype:	Not reported
Mailing Contact:	BILL MCVEIGH
Mailing Name:	ATLANTIC EXPRESS TRANSPORTATION GROUP, INC.
Mailing Address:	1752 SHORE PARKWAY
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOKLYN, NY 11214
Mailing Telephone:	(718) 946-7100
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	01/05/2001
Expiration:	01/09/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	8825
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	003
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	Temporarily Out Of Service
Install Date:	19901201
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	00
Overfill Protection:	00
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	004

METRO AFFILIATES (Continued) **U000411469**

Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19901201
Capacity (Gal):	275
Product Stored:	USED OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	00
Overfill Protection:	00
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	005
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19901201
Capacity (Gal):	275
Product Stored:	UNKNOWN
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	Not reported
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Not reported
Leak Detection:	00
Overfill Protection:	00
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

R112 SSW 1/8-1/4 0.179 mi. 946 ft. **CONSOLIDATED EDISON**
42 EXTERIOR ST
BRONX, NY
Site 1 of 2 in cluster R

MANIFEST **1009236056** **N/A**

NY MANIFEST:

EPA ID:	NYP004004818
Country:	USA
Mailing Name:	CONSOLIDATED EDISON
Mailing Contact:	FRANKLIN MURRAY
Mailing Address:	4 IRVING PLACE RM 828
Mailing Address 2:	Not reported
Mailing City:	NEW YORK
Mailing State:	NY
Mailing Zip:	10003
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-460-2808

Document ID:	NJA2565016
Manifest Status:	Completed copy
Trans1 State ID:	S10376
Trans2 State ID:	Not reported
Generator Ship Date:	970203
Trans1 Recv Date:	970203
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970205
Part A Recv Date:	970214
Part B Recv Date:	970227
Generator EPA ID:	NYP004004818
Trans1 EPA ID:	NJD003812047
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	D018 - BENZENE 0.5 MG/L TCLP
Quantity:	00115
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00060
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

M113 **GLENTIES LEASING CO** **RCRA-NonGen** **1000322281**
South **75 CANAL ST W** **FINDS** **NYD982738569**
1/8-1/4 **BRONX, NY 10451**
0.179 mi.
946 ft. **Site 4 of 8 in cluster M**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	GLENTIES LEASING CO
Facility address:	75 CANAL ST W BRONX, NY 104516417
EPA ID:	NYD982738569
Mailing address:	CANAL ST W BRONX, NY 10451
Contact:	Not reported
Contact address:	CANAL ST W BRONX, NY 10451
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	DOVER GARAGE
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	DOVER GARAGE
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

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

GLENTIES LEASING CO (Continued) **1000322281**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: GLENTIES LEASING CO
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: GLENTIES LEASING CO
Classification: Not a generator, verified

Date form received by agency: 07/13/1989
Facility name: GLENTIES LEASING CO
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004430893

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

M114 **138TH STREET INC** **UST** **U001842088**
South **75 CANAL STREET WEST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.179 mi.
946 ft. **Site 5 of 8 in cluster M**

UST:
Facility Id: 2-601752
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2014/02/14
UTM X: 590259.00386000006
UTM Y: 4518360.3551599998

Affiliation Records:
Site Id: 23714
Affiliation Type: Mail Contact
Company Name: 138TH STREET INC
Contact Type: Not reported
Contact Name: MICHAEL WANDERMAN
Address1: 75 CANAL STREET WEST
Address2: Not reported
City: BRONX
State: NY

138TH STREET INC (Continued) **U001842088**

Zip Code:	10451
Country Code:	001
Phone:	(718) 993-8100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	8/23/2010

Site Id:	23714
Affiliation Type:	Owner
Company Name:	DOVER GARAGE CORP.
Contact Type:	PRESIDENT
Contact Name:	EDGAR WEINGARTEN
Address1:	75 CANAL STREET WEST
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(914) 355-2050
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	8/23/2010

Site Id:	23714
Affiliation Type:	On-Site Operator
Company Name:	138TH STREET INC
Contact Type:	Not reported
Contact Name:	ZVI HERMON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 993-8100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	8/23/2010

Site Id:	23714
Affiliation Type:	Emergency Contact
Company Name:	DOVER GARAGE CORP.
Contact Type:	Not reported
Contact Name:	EDGAR WEINGARTEN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 993-8100

138TH STREET INC (Continued) **U001842088**

Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: BVCAMPBE
Date Last Modified: 8/23/2010

Equipment Records:

B01 - Tank External Protection - Painted/Asphalt Coating
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
E00 - Piping Secondary Containment - None
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
G04 - Tank Secondary Containment - Double-Walled (Underground)
K01 - Spill Prevention - Catch Basin
F02 - Pipe External Protection - Original Sacrificial Anode
A00 - Tank Internal Protection - None
D00 - Pipe Type - No Piping
K00 - Spill Prevention - None
J02 - Dispenser - Suction
K01 - Spill Prevention - Catch Basin
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
E00 - Piping Secondary Containment - None
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
F02 - Pipe External Protection - Original Sacrificial Anode
J01 - Dispenser - Submersible
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
A00 - Tank Internal Protection - None
B02 - Tank External Protection - Original Sacrificial Anode
L09 - Piping Leak Detection - Exempt Suction Piping
E00 - Piping Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
J02 - Dispenser - Suction
B02 - Tank External Protection - Original Sacrificial Anode
J01 - Dispenser - Submersible
G04 - Tank Secondary Containment - Double-Walled (Underground)
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel

138TH STREET INC (Continued) **U001842088**

I02 - Overfill - High Level Alarm
C00 - Pipe Location - No Piping
E00 - Piping Secondary Containment - None
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
B01 - Tank External Protection - Painted/Asphalt Coating
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	23714
Tank Number:	001
Tank ID:	47698
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	4000
Tightness Test Method:	00
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	BVCAMPBE
Last Modified:	8/23/2010
Site ID:	23714
Tank Number:	002
Tank ID:	47699
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	4000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported

138TH STREET INC (Continued) **U001842088**

Register: True
Modified By: BVCAMPBE
Last Modified: 8/23/2010

M115 **138TH STREET INC** **AST** **A100353021**
South **75 CANAL STREET WEST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.179 mi.
946 ft. **Site 6 of 8 in cluster M**

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-601752
Program Type: PBS
UTM X: 590259.00386000006
UTM Y: 4518360.3551599998
Expiration Date: 2014/02/14

Affiliation Records:
Site Id: 23714
Affiliation Type: Mail Contact
Company Name: 138TH STREET INC
Contact Type: Not reported
Contact Name: MICHAEL WANDERMAN
Address1: 75 CANAL STREET WEST
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (718) 993-8100
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: BVCAMPBE
Date Last Modified: 8/23/2010

Site Id: 23714
Affiliation Type: Owner
Company Name: DOVER GARAGE CORP.
Contact Type: PRESIDENT
Contact Name: EDGAR WEINGARTEN
Address1: 75 CANAL STREET WEST
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (914) 355-2050
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: BVCAMPBE
Date Last Modified: 8/23/2010

Site Id: 23714

138TH STREET INC (Continued) **A100353021**

Affiliation Type:	On-Site Operator
Company Name:	138TH STREET INC
Contact Type:	Not reported
Contact Name:	ZVI HERMON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 993-8100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	8/23/2010

Site Id:	23714
Affiliation Type:	Emergency Contact
Company Name:	DOVER GARAGE CORP.
Contact Type:	Not reported
Contact Name:	EDGAR WEINGARTEN
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 993-8100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BVCAMPBE
Date Last Modified:	8/23/2010

Equipment Records:

B01 - Tank External Protection - Painted/Asphalt Coating
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
E00 - Piping Secondary Containment - None
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
G04 - Tank Secondary Containment - Double-Walled (Underground)
K01 - Spill Prevention - Catch Basin
F02 - Pipe External Protection - Original Sacrificial Anode
A00 - Tank Internal Protection - None
D00 - Pipe Type - No Piping
K00 - Spill Prevention - None
J02 - Dispenser - Suction
K01 - Spill Prevention - Catch Basin
J02 - Dispenser - Suction
C00 - Pipe Location - No Piping
E00 - Piping Secondary Containment - None
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None

138TH STREET INC (Continued) **A100353021**

I02 - Overfill - High Level Alarm
K01 - Spill Prevention - Catch Basin
D02 - Pipe Type - Galvanized Steel
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
F02 - Pipe External Protection - Original Sacrificial Anode
J01 - Dispenser - Submersible
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
I04 - Overfill - Product Level Gauge (A/G)
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
K00 - Spill Prevention - None
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
A00 - Tank Internal Protection - None
B02 - Tank External Protection - Original Sacrificial Anode
L09 - Piping Leak Detection - Exempt Suction Piping
E00 - Piping Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
J02 - Dispenser - Suction
B02 - Tank External Protection - Original Sacrificial Anode
J01 - Dispenser - Submersible
G04 - Tank Secondary Containment - Double-Walled (Underground)
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
I02 - Overfill - High Level Alarm
C00 - Pipe Location - No Piping
E00 - Piping Secondary Containment - None
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
B01 - Tank External Protection - Painted/Asphalt Coating
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
H01 - Tank Leak Detection - Interstitial - Electronic Monitoring
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
L00 - Piping Leak Detection - None
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Tank Number:	003
Tank Id:	235677
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron

138TH STREET INC (Continued) **A100353021**

Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	BVCAMPBE
Last Modified:	8/23/2010

Tank Number:	004
Tank Id:	235678
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	BVCAMPBE
Last Modified:	8/23/2010

Tank Number:	005
Tank Id:	235679
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	BVCAMPBE
Last Modified:	8/23/2010

Tank Number:	006
Tank Id:	235680
Tank Location:	2
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported

138TH STREET INC (Continued) **A100353021**

Install Date:	1/1/1989
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	BVCAMPBE
Last Modified:	8/23/2010

M116 **DOVER GARAGE CORP.** **HIST UST** **S110609913**
South **75 CANAL STREET WEST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.179 mi.
946 ft. **Site 7 of 8 in cluster M**

O117 **HOSTOS COMMUNITY COLLEGE - TRAILER #5** **RCRA-CESQG** **1009312355**
NNE **427 WALTON AVE** **MANIFEST** **NYR000137091**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.180 mi.
952 ft. **Site 6 of 9 in cluster O**

RCRA-CESQG:

Date form received by agency:	06/06/2007
Facility name:	HOSTOS COMMUNITY COLLEGE - TRAILER #5
Facility address:	427 WALTON AVE BRONX, NY 10451
EPA ID:	NYR000137091
Mailing address:	GRAND CONCOURSE BRONX, NY 10451
Contact:	FRANK VIRONE
Contact address:	GRAND CONCOURSE BRONX, NY 10451
Contact country:	US
Contact telephone:	(718) 518-4476
Contact email:	Not reported
EPA Region:	02
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

Owner/Operator Summary:
Owner/operator name: DORMITORY AUTHORITY OF THE STATE OF NY
Owner/operator address: PENN PLAZA 52ND FLOOR
NEW YORK, NY 10119
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Other
Owner/Operator Type: Owner
Owner/Op start date: 07/01/1990
Owner/Op end date: Not reported

Owner/operator name: CUNY-HOSTOS COMMUNITY COLLEGE
Owner/operator address: Not reported
Not reported
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Municipal
Owner/Operator Type: Operator
Owner/Op start date: 05/01/1999
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 06/05/2007
Facility name: HOSTOS COMMUNITY COLLEGE - TRAILER #5
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 02/13/2006
Facility name: HOSTOS COMMUNITY COLLEGE - TRAILER #5
Classification: Large Quantity Generator

Date form received by agency: 02/12/2006
Facility name: HOSTOS COMMUNITY COLLEGE - TRAILER #5
Classification: Large Quantity Generator

Hazardous Waste Summary:
Waste code: D008
Waste name: LEAD

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

Violation Status: No violations found

NY MANIFEST:

EPA ID:	NYR000179218
Country:	USA
Mailing Name:	HOSTOS COMMUNITY COLLEGE
Mailing Contact:	HOSTOS COMMUNITY COLLEGE
Mailing Address:	515 BROADWAY
Mailing Address 2:	Not reported
Mailing City:	ALBANY
Mailing State:	NY
Mailing Zip:	12204
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	516-488-6810

Document ID:	06
Manifest Status:	NJA5289719
Trans1 State ID:	NYR000137091
Trans2 State ID:	Not reported
Generator Ship Date:	NJD991291105
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJR000029967
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DT
Container Type:	20
Handling Method:	Y
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	NJA5289719
Manifest Status:	Not reported
Trans1 State ID:	NJR000029967
Trans2 State ID:	Not reported
Generator Ship Date:	03/01/2006
Trans1 Recv Date:	03/01/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/01/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

Generator EPA ID:	NYR000137091
Trans1 EPA ID:	084698
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	2011-01-17
Trans1 Recv Date:	2011-01-17
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2011-01-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000179218
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	Not reported
Quantity:	30.0
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	1.0
Year:	2011
Manifest Tracking Num:	001057587GBF
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	NJA5289719
Manifest Status:	Not reported
Trans1 State ID:	NJR000029967
Trans2 State ID:	Not reported
Generator Ship Date:	03/01/2006
Trans1 Recv Date:	03/01/2006
Trans2 Recv Date:	Not reported

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

TSD Site Recv Date:	03/01/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000137091
Trans1 EPA ID:	084698
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

EPA ID:	NYR000137091
Country:	USA
Mailing Name:	HOSTOS COMMUNITY COLLEGE
Mailing Contact:	N/S
Mailing Address:	500 GRAND CONCOURSE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-518-4478

Document ID:	06
Manifest Status:	NJA5289719
Trans1 State ID:	NYR000137091
Trans2 State ID:	Not reported
Generator Ship Date:	NJD991291105
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	NJR000029967
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DT
Container Type:	20
Handling Method:	Y
Specific Gravity:	1
Waste Code:	T
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

Specific Gravity:	Not reported
Year:	Not reported

Document ID:	NJA5289719
Manifest Status:	Not reported
Trans1 State ID:	NJR000029967
Trans2 State ID:	Not reported
Generator Ship Date:	03/01/2006
Trans1 Recv Date:	03/01/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/01/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000137091
Trans1 EPA ID:	084698
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	2011-01-17
Trans1 Recv Date:	2011-01-17
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	2011-01-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000179218
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002200046
Waste Code:	Not reported
Quantity:	30.0
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	1.0
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	1.0
Year:	2011
Manifest Tracking Num:	001057587GBF
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	NJA5289719
Manifest Status:	Not reported
Trans1 State ID:	NJR000029967
Trans2 State ID:	Not reported
Generator Ship Date:	03/01/2006
Trans1 Recv Date:	03/01/2006
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/01/2006
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYR000137091
Trans1 EPA ID:	084698
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00020
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DT - Dump trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2006

NJ MANIFEST:

Manifest Code:	NJA5289719
EPA ID:	NYR000137091
Date Shipped:	20060301
TSDF EPA ID:	NJD991291105
Transporter EPA ID:	NJR000029967
Transporter 2 EPA ID:	Not reported
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	060301
Date Trans2 Transported Waste:	000000
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	060301
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported

HOSTOS COMMUNITY COLLEGE - TRAILER #5 (Continued) **1009312355**

Data Entry Number: 05180621
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

O118 **HOSTOS COMMUNITY COLLEGE** **UST** **U004047150**
NNE **427 WALTON AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.180 mi.
952 ft. **Site 7 of 9 in cluster O**

UST:
Facility Id: 2-609953
Region: STATE
DEC Region: 2
Site Status: Unregulated
Program Type: PBS
Expiration Date: N/A
UTM X: 590324.49401000002
UTM Y: 4518998.49859

Affiliation Records:
Site Id: 346914
Affiliation Type: Emergency Contact
Company Name: CITY UNIVERSITY OF NEW YORK
Contact Type: Not reported
Contact Name: FRANK VIRONE
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (718) 518-4476
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: BKFALVEY
Date Last Modified: 6/21/2010

Site Id: 346914
Affiliation Type: On-Site Operator
Company Name: HOSTOS COMMUNITY COLLEGE
Contact Type: Not reported
Contact Name: FRANK VIRONE
Address1: Not reported
Address2: Not reported
City: Not reported
State: NY
Zip Code: Not reported
Country Code: 001

HOSTOS COMMUNITY COLLEGE (Continued) **U004047150**

Phone:	(718) 518-4476
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BKFALVEY
Date Last Modified:	6/21/2010

Site Id:	346914
Affiliation Type:	Mail Contact
Company Name:	HOSTOS COMMUNITY COLLEGE
Contact Type:	Not reported
Contact Name:	FRANK VIRONE
Address1:	500 GRAND CONCOURSE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 518-4478
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	6/2/2005

Site Id:	346914
Affiliation Type:	Owner
Company Name:	CITY UNIVERSITY OF NEW YORK
Contact Type:	ADMINISTRATIVE SUPERINTENDENT
Contact Name:	FRANK VIRONE
Address1:	535 EAST 80TH STREET
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10021
Country Code:	001
Phone:	(212) 794-5571
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	BKFALVEY
Date Last Modified:	6/21/2010

Equipment Records:

J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
G02 - Tank Secondary Containment - Vault (w/access)
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
K00 - Spill Prevention - None
C03 - Pipe Location - Aboveground/Underground Combination
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
J02 - Dispenser - Suction
E00 - Piping Secondary Containment - None
G02 - Tank Secondary Containment - Vault (w/access)

HOSTOS COMMUNITY COLLEGE (Continued) **U004047150**

C03 - Pipe Location - Aboveground/Underground Combination
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
F00 - Pipe External Protection - None
I00 - Overfill - None
I00 - Overfill - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	346914
Tank Number:	010
Tank ID:	206617
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	2000
Tightness Test Method:	00
Next Test Date:	Not reported
Date Tank Closed:	5/4/2005
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	6/2/2005

Site ID:	346914
Tank Number:	011
Tank ID:	206618
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1989
Capacity Gallons:	2000
Tightness Test Method:	00
Next Test Date:	Not reported
Date Tank Closed:	5/4/2005
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	KXTANG
Last Modified:	6/2/2005

R119 NYSDOT CONTRACT D500792 — **RCRA-NonGen** — **1000554446**
SSW EXTERIOR ST & 135TH ST — **FINDS** — **NYD986969103**
1/8-1/4 BRONX, NY 10451 — **MANIFEST**
0.181 mi.
955 ft. Site 2 of 2 in cluster R

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	NYSDOT CONTRACT D500792
Facility address:	EXTERIOR ST & 135TH ST BRONX, NY 10451
EPA ID:	NYD986969103
Mailing address:	21ST ST LONG ISLAND CITY, NY 11101
Contact:	LEE EFFNER
Contact address:	21ST ST LONG ISLAND CITY, NY 11101
Contact country:	US
Contact telephone:	(718) 292-1675
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	NYSDOT
Owner/operator address:	47-40 21ST ST LONG ISLAND CITY, NY 11101
Owner/operator country:	US
Owner/operator telephone:	(718) 482-4801
Legal status:	State
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	NYSDOT
Owner/operator address:	47-40 21ST ST LONG ISLAND CITY, NY 11101
Owner/operator country:	US
Owner/operator telephone:	(718) 482-4801
Legal status:	State
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

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

NYSDOT CONTRACT D500792 (Continued) **1000554446**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: NYSDOT CONTRACT D500792
Classification: Not a generator, verified

Date form received by agency: 09/09/1991
Facility name: NYSDOT CONTRACT D500792
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110008066270

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

NY MANIFEST:
EPA ID: NYD986969103
Country: USA
Mailing Name: NYSDOT
Mailing Contact: ROBERT N. MITCHELL
Mailing Address: 47-40 21ST STREET
Mailing Address 2: Not reported
Mailing City: LONG ISLAND CITY
Mailing State: NY
Mailing Zip: 11101
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 718-353-8330

Document ID: MIA2374814
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 911024
Trans1 Recv Date: 911024
Trans2 Recv Date: Not reported
TSD Site Recv Date: 911030
Part A Recv Date: Not reported
Part B Recv Date: 911127
Generator EPA ID: NYD986969103
Trans1 EPA ID: NJD096839154
Trans2 EPA ID: Not reported
TSDF ID: MID000724831

NYSDOT CONTRACT D500792 (Continued) **1000554446**

Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00001
Units:	Y - Cubic yards* (.85 tons)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	91

M120 **LTANKS** **S104619748**
South **75 CANAL ST** **HIST LTANKS** **N/A**
1/8-1/4 **BRONX, NY**
0.181 mi.
957 ft. **Site 8 of 8 in cluster M**

LTANKS:

Site ID:	163031
Spill No:	9808791
Spill Date:	10/13/1998
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/15/1998
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	JXZHAO
Referred To:	Not reported
Reported to Dept:	10/15/1998
CID:	382
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	10/15/1998
Spill Record Last Update:	10/16/1998
Spiller Name:	Not reported
Spiller Company:	ISLAND TRANSPORTATION
Spiller Address:	299 EDISON AVE
Spiller City,St,Zip:	W.BABYLON, NY 11704-
Spiller County:	001
Spiller Contact:	SCOTT ALNWICK
Spiller Phone:	(718) 821-6900
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	137501
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ZHAO" SPILL CONTAINED AND CLEANED UP.
Remarks:	DRIVER WAS FILLING UP AN INGROUND TANK AND OVERFILL RESULTED. DILUTION WAS INITIATED AS WELL AS SPEEDY DRY WAS USED.

Material:

Site ID:	163031

(Continued) **S104619748**

Operable Unit ID: 1066189
Operable Unit: 01
Material ID: 316277
Material Code: 0009
Material Name: Gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: 5
Units: Gallons
Recovered: 5
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

HIST LTANKS:
Region of Spill: 2
Spill Number: 9808791
Spill Date: 10/13/1998
Spill Time: 13:00
Spill Cause: Tank Overfill
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/15/98
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: ZHAO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 10/15/98
Reported to Department Time: 09:25
SWIS: 60
Spiller Contact: SCOTT ALNWICK
Spiller Phone: (718) 821-6900
Spiller Extention: Not reported
Spiller Name: ISLAND TRANSPORTATION

(Continued) **S104619748**

Spiller Address: 299 EDISON AVE
Spiller City,St,Zip: WEST BABYLON, NY 11704-
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: ( ) -
Facility Extention: Not reported
Spill Notifier: Responsible Party
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 10/15/98
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 10/16/98
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 5
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 5
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: SPILL CONTAINED AND CLEANED UP.
Spill Cause: DRIVER WAS FILLING UP AN INGROUND TANK AND OVERFILL RESULTED. DILUTION WAS INITIATED AS WELL AS SPEEDY DRY WAS USED.

O121 **PUBLIC SCHOOL 31 - BRONX** **UST** **U004077572**
NNE **425 GRAND CONCOURSE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.184 mi.
972 ft. **Site 8 of 9 in cluster O**

UST:
Facility Id: 2-351555
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2013/06/08
UTM X: 590439.97771000001

PUBLIC SCHOOL 31 - BRONX (Continued) **U004077572**

UTM Y: 4518976.9284600001

Affiliation Records:

Site Id:	17363
Affiliation Type:	Mail Contact
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	JAMES A. MERLO
Address1:	FIELD OPERATIONS-FUEL DIVISION
Address2:	44-36 VERNON BOULEVARD
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5738
Phone Ext:	Not reported
Email:	JMERLO@SCHOOLS.NYC.GOV
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	9/2/2008

Site Id:	17363
Affiliation Type:	Emergency Contact
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	Not reported
Contact Name:	SCHOOL SAFETY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 935-3300
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	10/3/2011

Site Id:	17363
Affiliation Type:	On-Site Operator
Company Name:	PUBLIC SCHOOL 31 - BRONX
Contact Type:	Not reported
Contact Name:	PLANT OPERATIONS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 349-5400
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id: 17363

PUBLIC SCHOOL 31 - BRONX (Continued) **U004077572**

Affiliation Type:	Owner
Company Name:	NEW YORK CITY DEPARTMENT OF EDUCATION
Contact Type:	MANAGER, FUEL DIVISION
Contact Name:	JAMES A. MERLO
Address1:	44-36 VERNON BOULEVARD
Address2:	Not reported
City:	LONG ISLAND CITY
State:	NY
Zip Code:	11101
Country Code:	001
Phone:	(718) 349-5738
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	10/3/2011

Equipment Records:

C01 - Pipe Location - Aboveground
I04 - Overfill - Product Level Gauge (A/G)
G02 - Tank Secondary Containment - Vault (w/access)
E00 - Piping Secondary Containment - None
F01 - Pipe External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	17363
Tank Number:	001
Tank ID:	34032
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1957
Capacity Gallons:	10000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	6/4/2008

O122 **P.S. 31** **HIST UST** **U000418063**
NNE **425 GRAND CONCOURSE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.184 mi.
972 ft. **Site 9 of 9 in cluster O**

HIST UST:

PBS Number:	2-351555
SPDES Number:	Not reported
Emergency Contact:	SCHOOL SAFETY
Emergency Telephone:	(212) 979-3300
Operator:	PLANT OPERATION
Operator Telephone:	(718) 391-6000
Owner Name:	CITY OF NEW YORK C/O BOARD OF EDUCATION
Owner Address:	28-11 QUEENS PLAZA NORTH
Owner City,St,Zip:	LONG ISLAND CITY, NY 11101
Owner Telephone:	(718) 391-6832
Owner Type:	Local Government
Owner Subtype:	Not reported
Mailing Name:	BOARD OF EDUCATION
Mailing Address:	28-11 QUEENS PLAZA NORTH
Mailing Address 2:	5 FLOOR
Mailing City,St,Zip:	LONG ISLAND CITY, NY 11101
Mailing Contact:	FRANK CARDELLO NTROL
Mailing Telephone:	(718) 391-6832
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	425 GRAND CONCOURSE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	SCHOOL
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	09/25/1998
Expiration Date:	06/08/2003
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	10000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2
Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	10000

P.S. 31 (Continued) **U000418063**

Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

S123 **A J GRIFFEN CORP** **AST** **U003393136**
NE **424 GRAND CONCOURSE** **HIST AST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.185 mi.
975 ft. **Site 1 of 3 in cluster S**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Administratively Closed
Facility Id:	2-304204
Program Type:	PBS
UTM X:	590438.05917000002
UTM Y:	4518970.3256900003
Expiration Date:	N/A

Affiliation Records:

Site Id:	13855
Affiliation Type:	Mail Contact
Company Name:	THE COMMUNITY PRESERVATI
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	5 W 57TH ST
Address2:	Not reported
City:	NY
State:	NY
Zip Code:	10019
Country Code:	001
Phone:	(914) 664-2100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	13855
Affiliation Type:	Owner

A J GRIFFEN CORP (Continued) **U003393136**

Company Name:	A J GRIFFEN CORP
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	200 NORTH COLUMBUS AVE
Address2:	Not reported
City:	MT VERNON
State:	NY
Zip Code:	10553
Country Code:	001
Phone:	(914) 664-2100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	13855
Affiliation Type:	Emergency Contact
Company Name:	A J GRIFFEN CORP
Contact Type:	Not reported
Contact Name:	F WEISS
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 585-4100
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	13855
Affiliation Type:	On-Site Operator
Company Name:	A J GRIFFEN CORP
Contact Type:	Not reported
Contact Name:	MIKE LORENZO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 292-7977
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

I04 - Overfill - Product Level Gauge (A/G)
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
A00 - Tank Internal Protection - None

A J GRIFFEN CORP (Continued) **U003393136**

H00 - Tank Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
G03 - Tank Secondary Containment - Vault (w/o access)

Tank Info:

Tank Number:	001
Tank Id:	26081
Tank Location:	1
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Administratively Closed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	8/31/2004

HIST AST:

PBS Number:	2-304204
SWIS Code:	6001
Operator:	MIKE LORENZO
Facility Phone:	(212) 292-7977
Facility Addr2:	424 GRAND CONCOURSE
Facility Type:	Not reported
Emergency:	F WEISS
Emergency Tel:	(212) 585-4100
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	A J GRIFFEN CORP
Owner Address:	200 NORTH COLUMBUS AVE
Owner City,St,Zip:	MT VERNON, NY 10553
Federal ID:	Not reported
Owner Tel:	(914) 664-2100
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	THE COMMUNITY PRESERVATI
Mailing Address:	5 W 57TH ST
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NY, NY 10019
Mailing Telephone:	(914) 664-2100
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	10/23/1987
Expiration:	10/23/1992

A J GRIFFEN CORP (Continued) **U003393136**

Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5500
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

S124 **424-430 GRAND CONCOURSE** **AST** **U003394703**
NE **424-430 GRAND CONCOURSE** **HIST AST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.185 mi.
975 ft. **Site 2 of 3 in cluster S**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-472492
Program Type:	PBS
UTM X:	590438.05917000002
UTM Y:	4518970.3256900003
Expiration Date:	2014/02/20

Affiliation Records:

424-430 GRAND CONCOURSE (Continued) **U003394703**

Site Id:	20735
Affiliation Type:	Owner
Company Name:	424 SHEVA REALTY ASSOC LLC
Contact Type:	ADM ASST
Contact Name:	MARIA MCCULLOUGH
Address1:	1601 BRONXDALE AVE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10462
Country Code:	001
Phone:	(718) 518-8000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	12/2/2008

Site Id:	20735
Affiliation Type:	Emergency Contact
Company Name:	424 SHEVA REALTY ASSOC LLC
Contact Type:	Not reported
Contact Name:	ANGEL GONZALEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(646) 542-5357
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	12/2/2008

Site Id:	20735
Affiliation Type:	Mail Contact
Company Name:	C/O LANGSAM PROPERTY SERVICES
Contact Type:	Not reported
Contact Name:	MARIA MCCULLOUGH
Address1:	1601 BRONXDALE AVE
Address2:	SUITE
City:	BRONX
State:	NY
Zip Code:	10462
Country Code:	001
Phone:	(718) 518-8000
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	12/2/2008

Site Id:	20735
Affiliation Type:	On-Site Operator
Company Name:	424-430 GRAND CONCOURSE

424-430 GRAND CONCOURSE (Continued) **U003394703**

Contact Type:	Not reported
Contact Name:	ANGEL GONZALEZ
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(646) 542-5357
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	12/2/2008

Equipment Records:

E02 - Piping Secondary Containment - Vault (with Access)
I04 - Overfill - Product Level Gauge (A/G)
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
A00 - Tank Internal Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
K00 - Spill Prevention - None
G03 - Tank Secondary Containment - Vault (w/o access)

Tank Info:

Tank Number:	001
Tank Id:	37029
Tank Location:	1
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	8/4/1992
Capacity Gallons:	5000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	12/2/2008

HIST AST:

PBS Number:	2-472492
SWIS Code:	6001
Operator:	ANGEL GONZALEZ
Facility Phone:	(718) 518-8000
Facility Addr2:	424 GRAND CONCOURSE
Facility Type:	APARTMENT BUILDING
Emergency:	ANGEL GONZALEZ
Emergency Tel:	(718) 518-8000

424-430 GRAND CONCOURSE (Continued) **U003394703**

Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	SHEVA REALITY ASSOC.
Owner Address:	1601 BRONXDALE AVENUE
Owner City,St,Zip:	BRONX, NY 10462
Federal ID:	Not reported
Owner Tel:	(718) 518-8000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported
Mailing Name:	SHEVA REALITY ASSOC.
Mailing Address:	1601 BRONXDALE AVENUE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10462
Mailing Telephone:	(718) 518-8000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/01/1999
Expiration:	03/06/2004
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	5000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	001
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (Gal):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	Diking
Leak Detection:	0
Overfill Protection:	4
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported

424-430 GRAND CONCOURSE (Continued) **U003394703**

Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
SPDES Number:	Not reported
Lat/Long:	Not reported

N125 **GRAPA, INC.** **UST** **U004079228**
SE **236 EAST 138TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.186 mi.
981 ft. **Site 3 of 8 in cluster N**

UST:

Facility Id:	2-603571
Region:	STATE
DEC Region:	2
Site Status:	Active
Program Type:	PBS
Expiration Date:	2016/04/04
UTM X:	590429.95379000006
UTM Y:	4518413.0050299997

Affiliation Records:

Site Id:	25485
Affiliation Type:	Mail Contact
Company Name:	GRAPA INC.
Contact Type:	Not reported
Contact Name:	ANTHONY PERRINO
Address1:	236 EAST 138TH STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 292-8555
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2/1/2006

Site Id:	25485
Affiliation Type:	Owner
Company Name:	ANTHONY PERRINO
Contact Type:	PRES.
Contact Name:	ANTHONY PERRINO
Address1:	1611 OVERING STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 409-9416
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported

GRAPA, INC. (Continued) **U004079228**

Modified By:	NRLOMBAR
Date Last Modified:	2/1/2006
Site Id:	25485
Affiliation Type:	On-Site Operator
Company Name:	GRAPA, INC.
Contact Type:	Not reported
Contact Name:	ANTHONY PERRINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 292-8555
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004
Site Id:	25485
Affiliation Type:	Emergency Contact
Company Name:	ANTHONY PERRINO
Contact Type:	Not reported
Contact Name:	ANTHONY PERRINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 409-9416
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
I00 - Overfill - None
I05 - Overfill - Vent Whistle
B00 - Tank External Protection - None
I00 - Overfill - None
B02 - Tank External Protection - Original Sacrificial Anode
K00 - Spill Prevention - None
L09 - Piping Leak Detection - Exempt Suction Piping
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
I04 - Overfill - Product Level Gauge (A/G)
C02 - Pipe Location - Underground/On-ground

GRAPA, INC. (Continued) **U004079228**

F02 - Pipe External Protection - Original Sacrificial Anode
G01 - Tank Secondary Containment - Diking (Aboveground)
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
B02 - Tank External Protection - Original Sacrificial Anode
C01 - Pipe Location - Aboveground
J02 - Dispenser - Suction
B01 - Tank External Protection - Painted/Asphalt Coating
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
I04 - Overfill - Product Level Gauge (A/G)
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
C03 - Pipe Location - Aboveground/Underground Combination
A00 - Tank Internal Protection - None
F02 - Pipe External Protection - Original Sacrificial Anode
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
J02 - Dispenser - Suction
G00 - Tank Secondary Containment - None
G01 - Tank Secondary Containment - Diking (Aboveground)
J02 - Dispenser - Suction
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
L09 - Piping Leak Detection - Exempt Suction Piping
C01 - Pipe Location - Aboveground
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
I05 - Overfill - Vent Whistle
G01 - Tank Secondary Containment - Diking (Aboveground)
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
I05 - Overfill - Vent Whistle
I05 - Overfill - Vent Whistle
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
B02 - Tank External Protection - Original Sacrificial Anode
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
I00 - Overfill - None
G01 - Tank Secondary Containment - Diking (Aboveground)
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None

GRAPA, INC. (Continued) **U004079228**

C01 - Pipe Location - Aboveground
K00 - Spill Prevention - None
B00 - Tank External Protection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None

Tank Info:

Site ID:	25485
Tank Number:	001
Tank ID:	54834
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/1/1998
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	25485
Tank Number:	002
Tank ID:	54835
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/1/1998
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	25485
Tank Number:	003
Tank ID:	54836
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	4000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/1/1998
Tank Location:	5

GRAPA, INC. (Continued) **U004079228**

Tank Type: Steel/carbon steel
Date Test: Not reported
Register: True
Modified By: TRANSLAT
Last Modified: 3/4/2004

Site ID: 25485

Tank Number: ATF
Tank ID: 238121
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 3/1/1999
Capacity Gallons: 280
Tightness Test Method: NN
Next Test Date: Not reported
Date Tank Closed: Not reported
Tank Location: 6
Tank Type: Steel/carbon steel
Date Test: Not reported
Register: True
Modified By: MSBAPTIS
Last Modified: 2/15/2011

Site ID: 25485

Tank Number: MOIL 10/30
Tank ID: 238119
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 3/1/1999
Capacity Gallons: 1000
Tightness Test Method: NN
Next Test Date: Not reported
Date Tank Closed: Not reported
Tank Location: 6
Tank Type: Steel/carbon steel
Date Test: Not reported
Register: True
Modified By: MSBAPTIS
Last Modified: 2/15/2011

Site ID: 25485

Tank Number: MOIL5/30 5/
Tank ID: 238120
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 3/1/1999
Capacity Gallons: 1000
Tightness Test Method: NN
Next Test Date: Not reported
Date Tank Closed: Not reported
Tank Location: 6

GRAPA, INC. (Continued) **U004079228**

Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	MSBAPTIS
Last Modified:	2/15/2011

N126 **GRAPA, INC.** **HIST UST** **U003397259**
SE **236 EAST 138TH STREET** **AST** **N/A**
1/8-1/4 **BRONX, NY 10451** **HIST AST**
0.186 mi.
981 ft. **Site 4 of 8 in cluster N**

HIST UST:

PBS Number:	2-603571
SPDES Number:	Not reported
Emergency Contact:	ANTHONY PERRINO
Emergency Telephone:	(718) 409-9416
Operator:	ANTHONY PERRINO
Operator Telephone:	(718) 292-8555
Owner Name:	ANTHONY PERRINO
Owner Address:	1611 OVERING STREET
Owner City,St,Zip:	BRONX, NY 10461
Owner Telephone:	(718) 409-9416
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	GRAPA INC.
Mailing Address:	236 EAST 138TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	Not reported
Mailing Telephone:	(718) 292-8555
Owner Mark:	Second Owner
Facility Status:	4 - Subpart 360-14 only (active)
Facility Addr2:	236 EAST 138TH STREET
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	OTHER RETAIL SALES
Facility Type:	OTHER
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	04/09/2001
Expiration Date:	04/04/2006
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	1000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

GRAPA, INC. (Continued) **U003397259**

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	21
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	07/01/1998
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	21
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	07/01/1998
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed

GRAPA, INC. (Continued) **U003397259**

Install Date:	Not reported
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	21
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	Sacrificial Anode
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	07/01/1998
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-603571
Program Type:	PBS
UTM X:	590429.95379000006
UTM Y:	4518413.0050299997
Expiration Date:	2016/04/04

Affiliation Records:

Site Id:	25485
Affiliation Type:	Mail Contact
Company Name:	GRAPA INC.
Contact Type:	Not reported
Contact Name:	ANTHONY PERRINO
Address1:	236 EAST 138TH STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 292-8555
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2/1/2006

Site Id:	25485
Affiliation Type:	Owner
Company Name:	ANTHONY PERRINO
Contact Type:	PRES.
Contact Name:	ANTHONY PERRINO

GRAPA, INC. (Continued) **U003397259**

Address1:	1611 OVERING STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 409-9416
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	2/1/2006

Site Id:	25485
Affiliation Type:	On-Site Operator
Company Name:	GRAPA, INC.
Contact Type:	Not reported
Contact Name:	ANTHONY PERRINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 292-8555
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	25485
Affiliation Type:	Emergency Contact
Company Name:	ANTHONY PERRINO
Contact Type:	Not reported
Contact Name:	ANTHONY PERRINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 409-9416
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

F00 - Pipe External Protection - None
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
I00 - Overfill - None
I05 - Overfill - Vent Whistle
B00 - Tank External Protection - None
I00 - Overfill - None

GRAPA, INC. (Continued) **U003397259**

B02 - Tank External Protection - Original Sacrificial Anode
K00 - Spill Prevention - None
L09 - Piping Leak Detection - Exempt Suction Piping
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
I04 - Overfill - Product Level Gauge (A/G)
C02 - Pipe Location - Underground/On-ground
F02 - Pipe External Protection - Original Sacrificial Anode
G01 - Tank Secondary Containment - Diking (Aboveground)
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
B02 - Tank External Protection - Original Sacrificial Anode
C01 - Pipe Location - Aboveground
J02 - Dispenser - Suction
B01 - Tank External Protection - Painted/Asphalt Coating
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
D02 - Pipe Type - Galvanized Steel
I04 - Overfill - Product Level Gauge (A/G)
B01 - Tank External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
C03 - Pipe Location - Aboveground/Underground Combination
A00 - Tank Internal Protection - None
F02 - Pipe External Protection - Original Sacrificial Anode
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
J02 - Dispenser - Suction
G00 - Tank Secondary Containment - None
G01 - Tank Secondary Containment - Diking (Aboveground)
J02 - Dispenser - Suction
B00 - Tank External Protection - None
D02 - Pipe Type - Galvanized Steel
L09 - Piping Leak Detection - Exempt Suction Piping
C01 - Pipe Location - Aboveground
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping
I05 - Overfill - Vent Whistle
G01 - Tank Secondary Containment - Diking (Aboveground)
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
I05 - Overfill - Vent Whistle
I05 - Overfill - Vent Whistle
F00 - Pipe External Protection - None
I04 - Overfill - Product Level Gauge (A/G)
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
B02 - Tank External Protection - Original Sacrificial Anode

GRAPA, INC. (Continued) **U003397259**

D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
I00 - Overfill - None
G01 - Tank Secondary Containment - Diking (Aboveground)
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
C01 - Pipe Location - Aboveground
K00 - Spill Prevention - None
B00 - Tank External Protection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None

Tank Info:

Tank Number:	WOILI
Tank Id:	60055
Tank Location:	1
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	3/1/1999
Capacity Gallons:	1000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	NRLOMBAR
Last Modified:	2/1/2006

HIST AST:

PBS Number:	2-603571
SWIS Code:	6001
Operator:	ANTHONY PERRINO
Facility Phone:	(718) 292-8555
Facility Addr2:	236 EAST 138TH STREET
Facility Type:	OTHER RETAIL SALES
Facility Type:	OTHER
Emergency:	ANTHONY PERRINO
Emergency Tel:	(718) 409-9416
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	ANTHONY PERRINO
Owner Address:	1611 OVERING STREET
Owner City,St,Zip:	BRONX, NY 10461
Federal ID:	Not reported
Owner Tel:	(718) 409-9416
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	Not reported

GRAPA, INC. (Continued) **U003397259**

Mailing Name:	GRAPA INC.
Mailing Address:	236 EAST 138TH STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Telephone:	(718) 292-8555
Owner Mark:	Second Owner
Facility Status:	4 - Subpart 360-14 only (active)
Certification Flag:	False
Certification Date:	04/09/2001
Expiration:	04/04/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	1000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	WOILI
Tank Location:	ABOVEGROUND
Tank Status:	In Service
Install Date:	19990301
Capacity (Gal):	1000
Product Stored:	USED OIL (FUEL)
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Tank Containment:	8
Leak Detection:	Not reported
Overfill Protection:	6
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

127 West 1/8-1/4 0.188 mi. 991 ft. **UNITED STATES NAVY DEPT TRANSP**
138TH ST & MADISON AVE
NEW YORK, NY 10016

RCRA-NonGen / FINDS / MANIFEST | **1000398425** | **NYD981485170**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	UNITED STATES NAVY DEPT TRANSP
Facility address:	138TH ST & MADISON AVE NEW YORK, NY 10016
EPA ID:	NYD981485170
Mailing address:	FLUSHING AVE BROOKLYN, NY 11251
Contact:	Not reported
Contact address:	FLUSHING AVE BROOKLYN, NY 11251
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	DEPT OF NAVY
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	DEPT OF NAVY
Owner/operator address:	NOT REQUIRED NOT REQUIRED, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

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

UNITED STATES NAVY DEPT TRANSP (Continued) **1000398425**

Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: UNITED STATES NAVY DEPT TRANSP
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: UNITED STATES NAVY DEPT TRANSP
Classification: Not a generator, verified

Date form received by agency: 06/04/1986
Facility name: UNITED STATES NAVY DEPT TRANSP
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110008020943

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

NY MANIFEST:
EPA ID: NYD981485170
Country: USA
Mailing Name: UNITED STATES MILITARY-NAVAL STATION
Mailing Contact: UNITED STATES MILITARY-NAVAL STATION
Mailing Address: BUILDING 63-MOTBY
Mailing Address 2: Not reported
Mailing City: BAYONNE
Mailing State: NJ
Mailing Zip: 07002
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 201-823-7209

Document ID: NYA4113033
Manifest Status: Completed copy
Trans1 State ID: 67237GVNY
Trans2 State ID: Not reported
Generator Ship Date: 860610
Trans1 Recv Date: 860610
Trans2 Recv Date: Not reported
TSD Site Recv Date: 860611
Part A Recv Date: 860627
Part B Recv Date: 860623

UNITED STATES NAVY DEPT TRANSP (Continued) **1000398425**

Generator EPA ID:	NYD981485170
Trans1 EPA ID:	NYD980769947
Trans2 EPA ID:	Not reported
TSDF ID:	NYD043815703
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	86

Document ID:	NJA0193273
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	U-65765(N
Trans2 State ID:	Not reported
Generator Ship Date:	860828
Trans1 Recv Date:	860828
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860829
Part A Recv Date:	860915
Part B Recv Date:	861006
Generator EPA ID:	NYD981485170
Trans1 EPA ID:	NYD980769947
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000632240
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	03132
Units:	P - Pounds
Number of Containers:	019
Container Type:	CY - Cylinders
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	05891
Units:	P - Pounds
Number of Containers:	049
Container Type:	CY - Cylinders
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86

T128 **CON ED - V 2380** **RCRA-NonGen** **1007206324**
East **E 141 ST & CANAL PL** **MANIFEST** **NYP004008074**
1/8-1/4 **BRONX, NY 10451**
0.189 mi.
999 ft. **Site 1 of 7 in cluster T**

RCRA-NonGen:

Date form received by agency:	02/28/1998
Facility name:	CON ED - V 2380
Facility address:	E 141 ST & CANAL PL BRONX, NY 104510000
EPA ID:	NYP004008074
Mailing address:	CONSOLIDATED EDISON INC 4 IRVING PL RM 300

CON ED - V 2380 (Continued) **1007206324**

NEW YORK, NY 100030000
Contact: ANTHONY DRUMMINGS
Contact address: CONSOLIDATED EDISON INC
NEW YORK, NY 100030000
Contact country: US
Contact telephone: (212) 460-3770
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

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

Historical Generators:
Date form received by agency: 02/27/1998
Facility name: CON ED - V 2380
Classification: Not a generator, verified

Date form received by agency: 02/26/1998
Facility name: CON ED - V 2380
Classification: Large Quantity Generator

Violation Status: No violations found

NY MANIFEST:
EPA ID: NYP004008074
Country: USA
Mailing Name: CONSOLIDATED EDISON
Mailing Contact: FRANKLIN MURRAY
Mailing Address: 4 IRVING PLACE RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-460-2808

Document ID: NYG0250794
Manifest Status: Completed copy
Trans1 State ID: GX3213

CON ED - V 2380 (Continued) **1007206324**

Trans2 State ID:	Not reported
Generator Ship Date:	970613
Trans1 Recv Date:	970613
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970616
Part A Recv Date:	970625
Part B Recv Date:	970701
Generator EPA ID:	NYP004008074
Trans1 EPA ID:	NYD006982359
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980593636
Waste Code:	B003 - PETROLEUM OIL WITH 500 PPM OR > PCB
Quantity:	01253
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97

T129 **CON EDISON - VS 2380** **RCRA-NonGen** **1008195546**
East **CANAL & 141ST ST** **MANIFEST** **NYP004108320**
1/8-1/4 **BRONX, NY 10451**
0.189 mi.
999 ft. **Site 2 of 7 in cluster T**

RCRA-NonGen:

Date form received by agency:	02/27/2004
Facility name:	CON EDISON - VS 2380
Facility address:	CANAL & 141ST ST BRONX, NY 10451
EPA ID:	NYP004108320
Mailing address:	4 IRVING PLACE NEW YORK, NY 10003
Contact:	ANTHONY DRUMMINGS
Contact address:	4 IRVING PLACE NEW YORK, NY 10003
Contact country:	US
Contact telephone:	(212) 460-3770
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE NEW YORK, NY 10003
Owner/operator country:	US
Owner/operator telephone:	Not reported
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	03/06/2003
Owner/Op end date:	Not reported

Owner/operator name:	CONSOLIDATED EDISON COMPANY OF NY, INC.
Owner/operator address:	4 IRVING PLACE

CON EDISON - VS 2380 (Continued) **1008195546**

NEW YORK, NY 10003
Owner/operator country: US
Owner/operator telephone: Not reported
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: 03/06/2003
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 02/26/2004
Facility name: CON EDISON - VS 2380
Classification: Not a generator, verified

Date form received by agency: 02/25/2004
Facility name: CON EDISON - VS 2380
Classification: Large Quantity Generator

Violation Status: No violations found

NY MANIFEST:
EPA ID: NYP004108320
Country: USA
Mailing Name: CON ED
Mailing Contact: FRANKLIN MURRAY
Mailing Address: 4 IRVING PLACE RM 828
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10003
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-460-2808

Document ID: NJA4071548
Manifest Status: Not reported
Trans1 State ID: NJ0000027193
Trans2 State ID: Not reported
Generator Ship Date: 03/05/2003
Trans1 Recv Date: 03/05/2003

CON EDISON - VS 2380 (Continued) **1008195546**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/10/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004108320
Trans1 EPA ID:	NJD002200046
Trans2 EPA ID:	Not reported
TSDF ID:	S5811
Waste Code:	B002 - PETROLEUM OIL WITH 50 BUT < 500 PPM PCB
Quantity:	00364
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2003

Document ID:	NJA4071549
Manifest Status:	Not reported
Trans1 State ID:	NJ0000027193
Trans2 State ID:	Not reported
Generator Ship Date:	03/06/2003
Trans1 Recv Date:	03/06/2003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/10/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYP004108320
Trans1 EPA ID:	NJD002200046
Trans2 EPA ID:	Not reported
TSDF ID:	S5811
Waste Code:	B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity:	01843
Units:	K - Kilograms (2.2 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2003

N130 **CON EDISON** **RCRA-NonGen** **1010327332**
SE **234 RIDER AVE** **NYP004145843**
1/8-1/4 **BRONX, NY 10451**
0.194 mi.
1023 ft. **Site 5 of 8 in cluster N**

RCRA-NonGen:

Date form received by agency:	01/11/2007
Facility name:	CON EDISON
Facility address:	234 RIDER AVE BRONX, NY 10451
EPA ID:	NYP004145843
Mailing address:	4 IRVING PL, RM 828 NEW YORK, NY 10003
Contact:	DANIEL PONTECORVO
Contact address:	4 IRVING PL, RM 828 NEW YORK, NY 10003

CON EDISON (Continued) **1010327332**

Contact country: US
Contact telephone: (212) 580-8383
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

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

Historical Generators:
Date form received by agency: 01/10/2007
Facility name: CON EDISON
Classification: Not a generator, verified

Date form received by agency: 01/09/2007
Facility name: CON EDISON
Classification: Unverified

Violation Status: No violations found

U131 **STONE SERVICES INC** **RCRA-NonGen** **1000311747**
North **445 GERARD AVE** **FINDS** **NYD012261244**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.195 mi.
1029 ft. **Site 1 of 4 in cluster U**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: STONE SERVICES INC
Facility address: 445 GERARD AVE
BRONX, NY 10451
EPA ID: NYD012261244
Mailing address: GERARD AVE
BRONX, NY 10451
Contact: Not reported
Contact address: GERARD AVE
BRONX, NY 10451
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator

STONE SERVICES INC (Continued) **1000311747**

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: STONE SERVICES
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: STONE SERVICES
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: STONE SERVICES INC
Classification: Not a generator, verified

Date form received by agency: 07/14/1999
Facility name: STONE SERVICES INC
Classification: Small Quantity Generator

Date form received by agency: 04/28/1989
Facility name: STONE SERVICES INC
Classification: Large Quantity Generator

Violation Status: No violations found

STONE SERVICES INC (Continued) **1000311747**

Evaluation Action Summary:
Evaluation date: 09/28/1993
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA Contractor/Grantee

FINDS:

Registry ID: 110004344086

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

NY MANIFEST:
EPA ID: NYD012261244
Country: USA
Mailing Name: STONE SERVICE
Mailing Contact: STONE SERVICE
Mailing Address: 445 GERRARD AVE
Mailing Address 2: Not reported
Mailing City: BRONX
Mailing State: NY
Mailing Zip: 10451
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-292-5000

Document ID: NJA1138030
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: NJDEPS869
Generator Ship Date: 910318
Trans1 Recv Date: 910318
Trans2 Recv Date: 910318
TSD Site Recv Date: 910319
Part A Recv Date: 910327
Part B Recv Date: 910401
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: ILD051060408
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 00844
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 91

STONE SERVICES INC (Continued) **1000311747**

Document ID:	NJA1199077
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910924
Trans1 Recv Date:	910924
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910926
Part A Recv Date:	911003
Part B Recv Date:	911010
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00462
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1341740
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	911206
Trans1 Recv Date:	911206
Trans2 Recv Date:	911211
TSD Site Recv Date:	911211
Part A Recv Date:	Not reported
Part B Recv Date:	920103
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00458
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1925748
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPE086
Trans2 State ID:	Not reported
Generator Ship Date:	941206
Trans1 Recv Date:	941206
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	941208
Part A Recv Date:	941216

STONE SERVICES INC (Continued) **1000311747**

Part B Recv Date: 941220
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 01267
Units: P - Pounds
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 94

Document ID: NJA2710524
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: Not reported
Generator Ship Date: 07/16/1998
Trans1 Recv Date: 07/16/1998
Trans2 Recv Date: Not reported
TSD Site Recv Date: 07/24/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD012261244
Trans1 EPA ID: NJD002182897
Trans2 EPA ID: Not reported
TSDF ID: 08690
Waste Code: F005 - UNKNOWN
Quantity: 00844
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NJA1806267
Manifest Status: Completed copy
Trans1 State ID: NJDEPE086
Trans2 State ID: Not reported
Generator Ship Date: 941007
Trans1 Recv Date: 941007
Trans2 Recv Date: Not reported
TSD Site Recv Date: 941010
Part A Recv Date: 941018
Part B Recv Date: 941021
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 00845
Units: P - Pounds
Number of Containers: 002

STONE SERVICES INC (Continued) **1000311747**

Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 94

Document ID: NYC5063297
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: SCD987574647
Generator Ship Date: 09/08/1998
Trans1 Recv Date: 09/08/1998
Trans2 Recv Date: 09/10/1998
TSD Site Recv Date: 09/16/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD012261244
Trans1 EPA ID: KYD053348108
Trans2 EPA ID: Not reported
TSDF ID: ILP248920
Waste Code: F005 - UNKNOWN
Quantity: 01374
Units: P - Pounds
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NJA2800637
Manifest Status: Not reported
Trans1 State ID: ILD984908202
Trans2 State ID: SCD987574647
Generator Ship Date: 12/11/1998
Trans1 Recv Date: 12/11/1998
Trans2 Recv Date: 12/16/1998
TSD Site Recv Date: 12/21/1998
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD012261244
Trans1 EPA ID: NJD002182897
Trans2 EPA ID: Not reported
TSDF ID: 08690
Waste Code: F005 - UNKNOWN
Quantity: 01688
Units: P - Pounds
Number of Containers: 004
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NJA2800655
Manifest Status: Not reported
Trans1 State ID: ILD984908202

STONE SERVICES INC (Continued) **1000311747**

Trans2 State ID:	SCD987574647
Generator Ship Date:	12/29/1998
Trans1 Recv Date:	12/29/1998
Trans2 Recv Date:	01/06/1999
TSD Site Recv Date:	01/08/1999
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	NJD002182897
Trans2 EPA ID:	Not reported
TSDF ID:	08690
Waste Code:	F005 - UNKNOWN
Quantity:	01688
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NJA2806909
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	06/01/1998
Trans1 Recv Date:	06/01/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/08/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	NJD002182897
Trans2 EPA ID:	Not reported
TSDF ID:	08690
Waste Code:	F005 - UNKNOWN
Quantity:	01688
Units:	P - Pounds
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	98

Document ID:	NJA2819764
Manifest Status:	Not reported
Trans1 State ID:	ILD984908202
Trans2 State ID:	Not reported
Generator Ship Date:	04/22/1998
Trans1 Recv Date:	04/22/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	05/01/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	NJD002182897

STONE SERVICES INC (Continued) **1000311747**

Trans2 EPA ID: Not reported
TSDF ID: 08699
Waste Code: F005 - UNKNOWN
Quantity: 01266
Units: P - Pounds
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Year: 98

Document ID: NJA1374650
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 920211
Trans1 Recv Date: 920211
Trans2 Recv Date: Not reported
TSD Site Recv Date: 920219
Part A Recv Date: 920221
Part B Recv Date: 920306
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 00844
Units: P - Pounds
Number of Containers: 002
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 92

Document ID: NJA1436479
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 920630
Trans1 Recv Date: 920630
Trans2 Recv Date: Not reported
TSD Site Recv Date: 920706
Part A Recv Date: Not reported
Part B Recv Date: 920717
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 00422
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100

STONE SERVICES INC (Continued) **1000311747**

Year: 92

Document ID: NJA1343348
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 920601
Trans1 Recv Date: 920601
Trans2 Recv Date: Not reported
TSD Site Recv Date: 920604
Part A Recv Date: Not reported
Part B Recv Date: 920619
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 00422
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 92

Document ID: NJA2054297
Manifest Status: Completed copy
Trans1 State ID: NJDEPE086
Trans2 State ID: Not reported
Generator Ship Date: 950221
Trans1 Recv Date: 950221
Trans2 Recv Date: Not reported
TSD Site Recv Date: 950224
Part A Recv Date: 950303
Part B Recv Date: 950308
Generator EPA ID: NYD012261244
Trans1 EPA ID: ILD984908202
Trans2 EPA ID: Not reported
TSDF ID: NJD002182897
Waste Code: F005 - UNKNOWN
Quantity: 01266
Units: P - Pounds
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 95

Document ID: NJA0564301
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: NJDEPS869
Generator Ship Date: 890622
Trans1 Recv Date: 890622

STONE SERVICES INC (Continued) **1000311747**

Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890627
Part A Recv Date:	890628
Part B Recv Date:	890707
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00550
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89

Document ID:	NJA0639773
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	890504
Trans1 Recv Date:	890504
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890505
Part A Recv Date:	890509
Part B Recv Date:	890512
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00845
Units:	P - Pounds
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	89

Document ID:	NJA9628377
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS086
Generator Ship Date:	891018
Trans1 Recv Date:	891018
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	891019
Part A Recv Date:	891024
Part B Recv Date:	891030
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN

STONE SERVICES INC (Continued) **1000311747**

Quantity:	00422
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89

Document ID:	NJA1409615
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	921202
Trans1 Recv Date:	921202
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	921204
Part A Recv Date:	921214
Part B Recv Date:	921217
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F005 - UNKNOWN
Quantity:	00458
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	92

Document ID:	NJA0639790
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	NJDEPS869
Generator Ship Date:	890607
Trans1 Recv Date:	890607
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	890613
Part A Recv Date:	890616
Part B Recv Date:	890620
Generator EPA ID:	NYD012261244
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD002182897
Waste Code:	F003 - UNKNOWN
Quantity:	00550
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	89

STONE SERVICES INC (Continued) **1000311747**

Click this hyperlink while viewing on your computer to access
30 additional NY_MANIFEST: record(s) in the EDR Site Report.

N132 **138TH AVE. / RYDER AVE. /** **LTANKS** **S102671153**
SSE **138TH ST./ RYDER AVE.** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK, NY**
0.195 mi.
1031 ft. **Site 6 of 8 in cluster N**

LTANKS:

Site ID:	163341
Spill No:	8607426
Spill Date:	3/7/1987
Spill Cause:	Tank Overfill
Spill Source:	Tank Truck
Spill Class:	Not reported
Spill Closed Dt:	3/7/1987
Facility Addr2:	Not reported
Cleanup Ceased:	3/7/1987
Cleanup Meets Standard:	True
SWIS:	0301
Investigator:	UNASSIGNED
Referred To:	Not reported
Reported to Dept:	3/7/1987
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	4/3/1987
Spill Record Last Update:	11/1/2002
Spiller Name:	Not reported
Spiller Company:	LITC
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	274309
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was " " Not reported
Remarks:	MPC WILL VACUUM SPILL AT 11:00.

Material:

Site ID:	163341
Operable Unit ID:	905180
Operable Unit:	01
Material ID:	472931
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum

138TH AVE. / RYDER AVE. / (Continued) **S102671153**

Quantity:	1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	8607426
Spill Date:	03/07/1987
Spill Time:	08:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Class:	Not reported
Spill Closed Dt:	03/07/87
Cleanup Ceased:	03/07/87
Cleanup Meets Standard:	True
Investigator:	Not reported
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	03/07/87
Reported to Department Time:	09:27
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	LITC
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Responsible Party
PBS Number:	Not reported

138TH AVE. / RYDER AVE. / (Continued) **S102671153**

Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/03/87
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: MPC WILL VACUUM SPILL AT 11:00.

P133 **RAB ELECTRIC MANUFACTURING CO INC** **RCRA-NonGen** **1000111766**
ESE **321 RIDER AVE** **FINDS** **NYD001289545**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.196 mi.
1036 ft. **Site 3 of 4 in cluster P**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: RAB ELECTRIC MANUFACTURING CO INC
Facility address: 321 RIDER AVE
BRONX, NY 10451
EPA ID: NYD001289545
Mailing address: RIDER AVE
BRONX, NY 10451
Contact: Not reported
Contact address: RIDER AVE
BRONX, NY 10451
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator

RAB ELECTRIC MANUFACTURING CO INC (Continued) **1000111766**

Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: RICHARD BARNA
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: RICHARD BARNA
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: RAB ELECTRIC MANUFACTURING CO INC
Classification: Not a generator, verified

Date form received by agency: 08/20/1996
Facility name: RAB ELECTRIC MANUFACTURING CO INC
Classification: Not a generator, verified

Date form received by agency: 08/26/1986
Facility name: RAB ELECTRIC MANUFACTURING CO INC
Classification: Unverified

Violation Status: No violations found

RAB ELECTRIC MANUFACTURING CO INC (Continued) **1000111766**

Evaluation Action Summary:
- Evaluation date: 07/10/1996
- Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
- Area of violation: Not reported
- Date achieved compliance: Not reported
- Evaluation lead agency: EPA

FINDS:

Registry ID: 110004333392

Environmental Interest/Information System

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

NY MANIFEST:
- EPA ID: NYD001289545
- Country: USA
- Mailing Name: RAB ELECTRIC MANUFACTURING COMPANY INC
- Mailing Contact: RAB ELECTRIC MANUFACTURING COMPANY INC
- Mailing Address: 321 RYDER AVENUE
- Mailing Address 2: Not reported
- Mailing City: BRONX
- Mailing State: NY
- Mailing Zip: 10451
- Mailing Zip4: Not reported
- Mailing Country: USA
- Mailing Phone: 718-292-5390

- Document ID: NYA6272298
- Manifest Status: Completed copy
- Trans1 State ID: Not reported
- Trans2 State ID: 57745GB
- Generator Ship Date: 870918
- Trans1 Recv Date: 870918
- Trans2 Recv Date: Not reported
- TSD Site Recv Date: 870918
- Part A Recv Date: 870923
- Part B Recv Date: 871007
- Generator EPA ID: NYD001289545
- Trans1 EPA ID: NYD000824334
- Trans2 EPA ID: Not reported
- TSDF ID: NYD000824334
- Waste Code: F001 - UNKNOWN
- Quantity: 00110
- Units: G - Gallons (liquids only)* (8.3 pounds)
- Number of Containers: 002
- Container Type: DM - Metal drums, barrels
- Handling Method: B Incineration, heat recovery, burning.
- Specific Gravity: 100
- Year: 87

RAB ELECTRIC MANUFACTURING CO INC (Continued) **1000111766**

Document ID:	NYA6458328
Manifest Status:	Completed copy
Trans1 State ID:	PLATE#
Trans2 State ID:	MY7783
Generator Ship Date:	880803
Trans1 Recv Date:	880803
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880803
Part A Recv Date:	880826
Part B Recv Date:	880812
Generator EPA ID:	NYD001289545
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F001 - UNKNOWN
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	88

Document ID:	NYA3824043
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PLATE#
Trans2 State ID:	57745GB
Generator Ship Date:	860918
Trans1 Recv Date:	860918
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860918
Part A Recv Date:	861024
Part B Recv Date:	861007
Generator EPA ID:	NYD001289545
Trans1 EPA ID:	NYD000824334
Trans2 EPA ID:	Not reported
TSDF ID:	NYD000824334
Waste Code:	F001 - UNKNOWN
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	86

P134 **CANAL-RIDER REALTY LLC** **AST** **A100166632**
ESE **321 RIDER AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.196 mi.
1036 ft. **Site 4 of 4 in cluster P**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-602380

CANAL-RIDER REALTY LLC (Continued) **A100166632**

Program Type: PBS
UTM X: 590544.49503999995
UTM Y: 4518621.5387500003
Expiration Date: 2015/06/16

Affiliation Records:

Site Id: 24337
Affiliation Type: On-Site Operator
Company Name: CANAL-RIDER REALTY LLC
Contact Type: Not reported
Contact Name: S. BRUCKNER, MGR. PARTNER
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 993-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 24337
Affiliation Type: Owner
Company Name: CANAL-RIDER REALTY LLC
Contact Type: MANAGING PARTNER
Contact Name: S.L. BRUCKNER
Address1: 321 RIDER AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (718) 993-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: KXTANG
Date Last Modified: 2/1/2006

Site Id: 24337
Affiliation Type: Emergency Contact
Company Name: CANAL-RICER REALTY LLC
Contact Type: Not reported
Contact Name: S. BRUCKNER
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 993-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT

CANAL-RIDER REALTY LLC (Continued) **A100166632**

Date Last Modified: 3/4/2004

Site Id: 24337
Affiliation Type: Mail Contact
Company Name: CANAL-RIDER REALTY LLC
Contact Type: MANAGING PARTNER
Contact Name: S.L. BRUCKNER
Address1: 321 RIDER AVENUE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (718) 993-3700
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: KXTANG
Date Last Modified: 2/1/2006

Equipment Records:

C01 - Pipe Location - Aboveground
G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
J02 - Dispenser - Suction
L09 - Piping Leak Detection - Exempt Suction Piping

Tank Info:

Tank Number: 1
Tank Id: 49928
Tank Location: 3
Tank Type: Steel/Carbon Steel/Iron
Tank Status: In Service
Tank Model: Not reported
Pipe Model: Not reported
Install Date: 5/1/1990
Capacity Gallons: 5000
Tightness Test Method: NN
Date Test: Not reported
Next Test Date: Not reported
Date Tank Closed: Not reported
Register: True
Modified By: MSBAPTIS
Last Modified: 4/12/2010

N135 **G S D GASOLINE CORPORATION** **MANIFEST** **1009232944**
SE **242 EAST 138TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.197 mi.
1039 ft. **Site 7 of 8 in cluster N**

NY MANIFEST:

EPA ID:	NYP000901900
Country:	USA
Mailing Name:	G S D GASOLINE CORPORATION
Mailing Contact:	SUMAN KUMAR
Mailing Address:	1611 AVENUE Y
Mailing Address 2:	Not reported
Mailing City:	BROOKLYN
Mailing State:	NY
Mailing Zip:	11235
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-743-2940
Document ID:	NYB2126871
Manifest Status:	Completed copy
Trans1 State ID:	Not reported
Trans2 State ID:	Not reported
Generator Ship Date:	910429
Trans1 Recv Date:	910429
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910429
Part A Recv Date:	910508
Part B Recv Date:	910509
Generator EPA ID:	NYP000901900
Trans1 EPA ID:	NYD986893261
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00246
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	TT - Cargo tank, tank trucks
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

N136 **242 EAST 138TH STREET, INC.** **LTANKS** **U003069066**
SE **242 EAST 138TH STREET** **HIST LTANKS** **N/A**
1/8-1/4 **BRONX, NY 10451** **UST**
0.197 mi. **HIST UST**
1039 ft. **Site 8 of 8 in cluster N**

LTANKS:

Site ID:	297794
Spill No:	9101289
Spill Date:	4/29/1991
Spill Cause:	Tank Test Failure
Spill Source:	Gasoline Station
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	2/2/2007
Facility Addr2:	Not reported

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	JBVOUGHT
Referred To:	NO FILE
Reported to Dept:	5/1/1991
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	5/2/1991
Spill Record Last Update:	2/2/2007
Spiller Name:	Not reported
Spiller Company:	CITGO
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	240932
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SUN" REFER TO SPILL # 9101008 (PIN# 91214) 1/8/04 Reassigned from Sullivan to Sun. 12/16/2005 - Feng - Reassigned from Sun to Feng as per Sun. (RJF) 2/2/07-Vought-This spill reassigned from Feng to Vought due to existing PIN project on site. This spill closed and referred to open spill #9101008. Spill closed by Vought.
Remarks:	(1)4K TANK,SYSTEM TEST,FAILED PETRO TITE WITH A GROSS LEAK,DEC INSTRUCTED CITGO TO INSTALL MONITORING WELLS.

Material:

Site ID:	297794
Operable Unit ID:	954876
Operable Unit:	01
Material ID:	427410
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	297794
Spill Tank Test:	1538517
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

HIST LTANKS:

Region of Spill:	2
Spill Number:	9101289
Spill Date:	04/29/1991
Spill Time:	17:00
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Class:	Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	SULLIVAN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	05/01/91
Reported to Department Time:	14:31
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CITGO
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	05/02/91
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	01/26/98
Is Updated:	False

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Tank:
- PBS Number: Not reported
- Tank Number: Not reported
- Tank Size: 0
- Test Method: Not reported
- Leak Rate Failed Tank: 0.00
- Gross Leak Rate: Not reported

Material:
- Material Class Type: Petroleum
- Quantity Spilled: -1
- Unkonwn Quantity Spilled: False
- Units: Pounds
- Quantity Recovered: 0
- Unkonwn Quantity Recovered: False
- Material: DIESEL
- Class Type: DIESEL
- Times Material Entry In File: 10625
- CAS Number: Not reported
- Last Date: 19940728
- DEC Remarks: REFER TO SPILL 9101008
- Spill Cause: 1)4K TANK,SYSTEM TEST,FAILED PETRO TITE WITH A GROSS LEAK,DEC INSTRUCTED CITGO TO INSTALL MONITORING WELLS.

UST:
- Facility Id: 2-600201
- Region: STATE
- DEC Region: 2
- Site Status: Active
- Program Type: PBS
- Expiration Date: 2001/07/08
- UTM X: 590447.43726999999
- UTM Y: 4518395.9868599996

Affiliation Records:
- Site Id: 22184
- Affiliation Type: Owner
- Company Name: LEAH MARKOWITZ
- Contact Type: Not reported
- Contact Name: Not reported
- Address1: 14 WEST 85TH STREET-APT #1
- Address2: Not reported
- City: NEW YORK
- State: NY
- Zip Code: 10024
- Country Code: 001
- Phone: (718) 531-4305
- Phone Ext: Not reported
- Email: Not reported
- Fax Number: Not reported
- Modified By: EXROSSAN
- Date Last Modified: 7/5/2005

- Site Id: 22184
- Affiliation Type: On-Site Operator
- Company Name: 242 EAST 138TH STREET, INC.
- Contact Type: Not reported

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Contact Name:	242 EAST 138TH ST., INC.
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NY
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 993-0169
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	EXROSSAN
Date Last Modified:	7/5/2005

Site Id:	22184
Affiliation Type:	Mail Contact
Company Name:	242 EAST 138TH STREET, INC.
Contact Type:	Not reported
Contact Name:	G. SINGH
Address1:	276 NORTH HENRY STREET
Address2:	Not reported
City:	BROOKLYN
State:	NY
Zip Code:	11222
Country Code:	001
Phone:	(718) 349-0555
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	22184
Affiliation Type:	Emergency Contact
Company Name:	LEAH MARKOWITZ
Contact Type:	Not reported
Contact Name:	G. SINGH
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 349-0555
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	EXROSSAN
Date Last Modified:	7/5/2005

Equipment Records:

H00 - Tank Leak Detection - None
J01 - Dispenser - Submersible
F01 - Pipe External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
D01 - Pipe Type - Steel/Carbon Steel/Iron
I00 - Overfill - None

242 EAST 138TH STREET, INC. (Continued) **U003069066**

D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
J01 - Dispenser - Submersible
F01 - Pipe External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
I00 - Overfill - None
F01 - Pipe External Protection - Painted/Asphalt Coating
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
J01 - Dispenser - Submersible
H00 - Tank Leak Detection - None
F01 - Pipe External Protection - Painted/Asphalt Coating
J01 - Dispenser - Submersible
A00 - Tank Internal Protection - None
I00 - Overfill - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
C02 - Pipe Location - Underground/On-ground

Tank Info:

Site ID:	22184
Tank Number:	001
Tank ID:	41526
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1983
Capacity Gallons:	4000
Tightness Test Method:	03
Next Test Date:	1/1/2002
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	1/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22184
Tank Number:	002
Tank ID:	41527
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Install Date:	12/1/1983
Capacity Gallons:	4000
Tightness Test Method:	03
Next Test Date:	1/1/2002
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	1/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22184
Tank Number:	003
Tank ID:	41528
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1983
Capacity Gallons:	4000
Tightness Test Method:	03
Next Test Date:	1/1/2002
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	1/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	22184
Tank Number:	004
Tank ID:	41529
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1983
Capacity Gallons:	4000
Tightness Test Method:	03
Next Test Date:	1/1/2002
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	1/1/1997
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-600201
SPDES Number:	Not reported
Emergency Contact:	G. SINGH
Emergency Telephone:	(718) 349-0555
Operator:	242 EAST 138TH ST., INC.
Operator Telephone:	(212) 993-0169

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Owner Name:	LEAH MARKOWITZ
Owner Address:	14 WEST 85TH STREET-APT #1
Owner City,St,Zip:	NEW YORK, NY 10024
Owner Telephone:	(718) 531-4305
Owner Type:	Private Resident
Owner Subtype:	Not reported
Mailing Name:	242 EAST 138TH STREET, INC.
Mailing Address:	276 NORTH HENRY STREET
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BROOOKLYN, NY 11222
Mailing Contact:	G. SINGH
Mailing Telephone:	(718) 349-0555
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	242 EAST 138TH STREET
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	07/18/1997
Expiration Date:	07/08/2001
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	16000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19831201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Dispenser:	Submersible
Date Tested:	01/01/1997
Next Test Date:	01/01/2002
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19831201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Submersible
Date Tested:	01/01/1997
Next Test Date:	01/01/2002
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19831201
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Submersible
Date Tested:	01/01/1997
Next Test Date:	01/01/2002

242 EAST 138TH STREET, INC. (Continued) **U003069066**

Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19831201
Capacity (gals):	4000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Not reported
Dispenser:	Submersible
Date Tested:	01/01/1997
Next Test Date:	01/01/2002
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Horner EZ Check
Deleted:	False
Updated:	True
Lat/long:	Not reported

S137 **318 GRAND CONCOURSE/BX** **LTANKS** **S102671419**
NE **318 GRAND CONCOURSE** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
0.199 mi.
1052 ft. **Site 3 of 3 in cluster S**

LTANKS:

Site ID:	231267
Spill No:	8905553
Spill Date:	9/6/1989
Spill Cause:	Tank Overfill
Spill Source:	Gasoline Station
Spill Class:	Not reported
Spill Closed Dt:	9/6/1989
Facility Addr2:	Not reported
Cleanup Ceased:	9/6/1989
Cleanup Meets Standard:	True
SWIS:	0301
Investigator:	SIGONA
Referred To:	Not reported
Reported to Dept:	9/6/1989
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Fire Department

318 GRAND CONCOURSE/BX (Continued) **S102671419**

Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	9/11/1989
Spill Record Last Update:	9/30/2004
Spiller Name:	Not reported
Spiller Company:	I P T TRUCKING
Spiller Address:	1 SHERIDAN BLVD
Spiller City,St,Zip:	INWOOD, NY 11696
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	190593
DEC Memo:	Not reported
Remarks:	SPILL IN SUBWAY SYSTEM, NYCFD HAZMAT ON SCENE,

Material:

Site ID:	231267
Operable Unit ID:	933207
Operable Unit:	01
Material ID:	445978
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1000
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	8905553
Spill Date:	09/06/1989
Spill Time:	21:54
Spill Cause:	Tank Overfill
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Gas Station

318 GRAND CONCOURSE/BX (Continued) **S102671419**

Spill Class:	Not reported
Spill Closed Dt:	09/06/89
Cleanup Ceased:	09/06/89
Cleanup Meets Standard:	True
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	09/06/89
Reported to Department Time:	23:00
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	I P T TRUCKING
Spiller Address:	1 SHERIDAN BLVD
Spiller City,St,Zip:	INWOOD, NY 11696
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	(718) 327-8855
Facility Extention:	Not reported
Spill Notifier:	Fire Department
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	09/11/89
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	1000
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	GASOLINE
Class Type:	GASOLINE

318 GRAND CONCOURSE/BX (Continued) **S102671419**

Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: 09/06/89: NYCFD HAZMAT, NYCPD ON SCENE, TYREE BROS CLEANED UP SPILL WITH A VAC TRUCK, NYSDEC SIGONA) RESPONDED INSPECTED CLEAN UP.
Spill Cause: SPILL IN SUBWAY SYSTEM, NYCFD HAZMAT ON SCENE,

Q138 **PPG INDUSTRIES INC LOC #1834** **RCRA-NonGen** **1000119433**
North **441 EXTERIOR ST** **FINDS** **NYD981494818**
1/8-1/4 **BRONX, NY 10451**
0.202 mi.
1069 ft. **Site 3 of 4 in cluster Q**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: PPG INDUSTRIES INC LOC #1834
Facility address: 441 EXTERIOR ST
BRONX, NY 104512008
EPA ID: NYD981494818
Mailing address: KAPPA DR
PITTSBURGH, NY 15238
Contact: Not reported
Contact address: KAPPA DR
PITTSBURGH, NY 15238
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: PPG INDUSTRIES INC
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: PPG INDUSTRIES INC
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No

PPG INDUSTRIES INC LOC #1834 (Continued) **1000119433**

Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: PPG INDUSTRIES INC LOC #1834
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: PPG INDUSTRIES INC LOC #1834
Classification: Not a generator, verified

Date form received by agency: 07/30/1986
Facility name: PPG INDUSTRIES INC LOC #1834
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110004407311

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

T139 **376 CANAL PLACE** **AST** **A100175460**
East **376 CANAL PLACE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.206 mi.
1090 ft. **Site 3 of 7 in cluster T**

AST:
Region: STATE
DEC Region: 2
Site Status: Active
Facility Id: 2-605165
Program Type: PBS
UTM X: 590572.94830000005
UTM Y: 4518803.9087500004
Expiration Date: 2011/02/08

Affiliation Records:
Site Id: 27034

376 CANAL PLACE (Continued) **A100175460**

Affiliation Type:	On-Site Operator
Company Name:	376 CANAL PLACE
Contact Type:	Not reported
Contact Name:	ANTHONY POLANCO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(917) 430-3621
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	27034
Affiliation Type:	Mail Contact
Company Name:	BRADFORD SWETT MANAGEMENT LLC
Contact Type:	Not reported
Contact Name:	CHRISTOPHER BOYLE
Address1:	210 EAST 86TH STREET
Address2:	SUITE 404
City:	NEW YORK
State:	NY
Zip Code:	10028
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	12/21/2005

Site Id:	27034
Affiliation Type:	Emergency Contact
Company Name:	CANAL/RIDER LLC
Contact Type:	Not reported
Contact Name:	CHRISTOPHER BOYCE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	27034
Affiliation Type:	Owner
Company Name:	CANAL/RIDER LLC
Contact Type:	MANAGER

376 CANAL PLACE (Continued) **A100175460**

Contact Name:	CHRISTOPHER BOYLE
Address1:	210 E. 86TH ST., SUITE 404
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10028
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	12/21/2005

Equipment Records:

F00 - Pipe External Protection - None
J02 - Dispenser - Suction
B00 - Tank External Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
C01 - Pipe Location - Aboveground
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
G03 - Tank Secondary Containment - Vault (w/o access)
I01 - Overfill - Float Vent Valve

Tank Info:

Tank Number:	001
Tank Id:	59528
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	3000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

V140 **GETTY 00111** **UST** **U001833196**
SE **245 E 138TH STREET** **HIST UST** **N/A**
1/8-1/4 **BRONX, NY 10451** **AST**
0.211 mi. **HIST AST**
1113 ft. **Site 1 of 3 in cluster V**

UST:

Facility Id:	2-153680
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS
Expiration Date:	N/A

GETTY 00111 (Continued) **U001833196**

UTM X: 590464.54422000004
UTM Y: 4518378.41041

Affiliation Records:

Site Id: 4881
Affiliation Type: Owner
Company Name: GETTY PROPERTIES CORP
Contact Type: Not reported
Contact Name: Not reported
Address1: 125 JERICHO TPK
Address2: Not reported
City: JERICHO
State: NY
Zip Code: 11753
Country Code: 001
Phone: (516) 478-5436
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 4881
Affiliation Type: Mail Contact
Company Name: GETTY PROPERTIES CORP
Contact Type: Not reported
Contact Name: K. SHEA
Address1: 125 JERICHO TURNIPIKE
Address2: Not reported
City: JERICHO
State: NY
Zip Code: 11753
Country Code: 001
Phone: (516) 478-5436
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 4881
Affiliation Type: On-Site Operator
Company Name: GETTY 00111
Contact Type: Not reported
Contact Name: NO CONTACT
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: Not reported
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

GETTY 00111 (Continued) **U001833196**

Site Id:	4881
Affiliation Type:	Emergency Contact
Company Name:	GETTY PROPERTIES CORP
Contact Type:	Not reported
Contact Name:	NO CONTACT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
K01 - Spill Prevention - Catch Basin
F00 - Pipe External Protection - None
H99 - Tank Leak Detection - Other
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
G00 - Tank Secondary Containment - None
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
B00 - Tank External Protection - None
G04 - Tank Secondary Containment - Double-Walled (Underground)
B01 - Tank External Protection - Painted/Asphalt Coating
B00 - Tank External Protection - None
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
C01 - Pipe Location - Aboveground
B00 - Tank External Protection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
H00 - Tank Leak Detection - None
G03 - Tank Secondary Containment - Vault (w/o access)
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
I00 - Overfill - None

GETTY 00111 (Continued) **U001833196**

I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
I00 - Overfill - None
B05 - Tank External Protection - Jacketed

Tank Info:

Site ID:	4881
Tank Number:	001
Tank ID:	8212
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1974
Capacity Gallons:	4000
Tightness Test Method:	09
Next Test Date:	Not reported
Date Tank Closed:	8/1/1998
Tank Location:	5
Tank Type:	Concrete
Date Test:	6/1/1995
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4881
Tank Number:	002
Tank ID:	8213
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	10/1/1952
Capacity Gallons:	550
Tightness Test Method:	09
Next Test Date:	Not reported
Date Tank Closed:	8/1/1998

GETTY 00111 (Continued) **U001833196**

Tank Location:	5
Tank Type:	Concrete
Date Test:	6/1/1995
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4881
Tank Number:	003
Tank ID:	8214
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	10/1/1952
Capacity Gallons:	550
Tightness Test Method:	09
Next Test Date:	Not reported
Date Tank Closed:	8/1/1998
Tank Location:	5
Tank Type:	Concrete
Date Test:	6/1/1995
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4881
Tank Number:	004
Tank ID:	8215
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	10/1/1952
Capacity Gallons:	550
Tightness Test Method:	09
Next Test Date:	Not reported
Date Tank Closed:	8/1/1998
Tank Location:	5
Tank Type:	Concrete
Date Test:	6/1/1995
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4881
Tank Number:	005
Tank ID:	8216
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	10/1/1952
Capacity Gallons:	550
Tightness Test Method:	09
Next Test Date:	Not reported
Date Tank Closed:	8/1/1998

GETTY 00111 (Continued) **U001833196**

Tank Location:	5
Tank Type:	Concrete
Date Test:	6/1/1995
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4881
Tank Number:	006
Tank ID:	8217
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	8/1/1998
Capacity Gallons:	550
Tightness Test Method:	01
Next Test Date:	Not reported
Date Tank Closed:	8/1/1996
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	9/1/1992
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-153680
SPDES Number:	Not reported
Emergency Contact:	SCOH HANLEY
Emergency Telephone:	(718) 324-5110
Operator:	EDWARD BINES
Operator Telephone:	(212) 299-6055
Owner Name:	GETTY PETROLEUM CORPORATION
Owner Address:	125 JERICHO TPK
Owner City,St,Zip:	JERICHO, NY 11753
Owner Telephone:	(516) 338-6000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	GETTY PETROLEUM CORPORATION
Mailing Address:	125 JERICHO TURNIPIKE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	JERICHO, NY 11753
Mailing Contact:	SCOTT HANLEY
Mailing Telephone:	(516) 338-6000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	245 E 138TH STREET
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Facility Type:	RETAIL GASOLINE SALES
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported

GETTY 00111 (Continued) **U001833196**

Federal ID:	Not reported
Certification Flag:	False
Certification Date:	02/24/1998
Expiration Date:	06/05/2002
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	8240
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19740101
Capacity (gals):	4000
Product Stored:	UNLEADED GASOLINE
Tank Type:	Stainless steel alloy
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	06/01/1995
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	08/01/1998
Test Method:	VPLT (NDE)
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19521001
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Stainless steel alloy
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None

GETTY 00111 (Continued) **U001833196**

Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1995
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1998
Test Method:	VPLT (NDE)
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19521001
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Stainless steel alloy
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1995
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1998
Test Method:	VPLT (NDE)
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19521001
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Stainless steel alloy
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None

GETTY 00111 (Continued) **U001833196**

Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1995
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1998
Test Method:	VPLT (NDE)
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	005
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19521001
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Stainless steel alloy
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	None
Pipe External:	None
Second Containment:	None
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	06/01/1995
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1998
Test Method:	VPLT (NDE)
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	006
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	19980801
Capacity (gals):	550
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Gravity
Date Tested:	09/01/1992

GETTY 00111 (Continued) **U001833196**

Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: 08/01/1996
Test Method: Petro-Tite
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 007
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19980801
Capacity (gals): 4000
Product Stored: UNLEADED GASOLINE
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Fiberglass Liner (FRP)
Tank External: 45
Pipe Location: Underground
Pipe Type: STAINLESS STEEL ALLOY
Pipe Internal: Fiberglass Liner (FRP)
Pipe External: 45
Second Containment: Vault (w/access)
Leak Detection: 14
Overfill Prot: High Level Alarm, Catch Basin
Dispenser: Submersible
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: True
Lat/long: Not reported

Tank Id: 008
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19980801
Capacity (gals): 4000
Product Stored: UNLEADED GASOLINE
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Fiberglass Liner (FRP)
Tank External: 45
Pipe Location: Underground
Pipe Type: STAINLESS STEEL ALLOY
Pipe Internal: Fiberglass Liner (FRP)
Pipe External: 45
Second Containment: Vault (w/access)
Leak Detection: 14
Overfill Prot: High Level Alarm, Catch Basin
Dispenser: Submersible
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: No Missing Data
Date Closed: Not reported

GETTY 00111 (Continued) **U001833196**

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

AST:
Region: STATE
DEC Region: 2
Site Status: Unregulated
Facility Id: 2-153680
Program Type: PBS
UTM X: 590464.54422000004
UTM Y: 4518378.41041
Expiration Date: N/A

Affiliation Records:
Site Id: 4881
Affiliation Type: Owner
Company Name: GETTY PROPERTIES CORP
Contact Type: Not reported
Contact Name: Not reported
Address1: 125 JERICHO TPK
Address2: Not reported
City: JERICHO
State: NY
Zip Code: 11753
Country Code: 001
Phone: (516) 478-5436
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 4881
Affiliation Type: Mail Contact
Company Name: GETTY PROPERTIES CORP
Contact Type: Not reported
Contact Name: K. SHEA
Address1: 125 JERICHO TURNIPIKE
Address2: Not reported
City: JERICHO
State: NY
Zip Code: 11753
Country Code: 001
Phone: (516) 478-5436
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 4881
Affiliation Type: On-Site Operator
Company Name: GETTY 00111
Contact Type: Not reported
Contact Name: NO CONTACT

GETTY 00111 (Continued) **U001833196**

Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	4881
Affiliation Type:	Emergency Contact
Company Name:	GETTY PROPERTIES CORP
Contact Type:	Not reported
Contact Name:	NO CONTACT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	Not reported
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
K01 - Spill Prevention - Catch Basin
F00 - Pipe External Protection - None
H99 - Tank Leak Detection - Other
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
G00 - Tank Secondary Containment - None
I04 - Overfill - Product Level Gauge (A/G)
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
B00 - Tank External Protection - None
G04 - Tank Secondary Containment - Double-Walled (Underground)
B01 - Tank External Protection - Painted/Asphalt Coating
B00 - Tank External Protection - None
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
C01 - Pipe Location - Aboveground
B00 - Tank External Protection - None

GETTY 00111 (Continued) **U001833196**

B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
H00 - Tank Leak Detection - None
G03 - Tank Secondary Containment - Vault (w/o access)
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
I00 - Overfill - None
B05 - Tank External Protection - Jacketed

Tank Info:

Tank Number:	009
Tank Id:	54253
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Tank Converted to Non-Regulated Use
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	8/1/1998
Capacity Gallons:	240
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	8/1/1996
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

GETTY 00111 (Continued) **U001833196**

HIST AST:

PBS Number:	2-153680
SWIS Code:	6001
Operator:	EDWARD BINES
Facility Phone:	(212) 299-6055
Facility Addr2:	245 E 138TH STREET
Facility Type:	STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Facility Type:	RETAIL GASOLINE SALES
Emergency:	SCOH HANLEY
Emergency Tel:	(718) 324-5110
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	GETTY PETROLEUM CORPORATION
Owner Address:	125 JERICHO TPK
Owner City,St,Zip:	JERICHO, NY 11753
Federal ID:	Not reported
Owner Tel:	(516) 338-6000
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	SCOTT HANLEY
Mailing Name:	GETTY PETROLEUM CORPORATION
Mailing Address:	125 JERICHO TURNIPIKE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	JERICHO, NY 11753
Mailing Telephone:	(516) 338-6000
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	02/24/1998
Expiration:	06/05/2002
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	8240
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2
Tank ID:	009
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	Tank Converted To Non-Regulated Use
Install Date:	19980801
Capacity (Gal):	240
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	15

GETTY 00111 (Continued) **U001833196**

Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Vault (w/access)
Leak Detection:	6
Overfill Protection:	45
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1996
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	010
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19980801
Capacity (Gal):	240
Product Stored:	USED OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	15
Pipe Location:	None
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Vault (w/access)
Leak Detection:	6
Overfill Protection:	45
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

V141 **FORMER KENTUCKY FRIED CHICHEN** **UST** **U004109432**
SE **2551 3RD AVENUE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.211 mi.
1113 ft. **Site 2 of 3 in cluster V**

UST:

Facility Id:	2-610647
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

Expiration Date:	N/A
UTM X:	590454.31429000001
UTM Y:	4518326.52403

Affiliation Records:

Site Id:	387021
Affiliation Type:	Owner
Company Name:	FIRST BRONX/BROOKLYN LLC
Contact Type:	MANAGING MEMBER
Contact Name:	BRADFORD S BARR
Address1:	1536 3RD AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10028
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	9/11/2007

Site Id:	387021
Affiliation Type:	Mail Contact
Company Name:	BRADFORD N. SWETT MANAGEMENT, LLC
Contact Type:	Not reported
Contact Name:	BRAD BARR
Address1:	1536 3RD AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10028
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	ABBARR@AOL.COM
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	9/28/2007

Site Id:	387021
Affiliation Type:	On-Site Operator
Company Name:	FORMER KENTUCKY FRIED CHICHEN
Contact Type:	Not reported
Contact Name:	VACANT
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	VACANT
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	KXTANG
Date Last Modified:	9/11/2007

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

Site Id:	387021
Affiliation Type:	Emergency Contact
Company Name:	FIRST BRONX/BROOKLYN LLC
Contact Type:	Not reported
Contact Name:	BRAD BARR
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	MSBAPTIS
Date Last Modified:	1/7/2010

Equipment Records:

E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
J00 - Dispenser - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
K00 - Spill Prevention - None
B00 - Tank External Protection - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
K00 - Spill Prevention - None
B00 - Tank External Protection - None
E00 - Piping Secondary Containment - None
K00 - Spill Prevention - None
K00 - Spill Prevention - None
K00 - Spill Prevention - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
B00 - Tank External Protection - None
K00 - Spill Prevention - None

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

J00 - Dispenser - None
H00 - Tank Leak Detection - None
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
C02 - Pipe Location - Underground/On-ground
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
I00 - Overfill - None
E00 - Piping Secondary Containment - None
I00 - Overfill - None
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
E00 - Piping Secondary Containment - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
I00 - Overfill - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
J00 - Dispenser - None
J00 - Dispenser - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
J00 - Dispenser - None
H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
C02 - Pipe Location - Underground/On-ground
J00 - Dispenser - None
I00 - Overfill - None
J00 - Dispenser - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
I00 - Overfill - None
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
K00 - Spill Prevention - None
B00 - Tank External Protection - None
G00 - Tank Secondary Containment - None
G00 - Tank Secondary Containment - None
E00 - Piping Secondary Containment - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
K00 - Spill Prevention - None
K00 - Spill Prevention - None
I00 - Overfill - None
I00 - Overfill - None
B00 - Tank External Protection - None

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

C02 - Pipe Location - Underground/On-ground
K00 - Spill Prevention - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I00 - Overfill - None
A00 - Tank Internal Protection - None
K00 - Spill Prevention - None
F00 - Pipe External Protection - None
A00 - Tank Internal Protection - None
F00 - Pipe External Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
C02 - Pipe Location - Underground/On-ground
D01 - Pipe Type - Steel/Carbon Steel/Iron
D01 - Pipe Type - Steel/Carbon Steel/Iron
F00 - Pipe External Protection - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
I00 - Overfill - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
C02 - Pipe Location - Underground/On-ground
E00 - Piping Secondary Containment - None
I00 - Overfill - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	387021
Tank Number:	01
Tank ID:	219343
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	6/26/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

Site ID:	387021
Tank Number:	010
Tank ID:	219352
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	6/28/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007
Site ID:	387021
Tank Number:	011
Tank ID:	219353
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	6/29/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007
Site ID:	387021
Tank Number:	02
Tank ID:	219344
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	6/26/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

Site ID:	387021
Tank Number:	03
Tank ID:	219345
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	6/26/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007
Site ID:	387021
Tank Number:	04
Tank ID:	219346
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	6/26/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007
Site ID:	387021
Tank Number:	05
Tank ID:	219347
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/3/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

Site ID:	387021
Tank Number:	06
Tank ID:	219348
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/3/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007
Site ID:	387021
Tank Number:	07
Tank ID:	219349
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/2/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007
Site ID:	387021
Tank Number:	08
Tank ID:	219350
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	7/2/2007
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	9/28/2007

FORMER KENTUCKY FRIED CHICHEN (Continued) **U004109432**

Site ID: 387021

Tank Number: 09
Tank ID: 219351
Tank Status: Closed - Removed
Tank Model: Not reported
Pipe Model: Not reported
Install Date: Not reported
Capacity Gallons: 550
Tightness Test Method: NN
Next Test Date: Not reported
Date Tank Closed: 6/28/2007
Tank Location: 5
Tank Type: Steel/carbon steel
Date Test: Not reported
Register: True
Modified By: AAANASTA
Last Modified: 10/18/2007

U142 **PAY TV OF GREATER NY** **TANKS** **S110771726**
NNE **140 E 146TH ST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.211 mi.
1114 ft. **Site 2 of 4 in cluster U**

TANKS:
Facility Id: 2-333484
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 1992/10/02
UTM X: 590307.46291999996
UTM Y: 4518778.54103

U143 **PAY TV OF GREATER NY** **HIST UST** **U001837161**
NNE **140 E 146TH ST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.211 mi.
1114 ft. **Site 3 of 4 in cluster U**

HIST UST:
PBS Number: 2-333484
SPDES Number: Not reported
Emergency Contact: ROBERT FRANK
Emergency Telephone: (201) 729-9795
Operator: PAY TV OF GREATER NY
Operator Telephone: (212) 665-9323
Owner Name: PAY TV OF GREATER NY
Owner Address: 411 WALTON AVE
Owner City,St,Zip: BX, NY 10451
Owner Telephone: (212) 665-9323
Owner Type: Not reported
Owner Subtype: Not reported
Mailing Name: PAY TV OF GREATER NY
Mailing Address: 411 WALTON AVE

PAY TV OF GREATER NY (Continued) **U001837161**

Mailing Address 2:	Not reported
Mailing City,St,Zip:	BX, NY 10451
Mailing Contact:	Not reported
Mailing Telephone:	(212) 665-9323
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	140 E 146TH ST
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	10/02/1987
Expiration Date:	10/02/1992
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	4080
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	1080
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False

PAY TV OF GREATER NY (Continued) **U001837161**

Lat/long: Not reported

Tank Id: 002
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: Not reported
Capacity (gals): 3000
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: Not reported
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: None
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Gravity
Date Tested: Not reported
Next Test Date: 12/27/1987
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

T144 **PREMIER METAL PRODUCTS CO DIV** **RCRA-NonGen** **1000299569**
ENE **381 CANAL PL** **FINDS** **NYD001630383**
1/8-1/4 **BRONX, NY 10451** **LTANKS**
0.211 mi. **HIST LTANKS**
1114 ft. **Site 4 of 7 in cluster T** **UST**
HIST UST
MANIFEST

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: PREMIER METAL PRODUCTS CO DIV
Facility address: 381 CANAL PL
BRONX, NY 104515913
EPA ID: NYD001630383
Mailing address: CANAL PL
BRONX, NY 10451
Contact: Not reported
Contact address: CANAL PL
BRONX, NY 10451
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Owner/operator name: NEW YORK CITY INDUSTRIAL DEVELPMNT AGCY
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: NEW YORK CITY INDUSTRIAL DEVELPMNT AGCY
Owner/operator address: NOT REQUIRED
NOT REQUIRED, WY 99999
Owner/operator country: US
Owner/operator telephone: (212) 555-1212
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: PREMIER METAL PRODUCTS CO DIV
Classification: Not a generator, verified

Date form received by agency: 07/08/1999
Facility name: PREMIER METAL PRODUCTS CO DIV
Classification: Not a generator, verified

Date form received by agency: 08/17/1994
Facility name: PREMIER METAL PRODUCTS CO DIV
Site name: PREMIER METAL PRODUCTS CO
Classification: Large Quantity Generator

Date form received by agency: 07/14/1980
Facility name: PREMIER METAL PRODUCTS CO DIV
Classification: Large Quantity Generator

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Facility Has Received Notices of Violations:

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 07/19/2000
Date achieved compliance: 10/16/2000
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 07/19/2000
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 06/14/1995
Date achieved compliance: 09/25/1996
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 06/14/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: Generators - General
Date violation determined: 06/14/1995
Date achieved compliance: 09/25/1996
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 02/02/1996
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 03/01/1995
Date achieved compliance: 09/11/1995
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 06/28/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 1200
Final penalty amount: 0
Paid penalty amount: 0

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 03/01/1995
Date achieved compliance: 09/11/1995
Violation lead agency: State
Enforcement action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement action date: 09/11/1995
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 1200
Paid penalty amount: 0

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 04/01/1994
Date achieved compliance: 07/29/1994
Violation lead agency: State
Enforcement action: INITIAL 3008(A) COMPLIANCE
Enforcement action date: 07/29/1994
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 1200
Final penalty amount: 0
Paid penalty amount: 0

Evaluation Action Summary:
Evaluation date: 03/01/2000
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Records/Reporting
Date achieved compliance: 10/16/2000
Evaluation lead agency: State

Evaluation date: 05/11/1995
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 09/25/1996
Evaluation lead agency: State

Evaluation date: 03/01/1995
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Records/Reporting
Date achieved compliance: 09/11/1995
Evaluation lead agency: State

Evaluation date: 04/01/1994
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Records/Reporting
Date achieved compliance: 07/29/1994
Evaluation lead agency: State

FINDS:

Registry ID: 110001565093

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

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

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

LTANKS:

Site ID:	145737
Spill No:	8709462
Spill Date:	2/2/1988
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt:	3/21/1995
Facility Addr2:	Not reported
Cleanup Ceased:	9/30/1992
Cleanup Meets Standard:	True
SWIS:	0301
Investigator:	BATTISTA
Referred To:	Not reported
Reported to Dept:	2/7/1988
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	2/9/1988
Spill Record Last Update:	6/26/2006
Spiller Name:	Not reported
Spiller Company:	PPA INDUSTRIES
Spiller Address:	381 CANAL PLACE
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	16558
DEC Memo:	Not reported
Remarks:	3 TANKS TANK 1--2K & GROSS LEAK TANK 2--2K,LEAK RATE = -.271GPH TANK 3--5K, LEAK RATE = -1.424GPH 8/11/88 : 5K TANK FAILED RETEST, L R=-0.061 GPH.

Material:

Site ID:	145737
Operable Unit ID:	914558
Operable Unit:	01
Material ID:	464783
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	145737
Spill Tank Test:	1533196
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

HIST LTANKS:

Region of Spill:	2
Spill Number:	8709462
Spill Date:	02/02/1988
Spill Time:	23:55
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt:	03/21/95
Cleanup Ceased:	09/30/92
Cleanup Meets Standard:	True
Investigator:	BATTISTA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 02/07/88
Reported to Department Time: 14:26
SWIS: 60
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: PPA INDUSTRIES
Spiller Address: 381 CANAL PLACE
Spiller City,St,Zip: BRONX, NY
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: (212) 993-9200
Facility Extention: Not reported
Spill Notifier: Tank Tester
PBS Number: 2-342017
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 02/09/88
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 03/21/95
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: / / : RESP. PARTY WILL PUMP OUT, EXCAVATE AND RETEST. 04/01/88: REPAIRS WERE MADE -04/01/88 THE TANK -2,000 GALLON PASSED PETROTITE AT RATE OF -0.032 GPH. 03/21/95: SPILL CLOSED ON MIKE MULQUEEN S RECOMMENDATION. INACTIVE STATUS SINCE 9/20/92 CHANGED TO 3/21/95 BY SMM.
Spill Cause: 3 TANKS TANK 1--2K GROSS LEAK TANK 2--2K,LEAK RATE = -.271GPH TANK 3--5K, LEAK RATE = -1.424GPH 8/11/88 : 5K TANK FAILED RETEST, L R=-0.061 GPH.

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

UST:

Facility Id:	2-342017
Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Program Type:	PBS
Expiration Date:	N/A
UTM X:	590579.97337999998
UTM Y:	4518818.2109300001

Affiliation Records:

Site Id:	16579
Affiliation Type:	Mail Contact
Company Name:	GLADIATOR REALTY CORP.
Contact Type:	Not reported
Contact Name:	ERIN MULLER
Address1:	P.O. BOX 180
Address2:	Not reported
City:	MONSEY
State:	NY
Zip Code:	10952
Country Code:	001
Phone:	(718) 387-0980
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/23/2009

Site Id:	16579
Affiliation Type:	On-Site Operator
Company Name:	PRIDE FURNITURE
Contact Type:	Not reported
Contact Name:	ERIN MULLER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 387-0980
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/23/2009

Site Id:	16579
Affiliation Type:	Owner
Company Name:	ERIN MULLER
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	381 CANAL PLACE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Country Code:	001
Phone:	(718) 387-0980
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/23/2009

Site Id:	16579
Affiliation Type:	Emergency Contact
Company Name:	ERIN MULLER
Contact Type:	Not reported
Contact Name:	ERIN MULLER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 387-0980
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	12/23/2009

Equipment Records:

F01 - Pipe External Protection - Painted/Asphalt Coating
H00 - Tank Leak Detection - None
B01 - Tank External Protection - Painted/Asphalt Coating
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
A01 - Tank Internal Protection - Epoxy Liner
D01 - Pipe Type - Steel/Carbon Steel/Iron
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
C02 - Pipe Location - Underground/On-ground
G00 - Tank Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
A01 - Tank Internal Protection - Epoxy Liner
C02 - Pipe Location - Underground/On-ground
C02 - Pipe Location - Underground/On-ground
D01 - Pipe Type - Steel/Carbon Steel/Iron
J02 - Dispenser - Suction
F00 - Pipe External Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
H00 - Tank Leak Detection - None
F01 - Pipe External Protection - Painted/Asphalt Coating
H00 - Tank Leak Detection - None
A00 - Tank Internal Protection - None
I04 - Overfill - Product Level Gauge (A/G)
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
G00 - Tank Secondary Containment - None
B00 - Tank External Protection - None

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Tank Info:

Site ID:	16579
Tank Number:	001
Tank ID:	31835
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	5000
Tightness Test Method:	01
Next Test Date:	Not reported
Date Tank Closed:	10/18/2003
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/1/1993
Register:	True
Modified By:	NRLOMBAR
Last Modified:	12/23/2009
Site ID:	16579
Tank Number:	002
Tank ID:	31836
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	2000
Tightness Test Method:	01
Next Test Date:	Not reported
Date Tank Closed:	10/18/2003
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/1/1993
Register:	True
Modified By:	NRLOMBAR
Last Modified:	12/23/2009
Site ID:	16579
Tank Number:	003
Tank ID:	31837
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	2000
Tightness Test Method:	01
Next Test Date:	Not reported
Date Tank Closed:	9/17/2003
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	11/1/1993
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

HIST UST:

PBS Number:	2-342017
SPDES Number:	Not reported
Emergency Contact:	STAN KWASNICKI
Emergency Telephone:	(718) 198-3266
Operator:	PREMIER METAL PRODUCTS
Operator Telephone:	(212) 993-9200
Owner Name:	PREM. METAL PROD. CO,PPA IND.
Owner Address:	381 CANAL PLACE
Owner City,St,Zip:	BRONX, NY 10451
Owner Telephone:	(212) 993-9200
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	PREM. METAL PROD. CO,PPA IND.
Mailing Address:	381 CANAL PLACE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Contact:	Not reported
Mailing Telephone:	(212) 993-9200
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	381 CANAL PLACE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	MANUFACTURING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	11/29/1993
Expiration Date:	11/16/1997
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	9000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	5000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Epoxy Liner
Tank External:	Painted/Asphalt Coating

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	11/01/1993
Next Test Date:	11/01/1998
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Petro-Tite
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Epoxy Liner
Tank External:	Painted/Asphalt Coating
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	Painted/Asphalt Coating
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	11/01/1993
Next Test Date:	11/01/1998
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Petro-Tite
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	Not reported
Capacity (gals):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Epoxy Liner
Tank External:	Painted/Asphalt Coating
Pipe Location:	Aboveground/Underground Combination
Pipe Type:	STEEL/IRON
Pipe Internal:	None

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Pipe External:	Painted/Asphalt Coating
Second Containment:	None
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	11/01/1993
Next Test Date:	11/01/1998
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Petro-Tite
Deleted:	False
Updated:	True
Lat/long:	Not reported

NY MANIFEST:

EPA ID:	NYD001630383
Country:	USA
Mailing Name:	PREMIER METAL PRODUCTS CO DIV
Mailing Contact:	FRANK CERRANO
Mailing Address:	381 CANALL PLACE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-993-9200

Document ID:	PAB3332954
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PA-AH3002
Trans2 State ID:	Not reported
Generator Ship Date:	870109
Trans1 Recv Date:	870109
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870109
Part A Recv Date:	870304
Part B Recv Date:	870121
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00608
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	014
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Year: 87

Document ID: ARA1255361
Manifest Status: Not reported
Trans1 State ID: NJD986607380
Trans2 State ID: Not reported
Generator Ship Date: 08/14/2001
Trans1 Recv Date: 08/14/2001
Trans2 Recv Date: Not reported
TSD Site Recv Date: 08/17/2001
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD001630383
Trans1 EPA ID: ARD981057870
Trans2 EPA ID: Not reported
TSDF ID: H778
Waste Code: F001 - UNKNOWN
Quantity: 00220
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 004
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Waste Code: F003 - UNKNOWN
Quantity: 00385
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 007
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 01.00
Waste Code: D002 - NON-LISTED CORROSIVE WASTES
Quantity: 00030
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 2001

Document ID: ARA1027529
Manifest Status: Not reported
Trans1 State ID: NYD980769947
Trans2 State ID: Not reported
Generator Ship Date: 03/17/1999
Trans1 Recv Date: 03/17/1999
Trans2 Recv Date: Not reported
TSD Site Recv Date: 03/19/1999
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD001630383
Trans1 EPA ID: ARD981057870
Trans2 EPA ID: Not reported
TSDF ID: 245
Waste Code: F003 - UNKNOWN
Quantity: 00825

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	015
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F001 - UNKNOWN
Quantity:	00495
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	99

Document ID:	NJO0171654
Manifest Status:	Completed copy
Trans1 State ID:	9437AC
Trans2 State ID:	Not reported
Generator Ship Date:	840615
Trans1 Recv Date:	840615
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	840615
Part A Recv Date:	840626
Part B Recv Date:	840626
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	NYD013600259
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00330
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	84

Document ID:	NJO0171677
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	9437AC
Trans2 State ID:	Not reported
Generator Ship Date:	840808
Trans1 Recv Date:	840808
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	840810
Part A Recv Date:	840907
Part B Recv Date:	841003
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	NYD013600259
Trans2 EPA ID:	Not reported
TSDF ID:	NJD096865837
Waste Code:	F001 - UNKNOWN
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	003

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	84

Document ID:	PAB0558460
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PA-AH
Trans2 State ID:	PA-AH
Generator Ship Date:	841219
Trans1 Recv Date:	841220
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	841220
Part A Recv Date:	850308
Part B Recv Date:	850220
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	PAD098732118
Trans2 EPA ID:	Not reported
TSDF ID:	PAD098732118
Waste Code:	F001 - UNKNOWN
Quantity:	00165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	030
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	84

Document ID:	NJA0056828
Manifest Status:	Completed copy
Trans1 State ID:	NJSWAS-30
Trans2 State ID:	Not reported
Generator Ship Date:	850418
Trans1 Recv Date:	850418
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	850418
Part A Recv Date:	850425
Part B Recv Date:	850430
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	F001 - UNKNOWN
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00440
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	008
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Specific Gravity:	100
Year:	85

Document ID:	NJA0157989
Manifest Status:	Completed copy
Trans1 State ID:	NJSWAS300
Trans2 State ID:	Not reported
Generator Ship Date:	860325
Trans1 Recv Date:	860325
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	860325
Part A Recv Date:	860328
Part B Recv Date:	860328
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	NJD991291105
Trans2 EPA ID:	Not reported
TSDF ID:	NJD991291105
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00085
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00385
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	007
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	86

Document ID:	ARA1148845
Manifest Status:	Not reported
Trans1 State ID:	MOD095038998
Trans2 State ID:	Not reported
Generator Ship Date:	08/17/2000
Trans1 Recv Date:	08/17/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/21/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	ARD981057870
Trans2 EPA ID:	Not reported
TSDF ID:	H11
Waste Code:	F003 - UNKNOWN
Quantity:	00110
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	002
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F001 - UNKNOWN

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2000

Document ID:	ARA1148787
Manifest Status:	Not reported
Trans1 State ID:	NJD986607380
Trans2 State ID:	Not reported
Generator Ship Date:	08/15/2000
Trans1 Recv Date:	08/15/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/16/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	ARD981057870
Trans2 EPA ID:	Not reported
TSDF ID:	JA334H778
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	34962
Units:	P - Pounds
Number of Containers:	023
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Waste Code:	F003 - UNKNOWN
Quantity:	00220
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	004
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	01.00
Year:	2000

Document ID:	ARA6601770
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PC0711H01
Trans2 State ID:	Not reported
Generator Ship Date:	931116
Trans1 Recv Date:	931116
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	931120
Part A Recv Date:	Not reported
Part B Recv Date:	931215
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	MOD095038998
Trans2 EPA ID:	Not reported
TSDF ID:	ARD981057870
Waste Code:	F003 - UNKNOWN
Quantity:	04000
Units:	P - Pounds

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	100
Year:	93

Document ID:	ARA6840890
Manifest Status:	Completed copy
Trans1 State ID:	PC0711H01
Trans2 State ID:	Not reported
Generator Ship Date:	940617
Trans1 Recv Date:	940617
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940620
Part A Recv Date:	Not reported
Part B Recv Date:	940711
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	MOD095038998
Trans2 EPA ID:	Not reported
TSDF ID:	ARD981057870
Waste Code:	F003 - UNKNOWN
Quantity:	04400
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	04000
Units:	P - Pounds
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	05600
Units:	P - Pounds
Number of Containers:	014
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94

Document ID:	ARA8703100
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	PC1469H77
Trans2 State ID:	Not reported
Generator Ship Date:	970708

PREMIER METAL PRODUCTS CO DIV (Continued) **1000299569**

Trans1 Recv Date:	970708
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	970711
Part A Recv Date:	Not reported
Part B Recv Date:	970806
Generator EPA ID:	NYD001630383
Trans1 EPA ID:	NJD986607380
Trans2 EPA ID:	Not reported
TSDF ID:	ARD981057870
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00550
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	010
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00055
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

T145 **PREMIER METALS** **LTANKS** **S103941473**
ENE **381 CANAL PLACE** **HIST LTANKS** **N/A**
1/8-1/4 **BRONX, NY**
0.211 mi.
1114 ft. **Site 5 of 7 in cluster T**

LTANKS:

Site ID:	145738
Spill No:	9903367
Spill Date:	6/23/1999
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	Not reported
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	BKFALVEY
Referred To:	Not reported
Reported to Dept:	6/23/1999
CID:	207
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported

PREMIER METALS (Continued) **S103941473**

Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	1
Date Entered In Computer:	6/23/1999
Spill Record Last Update:	4/23/2010
Spiller Name:	GINA CONSTANTINI
Spiller Company:	PREMIER METALS
Spiller Address:	381 CANAL PLACE
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	GINA CONSTANTINI
Spiller Phone:	(516) 249-3150
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	16558
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SAWYER" 9/08/03 1541 Hrs Sawyer forwarded pbs report to Sigona for inspection. The pbs registation is overdue. 9/17/03 Rossan performed PBS inspection and found them removing tank for closure which opened another spill because of the contamination. 9/23/03 - Sawyer - Sent contaminated soil letter to 381 Canal Place Management. 2/11/04 1030 Hrs - Sawyer - Sent contaminated soil letter to Pride Funiture, Attention: Joseph Muller. 6/24/05 - Spill Lead_DEC Field changed to "Grathwol". After repeated efforts by M. Haggerty to contact owner (received no cooperation) and 30-day Department letter requesting information was ignored, J. Grathwol visited the site on 2/16/06. Talked with employees of Pride Furniture. They stated they had no knowledge of the spill. Asked me to call back and discuss with owner. Called several times with no success, Pride Furniture staff stated the owner would call me directly, but it did not happen. Pride Furniture is heated by "salamanders", torpedo-shaped heaters - no oil heat. Spill #8709462 is 3 tank failures with gross leaks and was closed because of the multiple spills at the same address. Pride Furniture phone number: 718-585-1400. Recommend this project as potential PIN project. {Grathwol} 9/11/06 assigned to bf 9/11/06 sent ttf old spill letter. bf Undated notes from telephone conference with Schretzmayer in the hard file, entered here 4/22/10: J. Urda case 4/30/09 report - no delineation done yet, wants site visit Phase II investigation Sept. '03 not in file (e-docs). Proposal is to delineate soil and groundwater determination. Will plan be approved by DEC? J. Schretzmayer wants site visit for boring locations. Last page - will send investigation report. ---------- 9/23/03 cont. soil letter sent ttf 001 & 002 closed removed 10/18/03 (not processed) 003 closed in placed 9/17/03 send cont soil letter? ++++++++++++++++++++++ NOTE: Report referred to above is not in the file. bf
Remarks:	tank contained #2 oil - gross fail

Material:

Site ID:	Not reported
Operable Unit ID:	Not reported
Operable Unit:	Not reported
Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported

PREMIER METALS (Continued) **S103941473**

Quantity: Not reported
Units: Not reported
Recovered: Not reported
Resource Affected: Not reported
Oxygenate: Not reported

Tank Test:
Site ID: 145738
Spill Tank Test: 1547299
Tank Number: Not reported
Tank Size: 2000
Test Method: 20
Leak Rate: 0
Gross Fail: Not reported
Modified By: Spills
Last Modified: 10/1/2004
Test Method: USTest 2000/P/LL plus USTest 2000/U

HIST LTANKS:
Region of Spill: 2
Spill Number: 9903367
Spill Date: 06/23/1999
Spill Time: 18:30
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 06/23/99
Reported to Department Time: 19:30
SWIS: 60
Spiller Contact: GINA CONSTANTINI
Spiller Phone: (516) 249-3150
Spiller Extention: Not reported
Spiller Name: PREMIER METALS
Spiller Address: 381 CANAL PLACE
Spiller City,St,Zip: BRONX, NY
Spiller Cleanup Date: / /
Facility Contact: GINA CONSTANTINI
Facility Phone: (516) 249-3150
Facility Extention: Not reported
Spill Notifier: Tank Tester

PREMIER METALS (Continued) **S103941473**

PBS Number: 2-342017
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 06/23/99
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 06/24/99
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 2000
Test Method: USTest 2000
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Not reported
Quantity Spilled: Not reported
Unkonwn Quantity Spilled: Not reported
Units: Not reported
Quantity Recovered: Not reported
Unkonwn Quantity Recovered: Not reported
Material: Not reported
Class Type: Not reported
Times Material Entry In File: Not reported
CAS Number: Not reported
Last Date: Not reported
DEC Remarks: Not reported
Spill Cause: tank contained 2 oil - gross fail

Q146 **101-165 W 146TH ST/BX** **LTANKS** **S100167695**
North **1010165 WEST 146TH STREET** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
0.211 mi.
1115 ft. **Site 4 of 4 in cluster Q**

LTANKS:
Site ID: 245732
Spill No: 8902952
Spill Date: 6/19/1989
Spill Cause: Tank Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/27/2000
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: MCTIBBE
Referred To: Not reported
Reported to Dept: 6/21/1989

101-165 W 146TH ST/BX (Continued) **S100167695**

CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	6/23/1989
Spill Record Last Update:	12/27/2000
Spiller Name:	Not reported
Spiller Company:	NYC TRANSIT AUTHORITY
Spiller Address:	101-165 WEST 146TH STREET
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	201789
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIBBE" 11/15/94: REASSIGNED FROM SIGONA TO ZHITOMIRSKY ON 11/15/94. transfered from Hale to Tibbe on 12/27/00. refer to 89-02374. remediation ongoing.
Remarks:	(2) 5K TANKS IN SYSTEM, TRIED HORNER EZY CHECK BUT STOPPED TEST WHEN VISIBLE LEAK WAS NOTICED ON TANK TOP OF ONE TANK.

Material:

Site ID:	245732
Operable Unit ID:	930362
Operable Unit:	01
Material ID:	450624
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2

101-165 W 146TH ST/BX (Continued) **S100167695**

Spill Number:	8902952
Spill Date:	06/19/1989
Spill Time:	12:00
Spill Cause:	Tank Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/27/00
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	06/21/89
Reported to Department Time:	14:59
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	NYC TRANSIT AUTHORITY
Spiller Address:	101-165 WEST 146TH STREET
Spiller City,St,Zip:	BRONX, NY
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	06/23/89
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/27/00
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

101-165 W 146TH ST/BX (Continued) **S100167695**

Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Pounds
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	DIESEL
Class Type:	DIESEL
Times Material Entry In File:	10625
CAS Number:	Not reported
Last Date:	19940728
DEC Remarks:	11/15/94: REASSIGNED FROM SIGONA TO ZHITOMIRSKY ON 11/15/94. transfered from Hale to Tibbe on 12/27/00. refer to 89-02374. remediation ongoing.
Spill Cause:	2) 5K TANKS IN SYSTEM, TRIED HORNER EZY CHECK BUT STOPPED TEST WHEN VISIBLE LEAK WAS NOTICED ON TANK TOP OF ONE TANK.

T147 **1908-12 PROSPECT HOLDING CORP.** **AST** **A100291673**
East **320 EAST 141ST STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.217 mi.
1148 ft. **Site 6 of 7 in cluster T**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-608933
Program Type:	PBS
UTM X:	590735.84112
UTM Y:	4518457.2911400003
Expiration Date:	2013/04/30

Affiliation Records:

Site Id:	30781
Affiliation Type:	Emergency Contact
Company Name:	1908-12 PROSPECT HOLDING CORP.
Contact Type:	Not reported
Contact Name:	ALEX GARCIA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 839-4996
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	5/2/2008

Site Id:	30781
Affiliation Type:	Owner
Company Name:	1908-12 PROSPECT HOLDING CORP.
Contact Type:	OFFICER
Contact Name:	ALEX GARCIA
Address1:	1422 SAINT PETERS AVE.
Address2:	Not reported

1908-12 PROSPECT HOLDING CORP. (Continued) **A100291673**

City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 931-4790
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	5/2/2008

Site Id:	30781
Affiliation Type:	Mail Contact
Company Name:	1908-12 PROPSECT HOLDING CORP.
Contact Type:	Not reported
Contact Name:	ALEX GARCIA
Address1:	1422 ST PETERS AVENUE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10461
Country Code:	001
Phone:	(718) 931-4790
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	5/2/2008

Site Id:	30781
Affiliation Type:	On-Site Operator
Company Name:	1908-12 PROSPECT HOLDING CORP.
Contact Type:	Not reported
Contact Name:	ALEX GARCIA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(718) 839-4996
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	5/2/2008

Equipment Records:

I05 - Overfill - Vent Whistle
H00 - Tank Leak Detection - None
C01 - Pipe Location - Aboveground
G03 - Tank Secondary Containment - Vault (w/o access)
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
L09 - Piping Leak Detection - Exempt Suction Piping
A00 - Tank Internal Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating

1908-12 PROSPECT HOLDING CORP. (Continued) **A100291673**

F01 - Pipe External Protection - Painted/Asphalt Coating

Tank Info:

Tank Number:	ONE
Tank Id:	65983
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/1999
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	5/2/2008

W148 **DENCO DISTRIBUTORS INC.** **AST** **U003396155**
ENE **388 CANAL PLACE** **HIST AST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.221 mi.
1167 ft. **Site 1 of 2 in cluster W**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-601383
Program Type:	PBS
UTM X:	590589.26462999999
UTM Y:	4518837.1267100004
Expiration Date:	2013/03/24

Affiliation Records:

Site Id:	23350
Affiliation Type:	Mail Contact
Company Name:	DENCO DISTRIBUTORS INC.
Contact Type:	PRESIDENT
Contact Name:	ROBERT DENISON
Address1:	388 CANAL PLACE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-6600
Phone Ext:	Not reported
Email:	RDENISON@PIPELINE.COM
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2/22/2008

Site Id:	23350
Affiliation Type:	Owner
Company Name:	DENCO DISTRIBUTORS INC.

DENCO DISTRIBUTORS INC. (Continued) **U003396155**

Contact Type:	PRESIDENT
Contact Name:	ROBERT DENISON
Address1:	388 CANAL PLACE
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 665-6600
Phone Ext:	Not reported
Email:	RDENISON@PIPELINE.COM
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	2/22/2008

Site Id:	23350
Affiliation Type:	On-Site Operator
Company Name:	DENCO DISTRIBUTORS INC.
Contact Type:	Not reported
Contact Name:	ROBERT DENISON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 665-6600
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	23350
Affiliation Type:	Emergency Contact
Company Name:	DENCO DISTRIBUTORS INC.
Contact Type:	Not reported
Contact Name:	ROBERT DENISON
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 665-6600
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

H06 - Tank Leak Detection - Impervious Barrier/Concrete Pad (A/G)
G03 - Tank Secondary Containment - Vault (w/o access)
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
I05 - Overfill - Vent Whistle

DENCO DISTRIBUTORS INC. (Continued) **U003396155**

F00 - Pipe External Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
C01 - Pipe Location - Aboveground

Tank Info:

Tank Number:	001
Tank Id:	45863
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1992
Capacity Gallons:	2000
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST AST:

PBS Number:	2-601383
SWIS Code:	6001
Operator:	ROBERT DENISON
Facility Phone:	(718) 665-6600
Facility Addr2:	388 CANAL PLACE
Facility Type:	OTHER
Emergency:	ROBERT DENISON
Emergency Tel:	(718) 288-5593
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	DENCO DISTRIBUTORS INC.
Owner Address:	388 CANAL PLACE
Owner City,St,Zip:	BRONX, NY 10451
Federal ID:	Not reported
Owner Tel:	(718) 665-6600
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	ROBERT DENISON
Mailing Name:	DENCO DISTRIBUTORS INC.
Mailing Address:	388 CANAL PLACE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Telephone:	(718) 665-6600
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Certification Flag:	False
Certification Date:	01/16/1998
Expiration:	03/24/2003
Renew Flag:	False

DENCO DISTRIBUTORS INC. (Continued) **U003396155**

Renew Date:	Not reported
Total Capacity:	2000
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2
Tank ID:	001
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	19921201
Capacity (Gal):	2000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	Aboveground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	00
Tank Containment:	Diking
Leak Detection:	5
Overfill Protection:	6
Dispenser Method:	Gravity
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

U149 **A.C. AUTO WRECKING CO. INC** **AST** **S107784291**
North **475 GERARD AVE** **HIST AST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.227 mi.
1199 ft. **Site 4 of 4 in cluster U**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Unregulated
Facility Id:	2-605476
Program Type:	PBS
UTM X:	590276.37607
UTM Y:	4519100.6955800001
Expiration Date:	N/A

Affiliation Records:

Site Id:	27344

A.C. AUTO WRECKING CO. INC (Continued) **S107784291**

Affiliation Type:	On-Site Operator
Company Name:	A.C. AUTO WRECKING CO. INC
Contact Type:	Not reported
Contact Name:	HOWARD SHOMSKY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 292-3274
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	27344
Affiliation Type:	Owner
Company Name:	HOWARD SHOMSKY
Contact Type:	MANAGER
Contact Name:	HENRY KESSLER
Address1:	11 DEB ST
Address2:	Not reported
City:	PLAINVIEW
State:	NY
Zip Code:	11803
Country Code:	001
Phone:	(516) 433-7645
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	1/4/2006

Site Id:	27344
Affiliation Type:	Mail Contact
Company Name:	A.C. AUTO WRECKING CO INC
Contact Type:	Not reported
Contact Name:	HENRY KESSLER
Address1:	54 LARCH HILL ROAD
Address2:	Not reported
City:	LAWRENCE
State:	NY
Zip Code:	11559
Country Code:	001
Phone:	(516) 239-8683
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	1/4/2006

Site Id:	27344
Affiliation Type:	Emergency Contact
Company Name:	HOWARD SHOMSKY
Contact Type:	Not reported

A.C. AUTO WRECKING CO. INC (Continued) **S107784291**

Contact Name:	HOWARD SHOMSKY
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(516) 433-7645
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

K01 - Spill Prevention - Catch Basin
I00 - Overfill - None
L09 - Piping Leak Detection - Exempt Suction Piping
C00 - Pipe Location - No Piping
H00 - Tank Leak Detection - None
G01 - Tank Secondary Containment - Diking (Aboveground)
G01 - Tank Secondary Containment - Diking (Aboveground)
H00 - Tank Leak Detection - None
I00 - Overfill - None
K01 - Spill Prevention - Catch Basin
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
C00 - Pipe Location - No Piping
J02 - Dispenser - Suction
F00 - Pipe External Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
D00 - Pipe Type - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
D00 - Pipe Type - No Piping

Tank Info:

Tank Number:	1
Tank Id:	59933
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/2001
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	1/1/2002
Register:	True
Modified By:	NRLOMBAR
Last Modified:	1/4/2006

A.C. AUTO WRECKING CO. INC (Continued) **S107784291**

Tank Number:	2
Tank Id:	59934
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	1/1/2001
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	1/1/2002
Register:	True
Modified By:	NRLOMBAR
Last Modified:	1/4/2006

HIST AST:

PBS Number:	2-605476
SWIS Code:	6001
Operator:	HOWARD SHOMSKY
Facility Phone:	(718) 292-3274
Facility Addr2:	475 GERARD AVE
Facility Type:	OTHER
Emergency:	HOWARD SHOMSKY
Emergency Tel:	(516) 433-7645
Old PBSNO:	Not reported
Date Inspected:	Not reported
Inspector:	Not reported
Result of Inspection:	Not reported
Owner Name:	HOWARD SHOMSKY
Owner Address:	11 DEB ST
Owner City,St,Zip:	PLAINVIEW, NY 11803
Federal ID:	Not reported
Owner Tel:	(516) 433-7645
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Contact:	HOWARD SHOMSKY
Mailing Name:	A.C. AUTO WRECKING CO INC
Mailing Address:	475 GERARD AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	BRONX, NY 10451
Mailing Telephone:	(718) 292-3274
Owner Mark:	First Owner
Facility Status:	4 - Subpart 360-14 only (active)
Certification Flag:	False
Certification Date:	04/02/2001
Expiration:	03/26/2006
Renew Flag:	False
Renew Date:	Not reported
Total Capacity:	500
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	No Missing Data
Dead Letter:	False
CBS Number:	Not reported

A.C. AUTO WRECKING CO. INC (Continued) **S107784291**

Town or City:	NEW YORK CITY
County Code:	60
Town or City Code:	01
Region:	2

Tank ID:	1
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	20010101
Capacity (Gal):	250
Product Stored:	USED OIL (FUEL)
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	00
Pipe Location:	None
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	00
Tank Containment:	8
Leak Detection:	0
Overfill Protection:	5
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
SPDES Number:	Not reported
Lat/Long:	Not reported

Tank ID:	2
Tank Location:	ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Tank Status:	In Service
Install Date:	20010101
Capacity (Gal):	250
Product Stored:	USED OIL (FUEL)
Tank Type:	Steel/carbon steel
Tank Internal:	0
Tank External:	0
Pipe Location:	None
Pipe Type:	NONE
Pipe Internal:	None
Pipe External:	0
Tank Containment:	8
Leak Detection:	0
Overfill Protection:	5
Dispenser Method:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True

A.C. AUTO WRECKING CO. INC (Continued) **S107784291**

SPDES Number: Not reported
Lat/Long: Not reported

T150 **POWER CHEM. CO. INC.** **CBS AST** **1001171443**
East **375 RIDER AVE.** **CBS** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.233 mi.
1228 ft. **Site 7 of 7 in cluster T**

CBS AST:
CBS Number: 2-000026
Region: STATE
ICS Number: 2-126288
PBS Number: Not reported
MOSF Number: Not reported
Telephone: (212) 292-4320
Facility Town: NEW YORK CITY
Operator: H. SCHWARTZ
Emrgncy Contact: H. SCHWARTZ
Emrgncy Phone: (516) 764-6869
Expiration Date: 03/24/1999
Owner Name: POWER CHEM. CO. INC.
Owner Address: 375 RIDER AVE.
Owner City,St,Zip: BRONX, NY 10451
Owner Telephone: (212) 292-4320
Owner type: Corporate/Commercial
Facility Type: STORAGE TERMINAL/PETROLEUM DISTRIBUTOR
Mail Name: POWER CHEM. CO. INC.
Mail Contact Addr: 375 RIDER AVE.
Mail Contact Addr2: Not reported
Mail Contact Contact: H. SCHWARTZ
Mail Contact City,St,Zip: BRONX, NY 10451
Mail Phone: (212) 292-4320
SPDES Number: Not reported
Facility Status: ACTIVE FACILITY
Owner Sub Type: Not reported

Tank Id: Yes
Date Entered: 03/24/1989
Capacity (Gal): 1500
Chemical: Tetrachloroethylene
Tank Closed: 00/00
Tank Status: 0
Tank Type: Steel/carbon steel
Install Date: 09/84
Certified Date: 12/17/1996
CAS Number: 127184
Substance: Single Hazardous Substance on DEC List
Tank Location: ABOVEGROUND ON SADDLES LEGS, STILTS, RACK, OR CRADLE
Intrnl Protection: None
Extrnl Protection: None
Pipe Location: Aboveground
Pipe Type: STEEL/IRON
Pipe Internal: None
Pipe External: 0
Pipe Containment: None
Tank Containment: Diking
Leak Detection: Other

POWER CHEM. CO. INC. (Continued) **1001171443**

Overfill Protection:	Automatic Shut-Off
Haz Percent:	100
Total Tanks:	0
Tank Secret:	False
Last Test:	Not reported
Due Date:	Not reported
Tank Error Status:	No Missing Data
SWIS Code:	6001
Lat/Long:	Not reported
Pipe Flag:	False
Federal ID:	Not reported
Is Updated:	F
Renew Date:	04/19/93
Is it There:	F
Deliquent:	F
Date Expired:	03/24/95
Owner Mark:	1
Certificate Needs to be Printed:	False
Fiscal Amt for Registration Fee Correct:	True
Renewal Has Been Printed for Facility:	True
Pre-Printed Renewal App Last Printed:	12/04/1996
Total Capacity of All Active Tanks(gal):	0

CBS:

CBS Number:	2-000026
Program Type:	CBS
Dec Region:	2
Expiration Date:	N/A
Facility Status:	Unregulated
UTMX:	590599.83583
UTMY:	4518760.7406299

X151 **471 WALTON AV/WIRELESS** **LTANKS** **S100145072**
NNE **471 WALTON AVE** **HIST LTANKS** **N/A**
1/8-1/4 **NEW YORK CITY, NY**
0.234 mi.
1233 ft. **Site 1 of 4 in cluster X**

LTANKS:

Site ID:	327563
Spill No:	8800476
Spill Date:	3/31/1988
Spill Cause:	Tank Test Failure
Spill Source:	Commercial/Industrial
Spill Class:	a3
Spill Closed Dt:	3/4/2003
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	ADMIN. CLOSED
Referred To:	Not reported
Reported to Dept:	4/14/1988
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported

471 WALTON AV/WIRELESS (Continued) **S100145072**

Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	4/21/1988
Spill Record Last Update:	3/4/2003
Spiller Name:	Not reported
Spiller Company:	WIRELESS CABLE NY
Spiller Address:	471 WALTON AVE
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	263690
DEC Memo:	Not reported
Remarks:	3K TANK (OR POSSIBLY 1K TANK) FAILED WITH A LEAK RATE OF -0.5GPH, WILLPUMP OUT TANK, FURTHER ACTION UNKNOWN. CONTACT: CHARLES RAY (212)-665-0426. CLOSED DUE TO LACK OF ANY RECENT INFO - DOES NOT MEET ANY CLEANUP REQUIREMENTS.

Material:

Site ID:	327563
Operable Unit ID:	916101
Operable Unit:	01
Material ID:	459659
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	327563
Spill Tank Test:	1533658
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

HIST LTANKS:

Region of Spill:	2
Spill Number:	8800476
Spill Date:	03/31/1988
Spill Time:	14:00
Spill Cause:	Tank Test Failure
Resource Affectd:	Groundwater

471 WALTON AV/WIRELESS (Continued) **S100145072**

Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	a3
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	SULLIVAN
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	04/14/88
Reported to Department Time:	15:06
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	WIRELESS CABLE NY
Spiller Address:	471 WALTON AVE
Spiller City,St,Zip:	BRONX, NY
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	(212) 665-0426
Facility Extention:	Not reported
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/21/88
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/13/92
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False

471 WALTON AV/WIRELESS (Continued) **S100145072**

Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: 04/14/88: 1K TANK PASSED TEST WITH A LEAK RATE OF +.0210GPH, MEASURED MATERIALIN TANK WHEN PUMPED OUT TO DETERMINE SIZE OF TANK.
Spill Cause: 3K TANK OR POSSIBLY 1K TANK) FAILED WITH A LEAK RATE OF -0.5GPH, WILLPUMP OUT TANK, FURTHER ACTION UNKNOWN. CONTACT: CHARLES RAY 212)-665-0426.

Y152 **BRONX COUNTY RECYCLING LLC** **UST** **U004077857**
North **475 EXTERIOR STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.234 mi.
1235 ft. **Site 1 of 5 in cluster Y**

UST:
Facility Id: 2-479977
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 2013/07/30
UTM X: 590192.97297
UTM Y: 4519056.1565199997

Affiliation Records:
Site Id: 21398
Affiliation Type: Mail Contact
Company Name: BRONX COUNTY RECYCLING LLC
Contact Type: Not reported
Contact Name: JOHN HECKEMEYER
Address1: 475 EXTERIOR STREET
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (718) 742-0755
Phone Ext: Not reported
Email: BRONXCOUNTYRECYCLING@VERIZON.NET
Fax Number: Not reported
Modified By: dxliving
Date Last Modified: 4/28/2008

Site Id: 21398
Affiliation Type: On-Site Operator
Company Name: BRONX COUNTY RECYCLING LLC
Contact Type: Not reported
Contact Name: SALVATORE CASCINO
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (718) 742-0755
Phone Ext: Not reported

BRONX COUNTY RECYCLING LLC (Continued) **U004077857**

Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Site Id:	21398
Affiliation Type:	Owner
Company Name:	RIVEREDGE REALTY CORP.
Contact Type:	MEMBER
Contact Name:	SALVATORE CASCINO
Address1:	801 BARTHOLDI STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10467
Country Code:	001
Phone:	(718) 231-4274
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Site Id:	21398
Affiliation Type:	Emergency Contact
Company Name:	RIVEREDGE REALTY CORP.
Contact Type:	Not reported
Contact Name:	JOHN HECKEMEYER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 737-3299
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Equipment Records:

B00 - Tank External Protection - None
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
I01 - Overfill - Float Vent Valve
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D00 - Pipe Type - No Piping
C00 - Pipe Location - No Piping

BRONX COUNTY RECYCLING LLC (Continued) **U004077857**

B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
D00 - Pipe Type - No Piping
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
G03 - Tank Secondary Containment - Vault (w/o access)
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J00 - Dispenser - None
J00 - Dispenser - None
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
I01 - Overfill - Float Vent Valve
H00 - Tank Leak Detection - None
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
I01 - Overfill - Float Vent Valve
H03 - Tank Leak Detection - Vapor Well
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Site ID:	21398
Tank Number:	001
Tank ID:	38799
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	12/1/1989
Capacity Gallons:	4000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	3/21/1997
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

Y153 **BRONX COUNTY RECYCLING LLC** **AST** **A100293366**
North **475 EXTERIOR STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.234 mi.
1235 ft. **Site 2 of 5 in cluster Y**

AST:

Region:	STATE
DEC Region:	2
Site Status:	Active
Facility Id:	2-479977
Program Type:	PBS
UTM X:	590192.97297
UTM Y:	4519056.1565199997
Expiration Date:	2013/07/30

Affiliation Records:

Site Id:	21398
Affiliation Type:	Mail Contact
Company Name:	BRONX COUNTY RECYCLING LLC
Contact Type:	Not reported
Contact Name:	JOHN HECKEMEYER
Address1:	475 EXTERIOR STREET
Address2:	Not reported
City:	BRONX
State:	NY
Zip Code:	10451
Country Code:	001
Phone:	(718) 742-0755
Phone Ext:	Not reported
Email:	BRONXCOUNTYRECYCLING@VERIZON.NET
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Site Id:	21398
Affiliation Type:	On-Site Operator
Company Name:	BRONX COUNTY RECYCLING LLC
Contact Type:	Not reported
Contact Name:	SALVATORE CASCINO
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(718) 742-0755
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Site Id:	21398
Affiliation Type:	Owner
Company Name:	RIVEREDGE REALTY CORP.
Contact Type:	MEMBER
Contact Name:	SALVATORE CASCINO
Address1:	801 BARTHOLDI STREET
Address2:	Not reported

BRONX COUNTY RECYCLING LLC (Continued) **A100293366**

City:	BRONX
State:	NY
Zip Code:	10467
Country Code:	001
Phone:	(718) 231-4274
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Site Id:	21398
Affiliation Type:	Emergency Contact
Company Name:	RIVEREDGE REALTY CORP.
Contact Type:	Not reported
Contact Name:	JOHN HECKEMEYER
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	999
Phone:	(914) 737-3299
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	dxliving
Date Last Modified:	4/28/2008

Equipment Records:

B00 - Tank External Protection - None
K00 - Spill Prevention - None
E00 - Piping Secondary Containment - None
I01 - Overfill - Float Vent Valve
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
B01 - Tank External Protection - Painted/Asphalt Coating
D00 - Pipe Type - No Piping
C00 - Pipe Location - No Piping
B01 - Tank External Protection - Painted/Asphalt Coating
C00 - Pipe Location - No Piping
D00 - Pipe Type - No Piping
I04 - Overfill - Product Level Gauge (A/G)
G00 - Tank Secondary Containment - None
J00 - Dispenser - None
D00 - Pipe Type - No Piping
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
G03 - Tank Secondary Containment - Vault (w/o access)
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None

BRONX COUNTY RECYCLING LLC (Continued) **A100293366**

J00 - Dispenser - None
J00 - Dispenser - None
B01 - Tank External Protection - Painted/Asphalt Coating
G00 - Tank Secondary Containment - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
I01 - Overfill - Float Vent Valve
H00 - Tank Leak Detection - None
I01 - Overfill - Float Vent Valve
K00 - Spill Prevention - None
J00 - Dispenser - None
G00 - Tank Secondary Containment - None
D00 - Pipe Type - No Piping
I01 - Overfill - Float Vent Valve
H03 - Tank Leak Detection - Vapor Well
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
L00 - Piping Leak Detection - None
L00 - Piping Leak Detection - None

Tank Info:

Tank Number:	01
Tank Id:	66623
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	6/21/2003
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	4/28/2008

Tank Number:	02
Tank Id:	66624
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	6/21/2003
Capacity Gallons:	275
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported

BRONX COUNTY RECYCLING LLC (Continued) **A100293366**

Register:	True
Modified By:	dxliving
Last Modified:	4/28/2008

Tank Number:	03
Tank Id:	66625
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Administratively Closed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	6/21/2003
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	4/28/2008

Tank Number:	04
Tank Id:	66626
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Administratively Closed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	6/21/2003
Capacity Gallons:	250
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Register:	True
Modified By:	dxliving
Last Modified:	4/28/2008

Y154 **UNIVERSAL DEMOLITION & RCYCLNG** **HIST UST** **U000411220**
North **475 EXTERIOR ST** **N/A**
1/8-1/4 **BX, NY 10451**
0.234 mi.
1235 ft. **Site 3 of 5 in cluster Y**

HIST UST:

PBS Number:	2-479977
SPDES Number:	Not reported
Emergency Contact:	ALBERTO URBINA
Emergency Telephone:	(212) 402-2300
Operator:	JOSEPH IANNELLI
Operator Telephone:	(212) 402-2300
Owner Name:	IANNELLI, JOSEPH
Owner Address:	198 SEDGWICK AV
Owner City,St,Zip:	YONKERS, NY 10705
Owner Telephone:	(914) 423-2226
Owner Type:	Not reported

UNIVERSAL DEMOLITION & RCYCLNG (Continued) **U000411220**

Owner Subtype:	Not reported
Mailing Name:	IANNELLI, JOSEPH
Mailing Address:	198 SEDGWICK AV
Mailing Address 2:	Not reported
Mailing City,St,Zip:	YONKERS, NY 10705
Mailing Contact:	Not reported
Mailing Telephone:	(914) 423-2226
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	475 EXTERIOR ST
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	03/29/1990
Expiration Date:	03/12/1995
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	4000
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19891201
Capacity (gals):	4000
Product Stored:	DIESEL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	Vapor Well
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/01/1999
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported

UNIVERSAL DEMOLITION & RCYCLNG (Continued) **U000411220**

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

Y155 **COPAKE VALLEY FARM LLC** **RCRA-NonGen** **1000547811**
North **475 EXTERIOR ST** **FINDS** **NYD099511974**
1/8-1/4 **BRONX, NY 10451**
0.234 mi.
1235 ft. **Site 4 of 5 in cluster Y**

RCRA-NonGen:
Date form received by agency: 01/01/2007
Facility name: COPAKE VALLEY FARM LLC
Facility address: 475 EXTERIOR ST
BRONX, NY 10451
EPA ID: NYD099511974
Mailing address: EXTERIOR ST
BRONX, NY 10451
Contact: JAMES SOLANO
Contact address: EXTERIOR ST
BRONX, NY 10451
Contact country: US
Contact telephone: (718) 585-4353
Contact email: Not reported
EPA Region: 02
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:
Owner/operator name: RIVER EDGE REALTY CORP
Owner/operator address: 801 BARTHOLDI
BRONX, NY 10457
Owner/operator country: US
Owner/operator telephone: (718) 585-4353
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: RIVER EDGE REALTY CORP
Owner/operator address: 801 BARTHOLDI
BRONX, NY 10457
Owner/operator country: US
Owner/operator telephone: (718) 585-4353
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No

COPAKE VALLEY FARM LLC (Continued) **1000547811**

On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: COPAKE VALLEY FARM LLC
Classification: Not a generator, verified

Date form received by agency: 01/05/1999
Facility name: COPAKE VALLEY FARM LLC
Classification: Not a generator, verified

Violation Status: No violations found

FINDS:

Registry ID: 110001565020

Environmental Interest/Information System

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

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

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

Y156 **EQUINOX X 149 ST OF DEGAN** **SWF/LF** **1006533366**
North **475 EXTERIOR STREET** **NY Spills** **N/A**
1/8-1/4 **??????????????????, NY** **NY Hist Spills**
0.234 mi.
1235 ft. **Site 5 of 5 in cluster Y**

SWF/LF:

Flag:	INACTIVE
Region Code:	2
Phone Number:	7184012625
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	RICHARD TUORTO; SITE MANAGER
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	C&D processing - registered
Activity Number:	[03W66]
Active:	No
East Coordinate:	590112
North Coordinate:	4518642
Accuracy Code:	Not reported
Regulatory Status:	Permit
Waste Type:	Not reported
Authorization #:	None
Authorization Date:	Not reported
Expiration Date:	Not reported

Flag:	ACTIVE
Region Code:	2
Phone Number:	7184018594
Owner Name:	Bronx County Recycling
Owner Type:	Private
Owner Address:	475 Exterior Street
Owner Addr2:	Not reported
Owner City,St,Zip:	Bronx, NY
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	Slavatore Cascino
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	sakascimo@verizon.net
Contact Phone:	7187420755
Activity Desc:	C&D processing - registered
Activity Number:	[03W87]
Active:	Yes
East Coordinate:	590100
North Coordinate:	4519300
Accuracy Code:	2.1 - NYSDEC 100 m grid collection
Regulatory Status:	Not reported
Waste Type:	Not reported

EQUINOX X 149 ST OF DEGAN (Continued) **1006533366**

Authorization #: 2-6004-00001
Authorization Date: Not reported
Expiration Date: 5/16/2000

NY Spills:

Site ID:	245003
Facility Addr2:	Not reported
Facility ID:	9611101
Spill Number:	9611101
Facility Type:	ER
SWIS:	0301
Investigator:	O'DOWD
Referred To:	Not reported
Spill Date:	12/3/1996
Reported to Dept:	12/9/1996
CID:	351
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release that creates a file or hazard. (Highly Improbable)
Spill Closed Dt:	1/10/1997
Remediation Phase:	0
Date Entered In Computer:	12/9/1996
Spill Record Last Update:	11/10/2003
Spiller Name:	Not reported
Spiller Company:	SAME
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ -
Spiller Company:	001
Contact Name:	UNK
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	201252
DEC Memo:	Not reported
Remarks:	MATERIAL IS POSS LITHIUM BROMIDE - NON PUTRESSALE SOLID WASTE FACILITY - NYC DOS INSPECTOR MILURA OBSERVED AN UNKNOWN SUBSATNCE RUNNING FROM FACILITY INTO HARLEM RIVER - POSSIBLY LIHTIUM BROMIDE SPILL FAXED FROM REGION 2

Material:

Site ID:	245003
Operable Unit ID:	1042642
Operable Unit:	01
Material ID:	343308
Material Code:	0531A
Material Name:	LITHIUM
Case No.:	07439932
Material FA:	Other
Quantity:	0
Units:	Gallons
Recovered:	No

EQUINOX X 149 ST OF DEGAN (Continued) **1006533366**

Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

NY Hist Spills:
Region of Spill: 2
Spill Number: 9611101
Investigator: O'DOWD
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 12/03/1996 12:00
Reported to Dept Date/Time: 12/09/96 10:00
SWIS: 60
Spiller Name: SAME
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Contact: UNK
Spiller Address: Not reported
Spiller City,St,Zip: -
Spill Cause: Unknown
Reported to Dept: Surface Water
Water Affected: Not reported
Spill Source: 01
Spill Notifier: Local Agency
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release that creates a file or hazard. (Highly Improbable)
Spill Closed Dt: 01/10/97
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 12/09/96
Date Spill Entered In Computer Data File: Not reported
Update Date: 01/10/97

EQUINOX X 149 ST OF DEGAN (Continued) **1006533366**

Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Hazardous Material
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: LITHIUM
Class Type: LITHIUM
Times Material Entry In File: 2
CAS Number: 07439932
Last Date: 19950815
DEC Remarks: REFERRED TO NYCDEP. 1/10/97 DEC SOLID WASTE ISSUED VIOLATIONS AGAINST EQUINOX FOR ACCEPTING WASTE THEY WEREN T PERMITTED FOR, FACILITY WAS CLOSED, THEY WERE ALSO REQUIRED TO PROPERLY DISPOSE OF THE WASTE.
Remark: MATERIAL IS POSS LITHIUM BROMIDE - NON PUTRESSALE SOLID WASTE FACILITY - NYC DOS INSPECTOR MILURA OBSERVED AN UNKNOWN SUBSATNCE RUNNING FROM FACILITY INTO HARLEM RIVER - POSSIBLY LIHTIUM BROMIDE SPILL FAXED FROM REGION 2

Z157 **250 E 139 ST LLC** **AST** **A100353057**
SE **250-258 EAST 139TH STREET** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.237 mi.
1250 ft. **Site 1 of 3 in cluster Z**

AST:
Region: STATE
DEC Region: 2
Site Status: Unregulated
Facility Id: 2-611384
Program Type: PBS
UTM X: Not reported
UTM Y: Not reported
Expiration Date: N/A

Affiliation Records:
Site Id: 436546
Affiliation Type: Emergency Contact
Company Name: 250 E 139 ST LLC
Contact Type: Not reported
Contact Name: CHRIS BOYLE
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 772-7550
Phone Ext: Not reported

250 E 139 ST LLC (Continued) **A100353057**

Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	6/24/2010

Site Id:	436546
Affiliation Type:	Mail Contact
Company Name:	BRADFORD SWETT MANAGEMENT LLC
Contact Type:	Not reported
Contact Name:	CHRISTOPHER BOYLE
Address1:	1536 THIRD AVENUE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10028
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	BRADFORDSWETT@GMAIL.COM
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	6/24/2010

Site Id:	436546
Affiliation Type:	Owner
Company Name:	250 E 139 ST LLC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	1536 3RD AVE
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10028
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR
Date Last Modified:	6/24/2010

Site Id:	436546
Affiliation Type:	On-Site Operator
Company Name:	250 E 139 ST LLC
Contact Type:	Not reported
Contact Name:	CHRIS BOYLE
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 772-7550
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	NRLOMBAR

250 E 139 ST LLC (Continued) **A100353057**

Date Last Modified: 6/24/2010

Equipment Records:

C01 - Pipe Location - Aboveground
F01 - Pipe External Protection - Painted/Asphalt Coating
K00 - Spill Prevention - None
I05 - Overfill - Vent Whistle
J02 - Dispenser - Suction
D01 - Pipe Type - Steel/Carbon Steel/Iron
G02 - Tank Secondary Containment - Vault (w/access)
A00 - Tank Internal Protection - None
H00 - Tank Leak Detection - None
E00 - Piping Secondary Containment - None
B01 - Tank External Protection - Painted/Asphalt Coating
L00 - Piping Leak Detection - None

Tank Info:

Tank Number:	001
Tank Id:	235023
Tank Location:	3
Tank Type:	Steel/Carbon Steel/Iron
Tank Status:	Closed - In Place
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	2500
Tightness Test Method:	NN
Date Test:	Not reported
Next Test Date:	Not reported
Date Tank Closed:	6/9/2010
Register:	True
Modified By:	MSBAPTIS
Last Modified:	8/5/2010

Z158 **GRAND SILVER CO** **RCRA-SQG** **1000694453**
ESE **289 MORRIS AVE** **FINDS** **NYD987007812**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.242 mi.
1279 ft. **Site 2 of 3 in cluster Z**

RCRA-SQG:

Date form received by agency:	01/01/2007
Facility name:	GRAND SILVER CO
Facility address:	289 MORRIS AVE BRONX, NY 10451
EPA ID:	NYD987007812
Mailing address:	MORRIS AVE BRONX, NY 10451
Contact:	BARRY KROSTRINSKY
Contact address:	MORRIS AVE BRONX, NY 10451
Contact country:	US
Contact telephone:	(718) 585-1930
Contact email:	Not reported
EPA Region:	02
Land type:	Private
Classification:	Small Small Quantity Generator

GRAND SILVER CO (Continued) **1000694453**

Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	SEYMOUR & SAM KOSTRINSKY
Owner/operator address:	289 MORRIS AVE BRONX, NY 10451
Owner/operator country:	US
Owner/operator telephone:	(212) 585-1930
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	SEYMOUR & SAM KOSTRINSKY
Owner/operator address:	289 MORRIS AVE BRONX, NY 10451
Owner/operator country:	US
Owner/operator telephone:	(212) 585-1930
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

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

Historical Generators:

Date form received by agency:	01/01/2006
Facility name:	GRAND SILVER CO
Classification:	Small Quantity Generator

Date form received by agency:	06/22/1992
Facility name:	GRAND SILVER CO
Classification:	Conditionally Exempt Small Quantity Generator

Violation Status: No violations found

GRAND SILVER CO (Continued) **1000694453**

Evaluation Action Summary:

Evaluation date:	09/04/2008
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	State

Evaluation date:	05/07/2008
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	EPA

Evaluation date:	11/22/1996
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	EPA

Evaluation date:	07/12/1996
Evaluation:	COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation:	Not reported
Date achieved compliance:	Not reported
Evaluation lead agency:	EPA

FINDS:

Registry ID: 110004492175

Environmental Interest/Information System

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

NY MANIFEST:

EPA ID:	NYD987007812
Country:	USA
Mailing Name:	GRAND SILVER
Mailing Contact:	IRA KOSTRINSKY
Mailing Address:	289 MORRIS AVE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-585-1930

Document ID:	NYG0828873
Manifest Status:	Completed copy
Trans1 State ID:	PW8913
Trans2 State ID:	Not reported

GRAND SILVER CO (Continued) **1000694453**

Generator Ship Date:	971007
Trans1 Recv Date:	971007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	971007
Part A Recv Date:	971023
Part B Recv Date:	971029
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	NYD082785429
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity:	01800
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	100
Year:	97

Document ID:	NYH0228438
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	03/25/2003
Trans1 Recv Date:	03/25/2003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/25/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	NYD082785429
Trans2 EPA ID:	Not reported
TSDF ID:	47866PA
Waste Code:	F006 - WW TREAT SL FM ELECTROPLATING OPER
Quantity:	01900
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2003

Document ID:	NYH0312066
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	01/09/2003
Trans1 Recv Date:	01/09/2003
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/09/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	NYD082785429
Trans2 EPA ID:	Not reported

GRAND SILVER CO (Continued) **1000694453**

TSDF ID: 23138PA
Waste Code: F006 - WW TREAT SL FM ELECTROPLATING OPER
Quantity: 00165
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 2003

Document ID: NYH0410886
Manifest Status: Not reported
Trans1 State ID: NYD082785429
Trans2 State ID: Not reported
Generator Ship Date: 12/30/2003
Trans1 Recv Date: 12/30/2003
Trans2 Recv Date: Not reported
TSD Site Recv Date: 12/30/2003
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD987007812
Trans1 EPA ID: NYD082785429
Trans2 EPA ID: Not reported
TSDF ID: 47867PA
Waste Code: D007 - CHROMIUM 5.0 MG/L TCLP
Quantity: 00800
Units: P - Pounds
Number of Containers: 001
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Waste Code: D002 - NON-LISTED CORROSIVE WASTES
Quantity: 00055
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 2003

Document ID: NYH0336474
Manifest Status: Not reported
Trans1 State ID: NYD082785429
Trans2 State ID: Not reported
Generator Ship Date: 09/26/2003
Trans1 Recv Date: 09/26/2003
Trans2 Recv Date: Not reported
TSD Site Recv Date: 09/26/2003
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD987007812
Trans1 EPA ID: NYD082785429
Trans2 EPA ID: Not reported
TSDF ID: 20769AV
Waste Code: F006 - WW TREAT SL FM ELECTROPLATING OPER

GRAND SILVER CO (Continued) **1000694453**

Quantity: 00165
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 003
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 2003

Document ID: NYH0144099
Manifest Status: Not reported
Trans1 State ID: NYD082785429
Trans2 State ID: Not reported
Generator Ship Date: 12/18/2000
Trans1 Recv Date: 12/18/2000
Trans2 Recv Date: Not reported
TSD Site Recv Date: 12/18/2000
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD987007812
Trans1 EPA ID: NYD082785429
Trans2 EPA ID: Not reported
TSDF ID: PX3640
Waste Code: F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity: 00110
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 002
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Waste Code: F008 - PLAT SLDG FM BTM PLAT BATH OPER CYANIDE.
Quantity: 00055
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 01.00
Year: 2000

Document ID: NYH0133587
Manifest Status: Not reported
Trans1 State ID: NYD082785429
Trans2 State ID: Not reported
Generator Ship Date: 05/24/2000
Trans1 Recv Date: 05/24/2000
Trans2 Recv Date: Not reported
TSD Site Recv Date: 05/24/2000
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD987007812
Trans1 EPA ID: NYD082785429
Trans2 EPA ID: Not reported
TSDF ID: PW8913
Waste Code: F007 - PLATING BATH SOL FM ELECTROPLATING OPER
Quantity: 00165
Units: G - Gallons (liquids only)* (8.3 pounds)

GRAND SILVER CO (Continued) **1000694453**

Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	2000

Document ID:	NYG0361368
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	01/06/1998
Trans1 Recv Date:	01/06/1998
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	01/06/1998
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	NYD082785429
Trans2 EPA ID:	Not reported
TSDF ID:	PW8913
Waste Code:	D008 - LEAD 5.0 MG/L TCLP
Quantity:	01800
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00
Year:	98

Document ID:	06
Manifest Status:	000283194FLE
Trans1 State ID:	NYD987007812
Trans2 State ID:	Not reported
Generator Ship Date:	PAD049617822
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	PAD010154045
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	3
Number of Containers:	DM
Container Type:	1500
Handling Method:	P
Specific Gravity:	1
Waste Code:	R
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported

GRAND SILVER CO (Continued) **1000694453**

Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	06
Manifest Status:	000283194FLE
Trans1 State ID:	NYD987007812
Trans2 State ID:	Not reported
Generator Ship Date:	PAD049617822
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	PAD010154045
TSD Site Recv Date:	Not reported
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	2
Number of Containers:	DF
Container Type:	6000
Handling Method:	P
Specific Gravity:	1
Waste Code:	R
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	NYH0393183
Manifest Status:	Not reported
Trans1 State ID:	12210PA
Trans2 State ID:	Not reported
Generator Ship Date:	03/11/2004
Trans1 Recv Date:	03/11/2004
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	03/11/2004
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	NYD082785429
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785
Waste Code:	D007 - CHROMIUM 5.0 MG/L TCLP
Quantity:	01800
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	01.00

GRAND SILVER CO (Continued) **1000694453**

Year: 2004

Document ID: Not reported
Manifest Status: Not reported
Trans1 State ID: NYD082785429
Trans2 State ID: Not reported
Generator Ship Date: 3/8/2007
Trans1 Recv Date: 3/8/2007
Trans2 Recv Date: Not reported
TSD Site Recv Date: 3/8/2007
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD987007812
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID: NYD082785429
Waste Code: Not reported
Quantity: 440
Units: G - Gallons (liquids only)* (8.3 pounds)
Number of Containers: 8
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: T Chemical, physical, or biological treatment.
Specific Gravity: 1
Year: 2007
Manifest Tracking Num: 000282394FLE
Import Ind: N
Export Ind: N
Discr Quantity Ind: N
Discr Type Ind: N
Discr Residue Ind: N
Discr Partial Reject Ind: N
Discr Full Reject Ind: N
Manifest Ref Num: Not reported
Alt Fac RCRA Id: Not reported
Alt Fac Sign Date: Not reported
Mgmt Method Type Code: H141

Document ID: Not reported
Manifest Status: Not reported
Trans1 State ID: NYD082785429
Trans2 State ID: Not reported
Generator Ship Date: 3/20/2007
Trans1 Recv Date: 3/20/2007
Trans2 Recv Date: Not reported
TSD Site Recv Date: 3/21/2007
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: NYD987007812
Trans1 EPA ID: Not reported
Trans2 EPA ID: Not reported
TSDF ID: NYD082785429
Waste Code: Not reported
Quantity: 1200
Units: P - Pounds
Number of Containers: 3

GRAND SILVER CO (Continued) **1000694453**

Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289232FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	3/20/2007
Trans1 Recv Date:	3/20/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	3/21/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	37
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	2
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289232FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429

GRAND SILVER CO (Continued) **1000694453**

Trans2 State ID:	Not reported
Generator Ship Date:	3/20/2007
Trans1 Recv Date:	3/20/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	3/21/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	40
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	2
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289232FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	3/20/2007
Trans1 Recv Date:	3/20/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	3/21/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	165
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	3
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289232FLE
Import Ind:	N

GRAND SILVER CO (Continued) **1000694453**

Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	3/27/2007
Trans1 Recv Date:	3/27/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	3/28/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	55
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289415FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	3/27/2007
Trans1 Recv Date:	3/27/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	3/28/2007
Part A Recv Date:	Not reported

GRAND SILVER CO (Continued) **1000694453**

Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	715
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	13
Container Type:	DM - Metal drums, barrels
Handling Method:	T Chemical, physical, or biological treatment.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289415FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	4/3/2007
Trans1 Recv Date:	4/3/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	4/12/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	10
Units:	G - Gallons (liquids only)* (8.3 pounds)
Number of Containers:	1
Container Type:	DM - Metal drums, barrels
Handling Method:	L Landfill.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289646FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N

GRAND SILVER CO (Continued) **1000694453**

Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	NYD082785429
Trans2 State ID:	Not reported
Generator Ship Date:	4/3/2007
Trans1 Recv Date:	4/3/2007
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	4/12/2007
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987007812
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NYD082785429
Waste Code:	Not reported
Quantity:	1000
Units:	P - Pounds
Number of Containers:	2
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	L Landfill.
Specific Gravity:	1
Year:	2007
Manifest Tracking Num:	000289646FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Click this hyperlink while viewing on your computer to access
41 additional NY_MANIFEST: record(s) in the EDR Site Report.

W159 **POWER CHEMICAL CO INC** **RCRA-NonGen** **1000210033**
East **387 RIDER AVE** **FINDS** **NYD001549633**
1/8-1/4 **BRONX, NY 10451** **MANIFEST**
0.243 mi.
1284 ft. **Site 2 of 2 in cluster W**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	POWER CHEMICAL CO INC
Facility address:	387 RIDER AVE BRONX, NY 10451
EPA ID:	NYD001549633
Mailing address:	RIDER AVE BRONX, NY 10451

POWER CHEMICAL CO INC (Continued) **1000210033**

Contact:	Not reported
Contact address:	RIDER AVE BRONX, NY 10451
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Land type:	Facility is not located on Indian land. Additional information is not known.
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	Not reported
Owner/operator address:	OWNERSTREET OWNERCITY, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	OPERNAME
Owner/operator address:	OPERSTREET OPERCITY, WY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

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

Historical Generators:

Date form received by agency:	01/01/2006
Facility name:	POWER CHEMICAL CO INC
Classification:	Not a generator, verified

Date form received by agency:	08/20/1996
Facility name:	POWER CHEMICAL CO INC

POWER CHEMICAL CO INC (Continued) **1000210033**

Classification: Not a generator, verified

Date form received by agency: 03/01/1981
Facility name: POWER CHEMICAL CO INC
Classification: Not a generator, verified

Date form received by agency: 12/10/1980
Facility name: POWER CHEMICAL CO INC
Classification: Not a generator, verified

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 07/10/1996
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: EPA

Evaluation date: 08/20/1984
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

FINDS:

Registry ID: 110004335443

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

NY MANIFEST:
EPA ID: NYD001549633
Country: USA
Mailing Name: POWER CHEMICAL CO INC
Mailing Contact: Not reported
Mailing Address: Not reported
Mailing Address 2: Not reported
Mailing City: Not reported
Mailing State: Not reported
Mailing Zip: Not reported
Mailing Zip4: Not reported
Mailing Country: Not reported
Mailing Phone: Not reported

NY MANIFEST:
No Manifest Records Available

X160 HOSTOS COMMUNITY COLLEGE — **RCRA-CESQG 1000872397**
NNE 475 GRAND CONCOURSE — **FINDS NYD987036100**
1/8-1/4 BRONX, NY 10451 — **UST**
0.246 mi. — **MANIFEST**
1298 ft. Site 2 of 4 in cluster X — **MANIFEST**

RCRA-CESQG:

Date form received by agency:	01/01/2007
Facility name:	HOSTOS COMMUNITY COLLEGE
Facility address:	475 GRAND CONCOURSE BRONX, NY 104515307
EPA ID:	NYD987036100
Mailing address:	GRAND CONCOURSE BRONX, NY 10451
Contact:	Not reported
Contact address:	GRAND CONCOURSE BRONX, NY 10451
Contact country:	US
Contact telephone:	Not reported
Contact email:	Not reported
EPA Region:	02
Classification:	Conditionally Exempt Small Quantity Generator
Description:	Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:

Owner/operator name:	DORMITORY AUTHORITY NY
Owner/operator address:	NOT REQUIRED NOT REQUIRED, NY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	State
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	DORMITORY AUTHORITY NY
Owner/operator address:	NOT REQUIRED NOT REQUIRED, NY 99999
Owner/operator country:	US
Owner/operator telephone:	(212) 555-1212
Legal status:	State
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

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

Historical Generators:
- Date form received by agency: 01/01/2006
- Facility name: HOSTOS COMMUNITY COLLEGE
- Classification: Conditionally Exempt Small Quantity Generator

- Date form received by agency: 07/08/1999
- Facility name: HOSTOS COMMUNITY COLLEGE
- Classification: Not a generator, verified

- Date form received by agency: 06/22/1993
- Facility name: HOSTOS COMMUNITY COLLEGE
- Classification: Large Quantity Generator

- Violation Status: No violations found

FINDS:

- Registry ID: 110004505991

Environmental Interest/Information System

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

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

UST:
- Facility Id: 2-082856
- Region: STATE
- DEC Region: 2
- Site Status: Active
- Program Type: PBS
- Expiration Date: 2007/06/05

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

UTM X: 590466.95721999998
UTM Y: 4519069.7798800003

Affiliation Records:

Site Id: 1821
Affiliation Type: Owner
Company Name: HOSTOS COMMUNITY COLLEGE
Contact Type: Not reported
Contact Name: Not reported
Address1: 475 GRAND CONCOURSE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (212) 518-6758
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 1821
Affiliation Type: On-Site Operator
Company Name: HOSTOS COMMUNITY COLLEGE
Contact Type: Not reported
Contact Name: CITY UNIVERSITY OF NY
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 001
Phone: (212) 518-6758
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

Site Id: 1821
Affiliation Type: Mail Contact
Company Name: HOSTOS COMMUNITY COLLEGE
Contact Type: Not reported
Contact Name: FRANK VIRONE-CHIEF ENG.
Address1: 500 GRAND CONCOURSE
Address2: Not reported
City: BRONX
State: NY
Zip Code: 10451
Country Code: 001
Phone: (718) 518-4476
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: TRANSLAT
Date Last Modified: 3/4/2004

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Site Id:	1821
Affiliation Type:	Emergency Contact
Company Name:	HOSTOS COMMUNITY COLLEGE
Contact Type:	Not reported
Contact Name:	JOE BRANCH
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(914) 682-0196
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

G03 - Tank Secondary Containment - Vault (w/o access)
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
A00 - Tank Internal Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
J02 - Dispenser - Suction
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
I04 - Overfill - Product Level Gauge (A/G)
D01 - Pipe Type - Steel/Carbon Steel/Iron
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
L09 - Piping Leak Detection - Exempt Suction Piping
I04 - Overfill - Product Level Gauge (A/G)
C00 - Pipe Location - No Piping
G03 - Tank Secondary Containment - Vault (w/o access)
F00 - Pipe External Protection - None

Tank Info:

Site ID:	1821
Tank Number:	001
Tank ID:	3035
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1993
Capacity Gallons:	7000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	1821
Tank Number:	002
Tank ID:	3036
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	11/1/1993
Capacity Gallons:	7000
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	6
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

NY MANIFEST:

EPA ID:	NYD987036100
Country:	USA
Mailing Name:	HOSTOS COMMUNITY COLLEGE
Mailing Contact:	W LANIGAN
Mailing Address:	475 GRAND CONCOURSE
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10451
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	718-518-6758
Document ID:	NYG1734309
Manifest Status:	Not reported
Trans1 State ID:	WID988566543
Trans2 State ID:	Not reported
Generator Ship Date:	08/09/2000
Trans1 Recv Date:	08/09/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	08/16/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	AZ0000337360
Trans2 EPA ID:	Not reported
TSDF ID:	AZ002
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	02850
Units:	P - Pounds
Number of Containers:	024
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Specific Gravity:	01.00
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	00050
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Year:	2000

Document ID:	NYG0689256
Manifest Status:	Not reported
Trans1 State ID:	WID988566543
Trans2 State ID:	Not reported
Generator Ship Date:	06/15/2000
Trans1 Recv Date:	06/15/2000
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	06/20/2000
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	AZ0000337360
Trans2 EPA ID:	Not reported
TSDF ID:	AZ002
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	04940
Units:	P - Pounds
Number of Containers:	038
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Waste Code:	D009 - MERCURY 0.2 MG/L TCLP
Quantity:	00200
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	01.00
Year:	2000

Document ID:	TXA0618952
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD986607380
Generator Ship Date:	09/11/2003
Trans1 Recv Date:	09/11/2003
Trans2 Recv Date:	09/16/2003
TSD Site Recv Date:	10/08/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	TXD055141378
Trans2 EPA ID:	Not reported
TSDF ID:	41315
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Quantity:	00050
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	L Landfill.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	2003

Document ID:	TXA0061895
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD986607380
Generator Ship Date:	09/11/2003
Trans1 Recv Date:	09/11/2003
Trans2 Recv Date:	09/16/2003
TSD Site Recv Date:	10/08/2003
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	TXD055141378
Trans2 EPA ID:	Not reported
TSDF ID:	41315
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00050
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	L Landfill.
Specific Gravity:	01.00
Waste Code:	D002 - NON-LISTED CORROSIVE WASTES
Quantity:	00400
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	L Landfill.
Specific Gravity:	01.00
Year:	2003

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08
TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	1.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08
TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	10.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08
TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	20.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08
TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	1.0

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	OHD009865825
Generator Ship Date:	2008-01-28
Trans1 Recv Date:	2008-01-28
Trans2 Recv Date:	2008-01-29
TSD Site Recv Date:	2008-02-05
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NCD000648451
Waste Code:	Not reported
Quantity:	2.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001876502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08
TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	30.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	OHD009865825
Generator Ship Date:	2008-01-28
Trans1 Recv Date:	2008-01-28
Trans2 Recv Date:	2008-01-29
TSD Site Recv Date:	2008-02-05
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	NCD000648451
Waste Code:	Not reported
Quantity:	30.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Manifest Tracking Num:	001876502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08
TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	100.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H050

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	NJD000692061
Generator Ship Date:	2008-10-03
Trans1 Recv Date:	2008-10-03
Trans2 Recv Date:	2008-10-08

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

TSD Site Recv Date:	2008-10-17
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	15.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2008
Manifest Tracking Num:	001190502FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	06
Manifest Status:	000674234FLE
Trans1 State ID:	NYD987036100
Trans2 State ID:	Not reported
Generator Ship Date:	NCD000648451
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	MAD039322250
TSD Site Recv Date:	Not reported
Part A Recv Date:	OHD009865825
Part B Recv Date:	2006-10-04
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DF
Container Type:	100
Handling Method:	P
Specific Gravity:	1
Waste Code:	L
Quantity:	D011
Units:	D022
Number of Containers:	F002
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Year:	Not reported
Document ID:	06
Manifest Status:	000674234FLE
Trans1 State ID:	NYD987036100
Trans2 State ID:	Not reported
Generator Ship Date:	NCD000648451
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	MAD039322250
TSD Site Recv Date:	Not reported
Part A Recv Date:	OHD009865825
Part B Recv Date:	2006-10-04
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DF
Container Type:	20
Handling Method:	P
Specific Gravity:	1
Waste Code:	B
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported
Document ID:	06
Manifest Status:	000674234FLE
Trans1 State ID:	NYD987036100
Trans2 State ID:	Not reported
Generator Ship Date:	NCD000648451
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	MAD039322250
TSD Site Recv Date:	Not reported
Part A Recv Date:	OHD009865825
Part B Recv Date:	2006-10-04
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DF
Container Type:	15
Handling Method:	P
Specific Gravity:	1
Waste Code:	B
Quantity:	D011

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	06
Manifest Status:	000674234FLE
Trans1 State ID:	NYD987036100
Trans2 State ID:	Not reported
Generator Ship Date:	NCD000648451
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	MAD039322250
TSD Site Recv Date:	Not reported
Part A Recv Date:	OHD009865825
Part B Recv Date:	2006-10-04
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DF
Container Type:	10
Handling Method:	P
Specific Gravity:	1
Waste Code:	B
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	06
Manifest Status:	000674234FLE
Trans1 State ID:	NYD987036100
Trans2 State ID:	Not reported
Generator Ship Date:	NCD000648451
Trans1 Recv Date:	Not reported
Trans2 Recv Date:	MAD039322250
TSD Site Recv Date:	Not reported
Part A Recv Date:	OHD009865825
Part B Recv Date:	2006-10-04
Generator EPA ID:	N
Trans1 EPA ID:	N
Trans2 EPA ID:	N
TSDF ID:	N
Waste Code:	N
Quantity:	Not reported
Units:	1
Number of Containers:	DF

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Container Type:	20
Handling Method:	P
Specific Gravity:	1
Waste Code:	B
Quantity:	Not reported
Units:	Not reported
Number of Containers:	Not reported
Container Type:	Not reported
Handling Method:	Not reported
Specific Gravity:	Not reported
Year:	Not reported

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	OHD009865825
Generator Ship Date:	2010-01-06
Trans1 Recv Date:	2010-01-06
Trans2 Recv Date:	2010-01-08
TSD Site Recv Date:	2010-01-12
Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	100.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	1.0
Year:	2010
Manifest Tracking Num:	002997962FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H040

Document ID:	Not reported
Manifest Status:	Not reported
Trans1 State ID:	MAD039322250
Trans2 State ID:	OHD009865825
Generator Ship Date:	2010-01-06
Trans1 Recv Date:	2010-01-06
Trans2 Recv Date:	2010-01-08
TSD Site Recv Date:	2010-01-12

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Part A Recv Date:	Not reported
Part B Recv Date:	Not reported
Generator EPA ID:	NYD987036100
Trans1 EPA ID:	Not reported
Trans2 EPA ID:	Not reported
TSDF ID:	ARD069748192
Waste Code:	Not reported
Quantity:	10.0
Units:	P - Pounds
Number of Containers:	1.0
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	1.0
Year:	2010
Manifest Tracking Num:	002997963FLE
Import Ind:	N
Export Ind:	N
Discr Quantity Ind:	N
Discr Type Ind:	N
Discr Residue Ind:	N
Discr Partial Reject Ind:	N
Discr Full Reject Ind:	N
Manifest Ref Num:	Not reported
Alt Fac RCRA Id:	Not reported
Alt Fac Sign Date:	Not reported
Mgmt Method Type Code:	H141

Click this hyperlink while viewing on your computer to access
90 additional NY_MANIFEST: record(s) in the EDR Site Report.

NJ MANIFEST:

Manifest Code:	NJA5264403
EPA ID:	NYD987036100
Date Shipped:	20050817
TSDF EPA ID:	NJD980536593
Transporter EPA ID:	NYR000109645
Transporter 2 EPA ID:	NJD080631369
Transporter 3 EPA ID:	Not reported
Transporter 4 EPA ID:	Not reported
Transporter 5 EPA ID:	Not reported
Transporter 6 EPA ID:	Not reported
Transporter 7 EPA ID:	Not reported
Transporter 8 EPA ID:	Not reported
Transporter 10 EPA ID:	Not reported
Date Trans1 Transported Waste:	050817
Date Trans2 Transported Waste:	050829
Date Trans3 Transported Waste:	Not reported
Date Trans4 Transported Waste:	Not reported
Date Trans5 Transported Waste:	Not reported
Date Trans6 Transported Waste:	Not reported
Date Trans7 Transported Waste:	Not reported
Date Trans8 Transported Waste:	Not reported
Date Trans9 Transported Waste:	Not reported
Date Trans10 Transported Waste:	Not reported
Date TSDF Received Waste:	050829
Tranporter 1 Decal:	Not reported
Tranporter 2 Decal:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000872397**

Data Entry Number: 11090521
Reference Manifest Number: Not reported
Was Load Rejected (Y/N): No
Reason Load Was Rejected: Not reported
Waste Code: Not reported
Manifest Year: Not reported
Quantity: Not reported
Unit: Not reported
Hand Code: Not reported

X161 **HOSTOS COMMUNITY COLLEGE** **HIST UST** **1000845235**
NNE **475 GRAND CONCOURSE** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.246 mi.
1298 ft. **Site 3 of 4 in cluster X**

HIST UST:
PBS Number: 2-082856
SPDES Number: Not reported
Emergency Contact: JOE BRANCH
Emergency Telephone: (914) 682-0196
Operator: CITY UNIVERSITY OF NY
Operator Telephone: (212) 518-6758
Owner Name: NYS DORMITORY AUTHORITY
Owner Address: 161 DELAWARE AVENUE
Owner City,St,Zip: DELMAR, NY 12054
Owner Telephone: (518) 475-3000
Owner Type: State Government
Owner Subtype: NYS Dormitory Authority
Mailing Name: HOSTOS COMMUNITY COLLEGE
Mailing Address: 500 GRAND CONCOURSE
Mailing Address 2: Not reported
Mailing City,St,Zip: BRONX, NY 10451
Mailing Contact: FRANK VIRONE-CHIEF ENG
Mailing Telephone: (718) 518-6756
Owner Mark: First Owner
Facility Status: 1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2: 475 GRAND CONCOURSE
SWIS ID: 6001
Old PBS Number: Not reported
Facility Type: SCHOOL
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 07/23/1998
Expiration Date: 08/17/2002
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 14000
FAMT: True
Facility Screen: No Missing Data
Owner Screen: Minor Data Missing

HOSTOS COMMUNITY COLLEGE (Continued) **1000845235**

Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	19931101
Capacity (gals):	7000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND, VAULTED, WITH ACCESS
Tank Status:	In Service
Install Date:	19931101
Capacity (gals):	7000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported

HOSTOS COMMUNITY COLLEGE (Continued) **1000845235**

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

X162 **POWER TEST00129** **UST** **U000396728**
NNE **475 GRAND CONCOURSE** **HIST UST** **N/A**
1/8-1/4 **BRONX, NY 10451**
0.246 mi.
1298 ft. **Site 4 of 4 in cluster X**

UST:
Facility Id: 2-153583
Region: STATE
DEC Region: 2
Site Status: Active
Program Type: PBS
Expiration Date: 1993/03/28
UTM X: 590466.95721999998
UTM Y: 4519069.7798800003

Affiliation Records:
Site Id: 4872
Affiliation Type: Emergency Contact
Company Name: POWER TEST PETROLEUM DIST INC
Contact Type: Not reported
Contact Name: TOM WRIGHT REGION ENG
Address1: Not reported
Address2: Not reported
City: Not reported
State: NN
Zip Code: Not reported
Country Code: 999
Phone: (516) 338-6000
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: EXROSSAN
Date Last Modified: 7/5/2005

Site Id: 4872
Affiliation Type: On-Site Operator
Company Name: POWER TEST00129
Contact Type: Not reported
Contact Name: HECTOR CARRION
Address1: Not reported
Address2: Not reported
City: Not reported
State: NY
Zip Code: Not reported
Country Code: 001
Phone: (212) 590-7040
Phone Ext: Not reported
Email: Not reported
Fax Number: Not reported
Modified By: EXROSSAN
Date Last Modified: 7/5/2005

Site Id: 4872

POWER TEST00129 (Continued) **U000396728**

Affiliation Type:	Mail Contact
Company Name:	POWER TEST PETROLEUM DIST INC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	125 JERICHO TURNPIKE
Address2:	Not reported
City:	JERICHO
State:	NY
Zip Code:	11753
Country Code:	001
Phone:	(212) 324-5110
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	EXROSSAN
Date Last Modified:	7/5/2005

Site Id:	4872
Affiliation Type:	Owner
Company Name:	POWER TEST PETROLEUM DIST INC
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	125 JERICHO TURNPIKE
Address2:	Not reported
City:	JERICHO
State:	NY
Zip Code:	11753
Country Code:	001
Phone:	(212) 324-5110
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	EXROSSAN
Date Last Modified:	7/5/2005

Equipment Records:

H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None

POWER TEST00129 (Continued) **U000396728**

B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
F00 - Pipe External Protection - None
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
B00 - Tank External Protection - None
B00 - Tank External Protection - None
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
F00 - Pipe External Protection - None
C00 - Pipe Location - No Piping
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
I00 - Overfill - None
I00 - Overfill - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
I00 - Overfill - None
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
J02 - Dispenser - Suction
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
D02 - Pipe Type - Galvanized Steel
J02 - Dispenser - Suction
J02 - Dispenser - Suction

POWER TEST00129 (Continued) **U000396728**

A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
D02 - Pipe Type - Galvanized Steel
A00 - Tank Internal Protection - None
D02 - Pipe Type - Galvanized Steel
I00 - Overfill - None
D02 - Pipe Type - Galvanized Steel
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
I00 - Overfill - None
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
A01 - Tank Internal Protection - Epoxy Liner
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)
G03 - Tank Secondary Containment - Vault (w/o access)

Tank Info:

Site ID:	4872
Tank Number:	001
Tank ID:	8192
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	002
Tank ID:	8193
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550

POWER TEST00129 (Continued) **U000396728**

Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	003
Tank ID:	8194
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	004
Tank ID:	8195
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	005
Tank ID:	8196
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550

POWER TEST00129 (Continued) **U000396728**

Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	006
Tank ID:	8197
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	007
Tank ID:	8198
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	008
Tank ID:	8199
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550

POWER TEST00129 (Continued) **U000396728**

Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	009
Tank ID:	8200
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	010
Tank ID:	8201
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	011
Tank ID:	8202
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550

POWER TEST00129 (Continued) **U000396728**

Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	4872
Tank Number:	012
Tank ID:	8203
Tank Status:	In Service
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	7/1/1969
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	Not reported
Tank Location:	5
Tank Type:	Equivalent technology
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-153583
SPDES Number:	Not reported
Emergency Contact:	TOM WRIGHT REGION ENG
Emergency Telephone:	(516) 338-6000
Operator:	HECTOR CARRION
Operator Telephone:	(212) 590-7040
Owner Name:	POWER TEST PETROLEUM DIST INC
Owner Address:	125 JERICHO TURNPIKE
Owner City,St,Zip:	JERICHO, NY 11753
Owner Telephone:	(516) 576-9500
Owner Type:	Not reported
Owner Subtype:	Not reported
Mailing Name:	POWER TEST PETROLEUM DIST INC
Mailing Address:	125 JERICHO TURNPIKE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	JERICHO, NY 11753
Mailing Contact:	Not reported
Mailing Telephone:	(516) 576-9500
Owner Mark:	First Owner
Facility Status:	1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2:	475 GRAND CONCOURSE
SWIS ID:	6001
Old PBS Number:	Not reported
Facility Type:	Not reported
Inspected Date:	Not reported

POWER TEST00129 (Continued) **U000396728**

Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	03/28/1988
Expiration Date:	03/28/1993
Renew Flag:	False
Renewal Date:	Not reported
Total Capacity:	6600
FAMT:	True
Facility Screen:	Minor Data Missing
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported

POWER TEST00129 (Continued) **U000396728**

Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (gals):	550
Product Stored:	LEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

Tank Id:	004
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported

POWER TEST00129 (Continued) **U000396728**

Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

Tank Id: 005
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19690701
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: GALVANIZED STEEL
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

Tank Id: 006
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19690701
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: GALVANIZED STEEL
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported

POWER TEST00129 (Continued) **U000396728**

Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

Tank Id:	007
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	False
Lat/long:	Not reported

Tank Id:	008
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19690701
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Not reported
Pipe Type:	GALVANIZED STEEL
Pipe Internal:	Not reported
Pipe External:	Not reported
Second Containment:	Diking
Leak Detection:	None
Overfill Prot:	Not reported
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported

POWER TEST00129 (Continued) **U000396728**

Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

Tank Id: 009
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19690701
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: GALVANIZED STEEL
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

Tank Id: 010
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19690701
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: GALVANIZED STEEL
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Suction
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported

POWER TEST00129 (Continued) **U000396728**

Deleted: False
Updated: False
Lat/long: Not reported

Tank Id: 011
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19690701
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Steel/carbon steel
Tank Internal: Epoxy Liner
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: GALVANIZED STEEL
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

Tank Id: 012
Tank Location: UNDERGROUND
Tank Status: In Service
Install Date: 19690701
Capacity (gals): 550
Product Stored: UNLEADED GASOLINE
Tank Type: Fiberglass reinforced plastic [FRP]
Tank Internal: Not reported
Tank External: Not reported
Pipe Location: Not reported
Pipe Type: GALVANIZED STEEL
Pipe Internal: Not reported
Pipe External: Not reported
Second Containment: Diking
Leak Detection: None
Overfill Prot: Not reported
Dispenser: Gravity
Date Tested: Not reported
Next Test Date: Not reported
Missing Data for Tank: Minor Data Missing
Date Closed: Not reported
Test Method: Not reported
Deleted: False
Updated: False
Lat/long: Not reported

V163 **138 ST & 3RD AVE.- EFFCO** **HIST LTANKS** **S101103170**
SE **138TH ST / 3RD AVE** **N/A**
1/4-1/2 **BRONX, NY**
0.253 mi.
1337 ft. **Site 3 of 3 in cluster V**

HIST LTANKS:

Region of Spill:	2
Spill Number:	8201286
Spill Date:	10/20/1982
Spill Time:	Not reported
Spill Cause:	Tank Failure
Resource Affectd:	Groundwater
Water Affected:	Not reported
Spill Source:	Gas Station
Spill Class:	Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt:	06/13/86
Cleanup Ceased:	06/13/86
Cleanup Meets Standard:	True
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	10/20/82
Reported to Department Time:	Not reported
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	EFFCO GAS STATION
Spiller Address:	SAME AS ABOVE
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	06/10/86
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	09/25/95
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported

138 ST & 3RD AVE.- EFFCO (Continued) **S101103170**

Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 20000
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: / / : PIN-2768. 09/25/95: PIN-2768 ASSIGNED TO CHRIS FOR TRACKING PURPOSES.
Spill Cause: Not reported

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164 **COMMERCAIL BUILD** **LTANKS** **S109064348**
NE **200 EAST 146TH STREET** **N/A**
1/4-1/2 **BRONX, NY**
0.256 mi.
1352 ft.

LTANKS:
Site ID: 397682
Spill No: 0801696
Spill Date: 5/9/2008
Spill Cause: Tank Test Failure
Spill Source: Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 9/13/2010
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: bkfalvey
Referred To: Not reported
Reported to Dept: 5/13/2008
CID: 404
Water Affected: Not reported
Spill Notifier: Other
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 5/13/2008
Spill Record Last Update: 9/20/2010
Spiller Name: ROSS SPOSATO
Spiller Company: COMMERCAIL BUILD
Spiller Address: 200 EAST 146TH STREET
Spiller City,St,Zip: BRONX, NY
Spiller County: 001
Spiller Contact: ROSS SPOSATO
Spiller Phone: (718) 292-0600

COMMERCAIL BUILD (Continued) **S109064348**

Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	347079
DEC Memo:	6/18/08 bf: Sent ttf letter to: Ross Sposato Chairmasters, Inc. 200 East 146th St. Bronx, NY 10451 6/30/08 Received letter from Ross Sposato of Chairmasters. Tank tested on 5/9/08 and failed. Tank was excavated and they are in the process of isolating lines. Also received message from him on 6/26/08 stating the same. (718)292-0600 x-205. bf 7/29/08 On 7/14/08, received letter from Ross Sposato of Chairmasters. Advanced Tank retested tank and tank passed. Piping will be replaced. After he receives test results, he will send test results and PBS Application. Called Ross S. (718)292-0600 x-205. Returning his call. Left message that there is no fee for tank test processing. Also, noted that a reply to my letter for tank test failure is required to be prepared by third party and needs to explain contamination and repairs made. bf 8/25/08 Received passing tank test report. on 7/31/08. Reviewed and found it not acceptable because technician did not sign the report. Sent tt return letter to Ross Sposato at address above and included request for tank test failure letter response. bf 9/5/08 Yesterday, received message from Ross of Chairmasters. Info was mailed yesterday. bf 9/13/10 Received call from Ross of Chairmasters. He wanted the status of his tightness test report. I told him I have not received the report nor did I receive a response to the ttf letter. He said that he will fax letter and report to me. bf 9/13/10 This afternoon received fax from ATS that the piping was replaced and there was no spill. Tank tightness test report is still needed to close this case. bf 9/13/10 later this afternoon, received passing tank test report by fax. NFA. bf 9/20/10 Received call from Ross Sposato requesting letter for closure. Faxed amnd mailed it to him. Fax:(718)292-0613. bf
Remarks:	PBS No: 2-085464 lines in the petromiter failed

Material:

Site ID:	397682
Operable Unit ID:	1154624
Operable Unit:	01
Material ID:	2145434
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	397682
Spill Tank Test:	2486093
Tank Number:	Not reported
Tank Size:	6000
Test Method:	03
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Watchdog

COMMERCAIL BUILD (Continued) **S109064348**

Last Modified: 5/13/2008
Test Method: Horner EZ Check I or II

165
NW
1/4-1/2
0.267 mi.
1412 ft.

2350 FIFTH AVENUE CORP
2350 5TH AVE
NEW YORK, NY 10037

RCRA-CESQG
FINDS
SHWS
VAPOR REOPENED
MANIFEST

1000108749
NYD071026173

RCRA-CESQG:
Date form received by agency: 01/01/2007
Facility name: 2350 FIFTH AVENUE CORP
Facility address: 2350 5TH AVE
NEW YORK, NY 100371101
EPA ID: NYD071026173
Mailing address: 5TH AVE
NEW YORK, NY 10037
Contact: Not reported
Contact address: 5TH AVE
NEW YORK, NY 10037
Contact country: US
Contact telephone: Not reported
Contact email: Not reported
EPA Region: 02
Land type: Private
Classification: Conditionally Exempt Small Quantity Generator
Description: Handler: generates 100 kg or less of hazardous waste per calendar month, and accumulates 1000 kg or less of hazardous waste at any time; or generates 1 kg or less of acutely hazardous waste per calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste; or generates 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulates at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste

Owner/Operator Summary:
Owner/operator name: 2350 FIFTH AVENUE CORP
Owner/operator address: 2350 5TH AVE
NEW YORK, NY 10037
Owner/operator country: US
Owner/operator telephone: (212) 234-5000
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: 2350 FIFTH AVENUE CORP
Owner/operator address: 2350 5TH AVE
NEW YORK, NY 10037
Owner/operator country: US

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Owner/operator telephone: (212) 234-5000
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

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

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: 2350 FIFTH AVENUE CORP
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 07/08/1999
Facility name: 2350 FIFTH AVENUE CORP
Classification: Not a generator, verified

Date form received by agency: 04/24/1998
Facility name: 2350 FIFTH AVENUE CORP
Site name: 2350 FIFTH AVE CORP
Classification: Large Quantity Generator

Date form received by agency: 06/06/1997
Facility name: 2350 FIFTH AVENUE CORP
Classification: Large Quantity Generator

Facility Has Received Notices of Violations:
Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 08/03/1989
Date achieved compliance: 08/03/1989
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Regulation violated: Not reported
Area of violation: Generators - Records/Reporting
Date violation determined: 01/05/1988
Date achieved compliance: 01/05/1988
Violation lead agency: State
Enforcement action: WRITTEN INFORMAL
Enforcement action date: 01/05/1988
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: State
Proposed penalty amount: 0
Final penalty amount: 0
Paid penalty amount: 0

Evaluation Action Summary:
Evaluation date: 08/13/1990
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 06/01/1990
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 08/03/1989
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Records/Reporting
Date achieved compliance: 08/03/1989
Evaluation lead agency: State

Evaluation date: 01/05/1988
Evaluation: NON-FINANCIAL RECORD REVIEW
Area of violation: Generators - Records/Reporting
Date achieved compliance: 01/05/1988
Evaluation lead agency: State

FINDS:

Registry ID: 110000808074

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

SHWS:
Program: HW
Site Code: 57691
Classification: SIGNIFICANT THREAT TO THE PUBLIC HEALTH OR ENVIRONMENT - ACTION REQUIRED.

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Region: 2
Acres: 1.583
HW Code: 231004
Record Add: 11/18/1999 12:00:00 PM
Record Upd: 4/13/2011 4:24:00 PM
Updated By: JHOCONNE
Site Description: Location: The site is located on the west side of Fifth Avenue between 141st Street and 142nd Street in the borough of Manhattan, City and State of New York. Site Features: The site is approximately 1.58 acres, and is nearly entirely occupied by a building. The building is comprised of three connected sections: a two-story section along Fifth Avenue, a three-story section in the center, and a one-story section to the west. See Figure 1 for the site location and Figure 2 for the site plan. Surrounding the site are high-rise residential buildings to the west, south, and southeast of the site. The Harlem River Drive is to the east/northeast, and a National Guard Armory occupies the block immediately to the north. Current Zoning/Use: The site is owned by 2350 Fifth Avenue Corporation and is currently occupied by a self storage facility and art studio space. It is zoned for light manufacturing (M1-1). The Harlem River is located approximately 200 to 300 feet east of the site. Historical Use: Based on historical Sanborn fire insurance maps, the site and the surrounding area were in the process of being filled in between 1860 and 1893, and as of 1909 it was mostly vacant or occupied by a contractor s yard. The existing building was originally constructed as a Borden Company ice cream factory: the three-story section in 1923; the two-story section in 1932; and the one-story section in 1950. The floor slab in the one-story (western) section included layers of insulating materials for refrigeration. The area surrounding the site was mostly occupied by garages, auto repair shops, and light manufacturing in the 1930s through the 1950s, with the exception of the block directly north of the site, where the Fifth Avenue Armory was constructed between 1921 and 1933. The residential development, which occupies the area to the south and west of the site, was constructed between 1957 and 1959. From 1970 to 1994 the site was occupied by an industrial laundry and dry cleaning operation which utilized tetrachloroethylene (PCE or perc) as a cleaning solvent. The dry cleaning operation utilized both first-generation and second-generation dry-cleaning machines. The majority of PCE released was associated with the first generation machine use, which involved more handling of PCE than the later machines. The dry cleaning facility operated as registered hazardous waste handler with U.S. Environmental Protection Agency (EPA) ID number NYD071026173. Between 1995 and 1996, most of the ground floor of the building, with the exception of the far western portion, was renovated for use as a New York City public school. The central and eastern portions of the building were occupied by P.S. 141 for a period in the fall of 1997, and were later used by a church for services, offices, and classes. The church vacated the building in December 2004. The remainder of the central and western portion of the building was renovated in 2001 for use as a self storage facility, and in 2006 the self storage facility expanded into the former school portion of the building. Currently the site is use for self storage facility and for art studio space. Site Geology and Hydrogeology: Groundwater in the vicinity of the site is divided into two apparently semi-confined aquifers. The presence of a clay layer acts as an aquitard/aquiclude separating the aquifer into a shallow

2350 FIFTH AVENUE CORP (Continued) **1000108749**

aquifer above the clay and deeper aquifer below the clay. The groundwater surface in the shallow aquifer is irregular and approximately six to ten feet below grade. Measurements of groundwater elevation indicated varying horizontal flow directions: generally northward towards West 142nd Street and eastward along 142nd Street towards the Harlem River.

Env Problem: Nature and Extent of Contamination: This section summarizes the assessment of existing and potential future environmental impacts presented by the site. In general, environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. An evaluation of exposure pathways did not identify any current or potential impacts to ecological resources. Site related contamination is impacting groundwater; however, groundwater sampling has indicated that the groundwater plume is limited in extent and has not traveled a significant distance (and not to the Harlem River). The groundwater in Manhattan is not used as a source of potable water. Protection of the groundwater resource will be addressed in the remedy selection process. In addressing the groundwater resource, the Department will consider the current and reasonably anticipated future use of the groundwater in the area and technical practicability of achieving the SCGs. Surface water resources near the site include the Harlem River, which is located 200 to 300 feet to the east of the site. The Harlem River is a Class I saline waterbody, suitable for secondary contact recreation, fishing, fish propagation and survival, but not suitable for swimming. No current or potential site-related surface water impacts have been identified. Neither the River nor groundwater are used as a source of potable water and no non-potable water supply wells or intakes are known to be located in the immediate area. Significant Threat: The site presents a significant environmental threat due to the releases of contaminants from source areas into groundwater. As a result of identified hazardous waste disposal, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York in July 1998. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required. The site remedial program is being performed by 2350 Fifth Avenue Corporation as a Potential Responsible Party (PRP).

Health Problem: People are not drinking the contaminated groundwater because the area is served by a public water supply that is not contaminated by the site. Direct contact with contaminated soil is unlikely since it is located under pavement and the on-site building. Volatile organic compounds in the groundwater and/or soil may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Site-related contaminants have been found in the indoor air of the on-site building at concentrations exceeding NYSDOH's air guidelines. Sampling indicates that this may be a result of soil vapor intrusion and/or the off-gassing and intrusion of contaminants from insulating materials that are present under one part of the building's foundation. To minimize the potential for the inhalation of site-related contaminants, a system that ventilates/removes contaminated air was installed beneath the portion of the on-site building with the insulation. Subsequent testing indicated that this system has been successful at reducing the levels of contaminants in

2350 FIFTH AVENUE CORP (Continued) **1000108749**

the indoor air and that the installation of a similar system beneath the remaining portion of the building would help to maintain the levels to within background ranges. Environmental sampling indicates soil vapor intrusion is not a concern for off-site buildings.

Dump:	False
Structure:	True
Lagoon:	False
Landfill:	False
Pond:	False
Disp Start:	1970
Disp Term:	1994
Lat/Long:	40:49:02:0 / 73:56:07:0
Dell:	False
Record Add:	11/18/1999 12:00:00 PM
Record Upd:	12/2/2010 7:51:00 AM
Updated By:	YYWONG
Own Op:	Owner
Sub Type:	01
Owner Name:	Joseph Karten
Owner Company:	2350 Fifth Avenue Corporation
Owner Address:	309 East 94th St.
Owner Addr2:	Ground Floor
Owner City,St,Zip:	New York, NY 10128
Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	NNN
Owner Name:	Not reported
Owner Company:	New York Public Library
Owner Address:	Countee Cullen Branch
Owner Addr2:	104 West 136 Street
Owner City,St,Zip:	New York, NY 10030
Owner Country:	United States of America
Own Op:	Document Repository
Sub Type:	B99
Owner Name:	Not reported
Owner Company:	NYSDEC Region 2 Office
Owner Address:	47-40 21St Street
Owner Addr2:	Not reported
Owner City,St,Zip:	Long Island City, NY 11101
Owner Country:	United States of America
HW Code:	231004
Waste Type:	TETRACHLOROETHYLENE (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	231004
Waste Type:	TETRACHLOROETHYLENE (PCE)
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	231004
Waste Type:	BENZO(A)PYRENE
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
HW Code:	231004
Waste Type:	CHLORINATED SOLVENTS
Waste Quantity:	UNKNOWN
Waste Code:	Not reported
Crossref ID:	w2-0792-98-07

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 12/1/2010 2:39:00 PM
Record Updated: 12/1/2010 2:40:00 PM
Updated By: YYWONG
Crossref ID: w2-0792-97-05
Cross Ref Type Code: 23
Cross Ref Type: Agreement/Consent Order Number
Record Added Date: 12/1/2010 2:42:00 PM
Record Updated: 12/1/2010 2:42:00 PM
Updated By: YYWONG
Crossref ID: 07/03/1997
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 12/1/2010 2:43:00 PM
Record Updated: 12/1/2010 2:43:00 PM
Updated By: YYWONG
Crossref ID: 03/30/2001
Cross Ref Type Code: 26
Cross Ref Type: Agreement/Consent Order Date
Record Added Date: 12/1/2010 2:42:00 PM
Record Updated: 12/1/2010 2:42:00 PM
Updated By: YYWONG

VAPOR REOPENED:
Site Code: 231004
Facility Status: Complete (Mitigate)

NY MANIFEST:
EPA ID: NYD071026173
Country: USA
Mailing Name: 2350 LAUNDRY & DRY CLNG CORP
Mailing Contact: 2350 LAUNDRY & DRY CLNG CORP
Mailing Address: 2350 FIFTH AVENUE
Mailing Address 2: Not reported
Mailing City: NEW YORK
Mailing State: NY
Mailing Zip: 10037
Mailing Zip4: Not reported
Mailing Country: USA
Mailing Phone: 212-862-5517

Document ID: NJA0339184
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 871030
Trans1 Recv Date: 871030
Trans2 Recv Date: Not reported
TSD Site Recv Date: 871030
Part A Recv Date: 871222
Part B Recv Date: 871119
Generator EPA ID: NYD071026173
Trans1 EPA ID: NJD000768093
Trans2 EPA ID: Not reported

2350 FIFTH AVENUE CORP (Continued) **1000108749**

TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00640
Units:	P - Pounds
Number of Containers:	008
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NJA0338624
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870702
Trans1 Recv Date:	870702
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870702
Part A Recv Date:	870727
Part B Recv Date:	870722
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01040
Units:	P - Pounds
Number of Containers:	013
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00420
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01170
Units:	P - Pounds
Number of Containers:	006

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NJA0329697
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870611
Trans1 Recv Date:	870611
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870611
Part A Recv Date:	870615
Part B Recv Date:	870624
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01520
Units:	P - Pounds
Number of Containers:	019
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	02175
Units:	P - Pounds
Number of Containers:	015
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NJA0348876
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	870721
Trans1 Recv Date:	870721
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870721
Part A Recv Date:	870904
Part B Recv Date:	870902
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00640
Units:	P - Pounds
Number of Containers:	008
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Specific Gravity: 100
Waste Code: Not reported
Quantity: 00420
Units: P - Pounds
Number of Containers: 006
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00780
Units: P - Pounds
Number of Containers: 004
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 87

Document ID: NYA6871094
Manifest Status: Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID: Not reported
Trans2 State ID: Not reported
Generator Ship Date: 871116
Trans1 Recv Date: 871116
Trans2 Recv Date: Not reported
TSD Site Recv Date: 871116
Part A Recv Date: 871207
Part B Recv Date: 871215
Generator EPA ID: NYD071026173
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD000768093
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00960
Units: P - Pounds
Number of Containers: 012
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00420
Units: P - Pounds
Number of Containers: 006
Container Type: DM - Metal drums, barrels
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 87

Document ID: NYA6899782
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 871215
Trans1 Recv Date: 871215
Trans2 Recv Date: Not reported
TSD Site Recv Date: 871215

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Part A Recv Date:	871222
Part B Recv Date:	880105
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01280
Units:	P - Pounds
Number of Containers:	016
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00420
Units:	P - Pounds
Number of Containers:	006
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00585
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NJA0435234
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880519
Trans1 Recv Date:	880519
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880519
Part A Recv Date:	880608
Part B Recv Date:	880602
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00585
Units:	P - Pounds
Number of Containers:	003
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00640
Units:	P - Pounds
Number of Containers:	008
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88

Document ID:	NJA0433752
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880331
Trans1 Recv Date:	880331
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880331
Part A Recv Date:	880404
Part B Recv Date:	880411
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01520
Units:	P - Pounds
Number of Containers:	019
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00630
Units:	P - Pounds
Number of Containers:	009
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00975
Units:	P - Pounds
Number of Containers:	005
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88

Document ID:	NYA8675212
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880204
Trans1 Recv Date:	880204
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880204

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Part A Recv Date:	880208
Part B Recv Date:	880223
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00640
Units:	P - Pounds
Number of Containers:	008
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88

Document ID:	NYA8700849
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	880302
Trans1 Recv Date:	880302
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880302
Part A Recv Date:	880314
Part B Recv Date:	880314
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88

Document ID:	NYA8746604
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Trans2 State ID:	Not reported
Generator Ship Date:	880323
Trans1 Recv Date:	880323
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880323
Part A Recv Date:	880404
Part B Recv Date:	880405
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88

Document ID:	NJA0364441
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	871014
Trans1 Recv Date:	871014
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871014
Part A Recv Date:	871026
Part B Recv Date:	871023
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	NJD000768093
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00960
Units:	P - Pounds
Number of Containers:	012
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00210
Units:	P - Pounds
Number of Containers:	003
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00780
Units:	P - Pounds
Number of Containers:	004
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Document ID:	NJA1201420
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910530
Trans1 Recv Date:	910530
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910530
Part A Recv Date:	910611
Part B Recv Date:	910611
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00640
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1145060
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910502
Trans1 Recv Date:	910502
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910502
Part A Recv Date:	910510
Part B Recv Date:	910514
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00640
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1137201
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910404
Trans1 Recv Date:	910404
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910404
Part A Recv Date:	910415
Part B Recv Date:	910417
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00660
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1214567
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910626
Trans1 Recv Date:	910626
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910626
Part A Recv Date:	910710
Part B Recv Date:	910709
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	01060
Units:	P - Pounds
Number of Containers:	017
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Year: 91

Document ID: NJA1114615
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 910418
Trans1 Recv Date: 910418
Trans2 Recv Date: Not reported
TSD Site Recv Date: 910418
Part A Recv Date: 910430
Part B Recv Date: 910502
Generator EPA ID: NYD071026173
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD000768093
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00101
Units: P - Pounds
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 01060
Units: P - Pounds
Number of Containers: 017
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00195
Units: P - Pounds
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 91

Document ID: NJA1145244
Manifest Status: Completed copy
Trans1 State ID: NJDEPS869
Trans2 State ID: Not reported
Generator Ship Date: 910516
Trans1 Recv Date: 910516
Trans2 Recv Date: Not reported
TSD Site Recv Date: 910516
Part A Recv Date: 910523
Part B Recv Date: 910529
Generator EPA ID: NYD071026173
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NJD000768093
Waste Code: D001 - NON-LISTED IGNITABLE WASTES
Quantity: 00135

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	01060
Units:	P - Pounds
Number of Containers:	017
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NJA1135214
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910322
Trans1 Recv Date:	910322
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910322
Part A Recv Date:	910402
Part B Recv Date:	910404
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00135
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00660
Units:	P - Pounds
Number of Containers:	011
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00390
Units:	P - Pounds
Number of Containers:	002
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100

2350 FIFTH AVENUE CORP (Continued) **1000108749**

Year:	91
Document ID:	NJA1125733
Manifest Status:	Completed copy
Trans1 State ID:	NJDEPS869
Trans2 State ID:	Not reported
Generator Ship Date:	910417
Trans1 Recv Date:	910417
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910417
Part A Recv Date:	910430
Part B Recv Date:	910502
Generator EPA ID:	NYD071026173
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NJD000768093
Waste Code:	D001 - NON-LISTED IGNITABLE WASTES
Quantity:	00045
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	91

Click this hyperlink while viewing on your computer to access
297 additional NY_MANIFEST: record(s) in the EDR Site Report.

AA166 **YOUNG CONTRACTING CORP.** **SWF/LF** **S105841700**
SSE **2501 THIRD AVENUE** **N/A**
1/4-1/2 **BRONX, NY 10451**
0.273 mi.
1441 ft. **Site 1 of 2 in cluster AA**

SWF/LF:

Flag:	INACTIVE
Region Code:	2
Phone Number:	2129933702
Owner Name:	Not reported
Owner Type:	Not reported
Owner Address:	Not reported
Owner Addr2:	Not reported
Owner City,St,Zip:	Not reported
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	NUNZIO SQUILLANTE
Contact Address:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Email:	Not reported
Contact Phone:	Not reported
Activity Desc:	Transfer station - regulated
Activity Number:	[03T59]
Active:	No
East Coordinate:	590400
North Coordinate:	4518200
Accuracy Code:	Not reported

YOUNG CONTRACTING CORP. (Continued) **S105841700**

Regulatory Status: Not reported
Waste Type: Not reported
Authorization #: 2-6004-00073
Authorization Date: Not reported
Expiration Date: Not reported

Z167 **P & R FIXTURES CORP** **LTANKS** **S104516899**
SE **271 E 139TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.278 mi.
1467 ft. **Site 3 of 3 in cluster Z**

LTANKS:

Site ID:	102522
Spill No:	9914720
Spill Date:	3/29/2000
Spill Cause:	Tank Overfill
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	1/23/2004
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	JMROMMEL
Referred To:	Not reported
Reported to Dept:	3/29/2000
CID:	312
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	3/29/2000
Spill Record Last Update:	1/23/2004
Spiller Name:	Not reported
Spiller Company:	ATLAS FUEL OIL
Spiller Address:	1110 BRONX RIVER AVE
Spiller City,St,Zip:	BRONX, NY 10472-
Spiller County:	001
Spiller Contact:	PAUL REISMAN
Spiller Phone:	(718) 293-0263
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	90787
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ROMMEL" CLOSED AND REFERENCED TO 0010599
Remarks:	DRIVER OVERFILLED THE TANK - ABOUT 5 OR 6 GAL OUTSIDE AND ABOUT 1 GAL IN THE BASEMENT - BEING CLEANED UP NOW

Material:

Site ID:	102522
Operable Unit ID:	1092661
Operable Unit:	01
Material ID:	293011

P & R FIXTURES CORP (Continued) **S104516899**

Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	7
Units:	Gallons
Recovered:	7
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9914720
Spill Date:	03/29/2000
Spill Time:	10:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	ROMMEL
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	03/29/00
Reported to Department Time:	10:21
SWIS:	60
Spiller Contact:	PAUL REISMAN
Spiller Phone:	(718) 293-0263
Spiller Extention:	Not reported
Spiller Name:	ATLAS FUEL OIL
Spiller Address:	1110 BRONX RIVER AVE
Spiller City,St,Zip:	BRONX, NY 10472-
Spiller Cleanup Date:	/ /

P & R FIXTURES CORP (Continued) **S104516899**

Facility Contact: Not reported
Facility Phone: (718) 893-4400
Facility Extention: Not reported
Spill Notifier: Responsible Party
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 03/29/00
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 03/29/00
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 7
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 7
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: DRIVER OVERFILLED THE TANK - ABOUT 5 OR 6 GAL OUTSIDE AND ABOUT 1 GAL IN THE BASEMENT - BEING CLEANED UP NOW

AA168 **2477 THIRD AVENUE PROPERTY** **BROWNFIELDS** **S109580082**
SSE **2477 THIRD AVENUE** **N/A**
1/4-1/2 **BRONX, NY 10454**
0.295 mi.
1555 ft. **Site 2 of 2 in cluster AA**

BROWNFIELDS:
Program: BCP
Site Code: 410705
Site Description: LOCATION: The site is located in an urban industrialized section of the south Bronx at the intersection of 3rd Avenue and the Major Deegan Expressway (I-87) between 135th Street and 136th Street. It is located approximately 1000 feet east of the Harlem River. The property consists of Block 2320, Lot 11 of tax map 20902, and is 0.214 acres in size. SITE FEATURES: The site contains gasoline pumps and concrete islands from a former gasoline station. CURRRENT ZONING/USE(S): The site is zoned commercial but is currently vacant.

2477 THIRD AVENUE PROPERTY (Continued) **S109580082**

HISTORICAL USE(S): The site was a gasoline filling station from the 1950 s until approximately 1989. Releases of petroleum products to the environment resulted in the site contamination. Previous site investigations were conducted from 2002 to 2008 in response to NYSDEC Spill # 0230034. None of these investigations provided a comprehensive investigation to determine all the impacts on and off the site; however, information was generated to determine that a significant petroleum contamination problem exists. A Remedial Investigation (RI) was completed under the Brownfields Cleanup Program in June 2011. The areas of petroleum contamination were defined in that RI. SITE GEOLOGY AND HYDROGEOLOGY: The site is approximately 15 feet above mean sea level. The nearest surface water body is the Harlem River, approximately 1000 west of the site. Groundwater was encountered from 7 to 10 feet below ground surface and was found to flow in a south-southwesterly direction towards the Harlem River.

Env Problem: NATURE AND EXTENT OF CONTAMINATION: Based on investigations conducted to date, the primary contaminants of concern in site soils and groundwater are petroleum related compounds. On-site soil samples exceeded Standards, Criteria, and Guidance (SCG) levels for VOCs at one of 14 samples taken in a 2010 investigation. Soil samples were taken from 2.5 to 149 feet below surface. A sample at MW-105 at 9.5 feet below surface included: 1,2,4-trimethylbenzene (up to 480 mg/kg), 1,3,5-trimethylbenzene (up to 110 mg/kg), ethylbenzene (up to 150 mg/kg), naphthalene (up to 17 mg/kg), n-butylbenzene (up to 37 mg/kg), propylbenzene (up to 81 mg/kg), o-xylene (up to 170 mg/kg), p/m-xylene (up to 700 mg/kg), and toluene (up to 12 mg/kg). All of the contaminants at this sample location exceeded the unrestricted use Soil Cleanup Objectives (SCO) and several exceed the commercial SCO. No free product was found. Seven SVOCs were detected in soils at levels exceeding the SCO for unrestricted use. The highest level of soil contamination was found at 9.5 feet below ground surface, however levels met the SCOs near the surface. On-site groundwater standards were exceeded for gasoline related VOCs including: 1,2,4-trimethylbenzene (up to 3,300 ug/L), 1,3,5-trimethylbenzene (up to 820 ug/L), benzene (up to 72 ug/L), ethylbenzene (up to 920 ug/L), toluene (up to 770 ug/L), o-xylene (up to 620 ug/L), m/p-xylene (up to 2,300 ug/L), and MTBE (46 ug/L). These levels of contamination were found in wells in the southern half of the site and wells in the northern part of the site were found to be non-detectable for any contaminants.

Health Problem: Since this site is covered with concrete and asphalt, people will not come into contact with the contamination unless they dig below the surface. People are not drinking the contaminated groundwater since the area is served by a public water supply that is not contaminated by the site. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings is referred to as soil vapor intrusion. Because there is no on-site building, inhalation of site contaminants in indoor air due to soil vapor intrusion does not represent a concern for the site in its current condition. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site construction. In addition, the potential exists for off-site migration of site-related contaminants in soil vapor.

169 SE 1/4-1/2 0.296 mi. 1563 ft. **BORINQUEN COURT**
285 E. 138TH ST
BRONX, NY 10454

NY Spills **S109208037**
BROWNFIELDS **N/A**

NY Spills:

Site ID:	399291
Facility Addr2:	MH-6475 (Alexander Ave)
Facility ID:	0890203
Spill Number:	0890203
Facility Type:	ER
SWIS:	0301
Investigator:	Unassigned
Referred To:	Not reported
Spill Date:	8/30/2007
Reported to Dept:	11/16/2007
CID:	Not reported
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Possible release with minimal potential for fire or hazard or Known release with no damage. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	9/4/2007
Remediation Phase:	0
Date Entered In Computer:	6/12/2008
Spill Record Last Update:	6/12/2008
Spiller Name:	ERT DESK
Spiller Company:	CON EDISON
Spiller Address:	5030 BROADWAY
Spiller City,St,Zip:	New York, NY
Spiller Company:	001
Contact Name:	ERT DESK
Contact Phone:	(212) 580-8383
DEC Region:	2
DER Facility ID:	348672
DEC Memo:	Not reported
Remarks:	MH-6475 - 2 pints of oil from uncapped cable ends Closed: Agency Approval Not Required

Material:

Site ID:	399291
Operable Unit ID:	1156157
Operable Unit:	01
Material ID:	2147036
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0.25
Units:	Gallons
Recovered:	Not reported
Resource Affected:	Not reported

BORINQUEN COURT (Continued) **S109208037**

Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

BROWNFIELDS:
Program: BCP
Site Code: 443691
Site Description: Location: The site is +/- 1.8 acres, located at 285 East 138th St. in the Bronx. The Site is bordered on the west by the intersection of Morris and 3rd Avenues, to the north by East 139th St., to the east by residential buildings and the NYC Police Department 40th Precinct, and to the south by East 138th St. Properties surrounding the site are primarily residential, with some commercial and industrial uses. Site Features: The Site is currently occupied by a 7-story residential building which houses low-income senior citizens. The applicant is East One Thirty Eight Housing Develop Fund Co., Inc., which is an affiliate of the West Side Federation for Senior and Supportive Housing (WSFSSH). WSFSSH is a community-based organization that provides supportive and affordable housing for senior citizens and other at-risk populations. Historical Uses: Former uses on the Site include a gasoline filling station with five 550-gallon underground storage tanks (USTs), which occupied the southwest corner of the property for at least 40 years prior to 1968. A parking garage and auto repair facility with 2 USTs occupied the north-central part of the site from at least 1935 through 1978. A metal works was located on the southeast portion of the site from 1951 through 1978, and a mattress manufacturing factory was located on the northwest part of the site from 1944 through 1978. The proposed project involves a complete internal and external renovation of the existing building. The Site would be entering the BCP at the investigation stage. No cleanup track has been identified; however the use of the site will continue to be residential. Geology: The Site lies within an area classified as Urban Land. This soil type consists of urbanized areas where the majority of the surface is covered with buildings, roads, driveways, parking lots, and other manmade structures. Further investigation is required to obtain information on site-specific geology. Hydrogeology: Regional groundwater flow direction in the area of the Site is convoluted and will be determined following the installation of groundwater monitoring wells. May 11, 2011 - the Department signed the Brownfield Cleanup Program Acceptance Letter for this site. June 28, 2011 - the Department signed and executed the Brownfield Cleanup Agreement for this site.
Env Problem: Nature and Extent of Contamination: A Phase I Environmental Site Assessment was submitted as part of the BCP application. It

BORINQUEN COURT (Continued) **S109208037**

identified several historic uses that may have caused potential subsurface contamination. However, no analytical data were included for review. The nature and extent of contamination, if any, cannot be established until a Remedial Investigation is completed.

Health Problem: Information submitted with the BCP application regarding the conditions at the site are currently under review and will be revised as additional information becomes available.

AB170 **LTANKS** **S105230093**
South **225 EAST 134TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.329 mi.
1736 ft. **Site 1 of 2 in cluster AB**

LTANKS:

Site ID:	108989
Spill No:	0108616
Spill Date:	11/27/2001
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	3/29/2004
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	CESAWYER
Referred To:	Not reported
Reported to Dept:	11/27/2001
CID:	281
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	11/27/2001
Spill Record Last Update:	3/29/2004
Spiller Name:	MOSHE ALTMART
Spiller Company:	FABOY LLC
Spiller Address:	2447 3RD AVE
Spiller City,St,Zip:	BRONX, NY 10451-
Spiller County:	001
Spiller Contact:	ROGER LOUGHLIN
Spiller Phone:	(718) 832-6700
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	95773
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SAWYER" 1/7/04-Vought-Spill transferred from Vought to Austin. 1/27/04 - Sawyer - Spill transferred from Austin to Sawyer. 3/29/04 - Sawyer - Minor spill no further info for 2 years. Mr. Altmart is going to send manifest or receipt. Closed.
Remarks:	CUSTOMER OVER ORDER FUEL OIL AT ABOVE LOCATION CASUING A TANK OVERFILL.

(Continued) **S105230093**

Material:

Site ID:	108989
Operable Unit ID:	846023
Operable Unit:	01
Material ID:	529855
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	8
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	0108616
Spill Date:	11/27/2001
Spill Time:	13:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	VOUGHT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	11/27/01
Reported to Department Time:	13:51
SWIS:	60
Spiller Contact:	ROGER LOUGHLIN
Spiller Phone:	(718) 832-6700

(Continued) **S105230093**

Spiller Extention: Not reported
Spiller Name: FABOY LLC
Spiller Address: 2447 3RD AVE
Spiller City,St,Zip: BRONX, NY 10451-
Spiller Cleanup Date: / /
Facility Contact: MOSHE ALTMART
Facility Phone: (718) 585-3242
Facility Extention: Not reported
Spill Notifier: Other
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 11/27/01
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/28/01
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 8
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: CUSTOMER OVER ORDER FUEL OIL AT ABOVE LOCATION CASUING A TANK OVERFILL.

AC171 **99 E 149 ST** **LTANKS** **S102619068**
North **99 E 149 ST** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.336 mi.
1775 ft. **Site 1 of 2 in cluster AC**

LTANKS:
Site ID: 268761
Spill No: 8905353
Spill Date: 8/30/1989
Spill Cause: Tank Test Failure
Spill Source: Commercial/Industrial
Spill Class: Known release that creates a file or hazard. DEC Response. Willing

99 E 149 ST (Continued) **S102619068**

	Responsible Party. Corrective action taken.
Spill Closed Dt:	3/4/2003
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	KMFOLEY
Referred To:	Not reported
Reported to Dept:	8/30/1989
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	9/1/1989
Spill Record Last Update:	6/1/2004
Spiller Name:	Not reported
Spiller Company:	EXXON MOBIL
Spiller Address:	99 E 149TH ST
Spiller City,St,Zip:	BRONX, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	218930
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "K FOLEY" 3/04/2003 - Closed Due To The Nature / Extent Of The Spill Report1/2/03 Reassigned From Sigona To Foley. Investigation Being Performed By Spartan Amoco Under Spill #9909670. Open Mobil #9208906.3/3/04 As Per The Closure Request Report Submitted For Mobil By Gsc, Spill #8905353 Initiated A Subsurface Investigation Conducted From 12/11/89-1/10/90 Which Included Installation Of 5 Mws (Mw-1A Thru Mw-5A). Vocs Were Above Groundwater Standards. This Was Summarized In The February 1990 Roux Subsurface Evaluation Report. Mw-1A Through Mw-5A Were Destroyed (4/90-11/91) Due To Construction Activities Conducted By Amoco. Five 4000Gal Gas Usts, One 550Gal Waste Oil Ust, And One 550Gal Fuel Oil Ust And Piping Were Removed From Site.A Subsurface Investigation Conducted In April 1991 Included Installation Of Two Soil Borings And One Monitoring Well(Mw-6). Results Were Summarized In 6/91 Roux Supplemental Subsurface Investigation Report.A Subsurface Investigation Conducted In November 1991 Included Installation Of 11 Monitoring Wells (Mw-1 Through Mw-5 And Mw-7 Through Mw-12) And One Air Sparge Well (Sp-1). Results Were Summarized In A Gti Report.Spill #9208906 Was Issued To The Site On 11/2/92 As A Result Of Contaminated Soil Observed During Amoco Site Construction Activities.
Remarks:	4K TANK FAILED PETRO-TITE. L R = 1 GAL / 30 MIN. CLOSED DUE TO LACK OF ANY RECENT INFO - DOES NOT MEET ANY CLEANUP REQUIREMENTS.

Material:

Site ID:	268761
Operable Unit ID:	933011
Operable Unit:	01
Material ID:	445790

99 E 149 ST (Continued) **S102619068**

Material Code: 0009
Material Name: Gasoline
Case No.: Not reported
Material FA: Petroleum
Quantity: -1
Units: Pounds
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: 268761
Spill Tank Test: 1535936
Tank Number: Not reported
Tank Size: 0
Test Method: 00
Leak Rate: 0
Gross Fail: Not reported
Modified By: Spills
Last Modified: 10/1/2004
Test Method: Unknown

HIST LTANKS:
Region of Spill: 2
Spill Number: 8905353
Spill Date: 08/30/1989
Spill Time: 14:20
Spill Cause: Tank Test Failure
Resource Affectd: Groundwater
Water Affected: Not reported
Spill Source: Other Commercial/Industrial
Spill Class: Known release that creates a file or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: SULLIVAN
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 08/30/89
Reported to Department Time: 14:48
SWIS: 60
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: SAME
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spiller Cleanup Date: / /

99 E 149 ST (Continued) **S102619068**

Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Notifier: Tank Tester
PBS Number: 2-156590
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 09/01/89
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/13/92
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: 4K TANK FAILED PETRO-TITE. L R = 1 GAL / 30 MIN.

AC172 **AMOCO** **LTANKS** **S104278682**
North **99 EAST 149TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY** **NY Spills**
0.336 mi.
1775 ft. **Site 2 of 2 in cluster AC**

LTANKS:
Site ID: 268763
Spill No: 9909670
Spill Date: 11/9/1999
Spill Cause: Tank Test Failure
Spill Source: Gasoline Station
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/13/2008
Facility Addr2: Not reported
Cleanup Ceased: 2/11/2004
Cleanup Meets Standard: False

AMOCO (Continued) **S104278682**

SWIS:	0301
Investigator:	jamaison
Referred To:	NFA
Reported to Dept:	11/9/1999
CID:	252
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	True
Remediation Phase:	0
Date Entered In Computer:	11/9/1999
Spill Record Last Update:	11/13/2008
Spiller Name:	HANK ALPERT
Spiller Company:	SPARTAN PETROLEUM
Spiller Address:	3333 NEW HYDE PARK ROAD
Spiller City,St,Zip:	NEW HYDE PARK, NY 11042-
Spiller County:	001
Spiller Contact:	JAY SEMMELMACHER
Spiller Phone:	(516) 295-3400
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	218930
DEC Memo:	PBS 2-156590 1/20/04 File review (Foley): Prior to divesting this site in March 1990, a site assessment was performed by Roux (hired by Mobil) which indicated elevated BTEX existed in both groundwater and soil, but no free product was found. Upon transfer of property(8/90), the new owner began to install new USTs. During tank replacement, 875 tons of contaminated soil was removed and disposed of. During construction, two upgradient wells were destroyed. Three downgradient wells remained intact. The two wells which were destroyed showed ND for BTEX during sampling. In May 1991, there was an apparent vapor problem in the kiosk at the now active Amoco station. Amoco installed a venting system to alleviate the problem. Based on this, Mobil installed two borings and one well in the vicinity of the kiosk. The report indicated that the soils surrounding the kiosk did not contain very high levels of BTEX in soil. The monitoring well installed contained 0.01' of product. This well is upgradient of all former Mobil tank areas. Additional constuction at the site for a car wash has destroyed three downgradient wells. Thus, only one well remains on the property. However, upon completion of the construction, up to ten additional wells shall be installed at the site. Wells will be installed after construction is completed. 11/91 Eleven monitoring wells and a sparge point were installed. 12/9/91 MW-11 had 0.84' of product. 1/22/92 MW-11 had 0.21' of product. 2/20/92 MW-11 had 7.16' of product. A vac truck has been scheduled on a biweekly basis to extract LNAPL from MW-11. 3/92 LNAPL was detected in MW-11 (0.07-3.02'). Approx 70gal was extracted from MW-11 on 3/4, 3/13, 3/16 using vac truck. Trace amounts of LNAPL were hand-bailed from MW-11 on 3/18 & 3/27. Water sample from car wash well was collected by Tyree, analyzed by Method 602, and returned ND. 4/92 MW-11 had 0.08-0.18' of LNAPL and approx 2.5gal LNAPL bailed. 6/8/92 An EZY Skimmer was installed in MW-11. 7/92-6/93 No LNAPL was detected in any wells. 1/94-3/94 MW-10 had 0.28' product. MW-11 had 0.01' product. 5/94 MW-11 had trace amount of product. 7/11/94 SVE started. DTW 16' bgs. 6 combination SVE/AS points. Will sample all MWs before sparge system started. 2/8/95 0.01' product in BD-1. BTEX from

AMOCO (Continued) **S104278682**

ND(MW-1) to 30,000ppb(MW-5). 10/27/99 Cross Deegan Realty notified by station operator of possible inventory loss. Alvin Petroleum exposed portions of system over next two weeks. No system leaks were detected. 11/9/99 Alvin Petro. requests a tightness test be performed. Crompco detected a leak in one of the four tanks and reported the failure. 11/10/99 Alvin Petro. exposed and removed remote fill box on the tank that failed test. A coupling that connects the piping to the overflow box was found cracked. The coupling was replaced and system retested tight. 11/16/99 Crompco retested system with FDNY and passed. 11/22/99 Impact Environmental performed a limited subsurface investigation of soil adjacent to coupling and concluded that gasoline had impacted soil/GW. Report states that current owner only intends on addressing contamination from 10/99 spill and not the 1992 spill. 10/31/00 Three wells sampled and gauged. SVE system removed from service. ORC socks in wells MW-1 and MW-5. BTEX from 15ppb(MW-12) to 868ppb(MW-1). MTBE from 31ppb(MW-11) to 49,000ppb(MW-1). 2/5/01 Seven wells sampled. BTEX from ND(MW-12) to 240ppb(MW-1). MTBE from <1ppb(MW-12) to 64,000ppb(MW-7). 4/26/01 Seven wells sampled. MTBE has increased in monitoring wells hydraulically downgradient from the current dispenser island and USTs. MTBE ranged from 14ppb(MW-11) to 920,000ppb(MW-10). BTEX ranged from 12.8ppb(MW-11) to 6,080ppb(MW-10). 10/23/01 Eight wells sampled. BTEX from 14ppb(MW-6) to 4,750ppb(MW-10). MTBE from 18ppb(MW-11) to 270,000ppb(MW-10). 1/17/02 Eight wells sampled. BTEX from ND(MW-5) to 1,794ppb(MW-10). MTBE from 29(MW-5) to 65,000ppb(MW-7). 4/30/02 Six wells sampled. BTEX from ND(MW-5 & MW-6) to 1173ppb (MW-10). MTBE from 7.6ppb(MW-1) to 24,000ppb(MW-5). 5/15/02 Sensitive Receptor survey identified PS 31 approx 850' to the southeast. There are residential and commercial buildings with basements immediately adjacent to the site to the north. A subway tunnel is located beneath E 149th St.

03/17/03 REASSIGNED FROM ROMMEL TO VOUGHT. 11/18/03 Received CAP/Remediation Plan, 3rd Quarter 2003 monitoring report, and tank test results(pass). 12/10/03 Reassigned from Vought to Foley. See closed spills #0307681, 9208906. Review of Remediation Plan: A SVE/AS system was installed by Handex and operated on the property to address spill #9208906. The system is comprised of four soil vapor extraction wells and six air sparge points. At this time, the system is not operational. A monitoring program is being performed. 11/9/99 Tank system tightness test performed by Crompco indicated a leak near the remote fill box. The leak was repaired. Soil staining and petroleum odor was noted below the fill box. Spill 9909670 was reported. 11/22/99 Impact Environmental started subsurface investigation. Groundwater results exceeded standards. 7/7, 7/25, 10/23/00 Enhanced fluid recovery performed on MW-2 as an IRM. Impact Environmental proposes 1) monthly EFR on hottest wells for 6 months, 2) replacement/upgrade of air sparge equipment installed to address #9208906, 3) SVES to be modified to include MW-2. 9/3/03 Impact Environmental sampling data (for Amoco): BTEX levels range from ND(MW-5, 11, 12) to 1606ppb(MW-6). MTBE ranges from ND(MW-12) to 650,070ppb(MW-6). 10/6/03 GSC sampling data (for Mobil): BTEX ranged from ND(MW-2) to 3800ppb(MW-6). MTBE ranges from 9.8ppb(MW-11) to 1,240,000ppb(MW-6). 11/26/03 Impact Environmental data from 4Q2003 report shows MW-6 and MW-2 to be hot spots. BTEX ranges from ND(MW-12) to 6923ppb(MW-6). MTBE ranges from ND(MW-12) to 869,600ppb(MW-6). 2/2/04 Faxed stip to Mr. Hank Alpert, Cross Deegan

AMOCO (Continued) **S104278682**

Realty. Due back 2/23/04. (FAX 516-365-1606) 2/11/04 STIP returned. Cover letter states that a previous CAP for spill #9909670 was already approved by DEC and was authorized to develop CAP for spill #0307681 (dated 11/13/03). 2/13/04 STIP fully executed. 3/4/04 Letter received from DDC(Bruce Rottner) to J. Semelmacher. Requests Amoco's participation in DOT reconstruction project instead of reimbursement of cleanup costs. 3/15/04 Called B. Rottner. He explained that he recieved a phonecall from the owners attorney who stated that contamination was from a Dept of Sanitation garage. However, monitoring well on that property was installed and was clean. Spartan will be sending another letter to DDC at which time B. Rottner will forward a copy to me. 3/10/04 Received 1Q04 monitoring report. Need to delineate around MW-6 and MW-2. 6/18/04 Received 2Q2004 monitoring report. 6/30/04 Met with Spartan Petroleum (H. Alpert) and Impact Env. Received hand-delivered letter dated 6/28/04. Site is located on 149th St between Gerard and River Avenues. The site was impacted by a release detected in 1992 while under lease to Mobil Oil. Mobil installed an SVE/AS system. A new release was confirmed and Spartan released Mobil from contractual obligations. As an IRM, EFR was performed on MW-2. Approx 1075gal GW was extracted. An enhanced SVE/AS was run from July 12, 2001 to the present. During the period from 11/9/99 to 3/3/03, there was a steady decline in contaminant concentrations. In May 2003, BTEX concentrations began to increase unexpectedly. A system test was performed and all lines and tanks tested tight. An off-site source was suspected. Identified a NYCDOS truck terminal upgradient. Also found many monitoring wells on the NYSDOS site. Thru a FOIL request, review of the NYSDEC files incidate that the NYCDOS site is impacting 99 E 149th St. Request closure. 10/4/04 Received 3Q04 monitoring report. 11/19/04 Met with K. Kleaka and K. Scroope, Impact Env. NYCDOS property on eastside of Gerard Avenue (DOS Manhattan West 9). See spill #s 9513870, 9910856. 11/23/04 Email from J. Kolleeny- City's consultant, LiRo, had been performing EFR on wells with free product for several years until last year when a multi-phase extraction system went on line. A MW along E 149th St has had product in it which LiRo identified as weathered #2FO. Although they have been willing to vac out this well, and the remedial system now has extraction wells near it, LiRo has argued that the product in the well was likely coming from off-site because they claimed there was no DOS tanks at that end of their site. However, the PBS list an old 2000gal heating oil tank and a new (4/03) tank at the site. Asked LiRo to locate these tanks. Will keep me updated. 4/13/05 Spoke to K. Kleaka, Impact Env. Will be proposing to shutdown system soon as recovery is decreasing. Still concerned about DOS site having impacts on property. Proposal will include confirmatory soil sampling. 5/6/05 1Q05- GW sample collected on 3/14/05 from MW-8 did not detect any VOCs. Samples from MW-1 and MW-5 detected concentrations of VOCs but not above GWQS. MW-12 was paved over. Several detected concentrations from MW-2,6,7,9,10 & 11 exceeded GWQS. These concentrations are within ROI of system. Told H. Benjamin that it was not necessary to reinstall MW-12. 5/23/05 Sent email to K. Kleaka, Impact Env. After reviewing the July 2004-Sept 2004 and Jan 2005-March 2005 quarterly reports for Manhattan West 9 (operated by NYCDOS at 125 East 149th St, Bronx), it is not clear that the contamination detected at MW-2 is due to impacts from the NYCDOS facility. Historical data for 99 E 149th St shows a significant spike of MTBE at MW-6(869.6ppm) and at MW-2(191.2ppm). The historical data for the NYCDOS facility, dating back to 2000(with

AMOCO (Continued) **S104278682**

some data gaps), does not indicate that the facility is acting as a source of off-site contamination. The only MTBE detection in the NYCDOS wells was in the NW corner of the property(170ppb in 1/00). NYSDOS has been operating a MPE system since 11/12/03. 11/8/05 3Q05 report - Total of 537.84lbs of hydrocarbons removed. Approx 9lbs recovered in last 22 day period. Groundwater concentrations highest in MW-2 at 1420ppb total BTEX and 1500ppb MTBE. MW-6 at 100ppb BTEX and 53ppb MTBE. MW-7 at 10ppb BTEX and 56ppb MTBE. 1/11/06 Met with K. Kleaka and H. Benjamin, Impact. To submit 4Q05 report. Redeveloped sparge points to try and increase efficiency of system which continues to operate. 2/17/06 4Q05 report submitted. SVE continues to operate. Lab analysis from 11/28/05 did not detect VOCs in MW-8. Wells MW-5 and MW-11 had concentrations which did not exceed GWQS. Samples from MW-1,2,6,9,and 10 did exceed GWQS. 3/30/06 1Q06 report submitted. BTEX from ND(MW-1,5,6,8,9,11) to 970ppb(MW-2). MTBE from ND(MW-5,6,8) to 980ppb(MW-2). SVE continues to operate. Total estimated hydrocarbons recovered is 538lbs. 6/30/06 DEC lead transferred from K. Foley to J.A. Maisonave. - JAM 11/27/06 Reviewed 2nd and 3rd Qtr 2006 Monitoring Reports. Groundwater contamination persists in the area of monitoring well MW-2 (~4000ppb). H. Benjamin of Impact Env. proposed performing a pulse test on the system to see if rebound will occur since the system appears to have reached asymptotic conditions. I sent an email to Mr. Benjamin requesting a map showing the radius of influence for each air sparge and SVE point and that GW contamination at MW-2 must be addressed. I also asked if there was soil contamination at the site. If so, has the SVE system effectively treated it? Must prove by confirmatory soil sampling. Email is in the file. - JAM 02/13/07 Reviewed a letter submitted by Impact Env. and dated January 17, 2007. The letter proposes: 1. All monitoring wells will be redeveloped utilizing a surge block and vacuum truck. 2. Monthly Enhanced Fluid Recovery (EFR) events will be performed on MW-2 to reduce the contaminant concentrations in the surrounding area. Said events will be performed utilizing a 2X4 inch diameter K-Packer on a 2-inch diameter drop pipe to maximize liquid and vapor capture. 3. Groundwater sampling will continue on a quarterly schedule. 4. SVE & Sparge operations will continue with the existing system. I sent an email approving these proposals. Groundwater sampling data and recommendations will be submitted in the next quarterly report. A hard copy of the email will be in the file. - JAM 3/29/07 Reviewed 4th Qtr 2006 Monitoring Report submitted by Impact Env. and dated March 6, 2007. All wells were sampled on November 29, 2006. Results were non-detect for total VOCs except for MW-2, which shows persistent levels of VOCs (2,675ppb Total VOCs). The SVE/AS system continues to operate at the site. According to the report, monthly EFR events on MW-2 should have begun in February 2007 and results will be included in the next Monitoring Report. - JAM 6/21/07 Reviewed 1st Qtr 2007 Monitoring Report submitted by Impact Env and dated May 30, 2007. On February 28, 2007, all wells were redeveloped and EFR events commenced on MW-2 All wells were then sampled on March 1, 2007. Wells MW-1, MW-6, and MW-9 showed non-detect results for total VOCs. Wells MW-5, MW-7, MW-8, MW-10 and MW-11 had slight exceedences for Napthalene (ranging from 68ppb to 100ppb). MW-2 showed a decrease of total VOCs from last monitoring round to 1,936ppb. The SVE/AS system continues to operate. - JAM 12/04/07 Reviewed 2nd Qtr 2007 Monitoring Report submitted by Impact Env and dated Sept 18, 2007. All wells were sampled on June 14, 2007 and monthly EFR events continue on MW-2. Wells MW-1, MW-2, MW-9,

AMOCO (Continued) **S104278682**

MW-10 and MW-11 showed exceedences for total VOCs. Wells MW-5, MW-6 were not sampled because they were dry. MW-2 still has the highest level of VOCs, however, it showed a decrease from the last monitoring round to 857ppb from 1,936ppb. The SVE/AS system continues to operate. - JAM Reviewed 3rd Qtr 2007 Monitoring Report submitted by Impact Env and dated Oct 30, 2007. All wells were sampled on Sept 6, 2007 and monthly EFR events continue on MW-2. Results from wells MW-1, MW-2, MW-5, MW-6, MW-7, MW-8 and MW-9 showed non-detect levels for total VOCs. Wells MW-10, MW-11 showed minor exceedences for MTBE (44ppb and 50ppb respectively). Based on the latest result, monthly EFR events appear to have effectively reduced contaminants in MW-2. The SVE/AS system continues to operate. - JAM 4/14/08 Received a call from Hal Benjamin about the Exposure Assessment submitted in March 2008 by Impact Env. They are requesting spill closure and I will get back to him after I review the report. - JAM 5/1/08 Reviewed Exposure Assessment Report. Based on the Exposure Assessment, Impact Env. concludes that the source of contamination has been effectively mitigated and small levels of residual groundwater contamination pose no threat to human health. Impact requests spill closure. I requested a summary of historic soil data associated with this spill. -JAM 6/11/08 Spoke to Hal Benjamin, Impact. An on-site well provides the operating car wash with water. I requested that this well be sampled and results reported in a letter. Spill closure will be reevaluated when results are available. - JAM 8/8/08 Reviewed letter from Spartan dated July 16, 2008. The on-site well that services the carwash was sampled and all analytes were found non-detect. I called Hal and asked the depth at which the car wash well pulls water from and if there are any sampling requirements for that well. He will get back to me. - JAM 11/13/08 Since the on-site car wash supply well did not detect and VOCs and only minor levels of MTBE were detected in two on-site wells, this site poses no threat to human health or the environment. This spill case was closed and an NFA letter was issued to: Henry Alpert Cross Deegan Realty, Corp. 3333 New Hyde Park Rd, Suite 201 New Hyde Park, NY 11042 NFA letter uploaded to eDocs. - JAM

Remarks: WILL REPAIR AND RE-TEST AS OF TOMMOROW'S DATE 11-10-99

Material:

Site ID:	268763
Operable Unit ID:	1084425
Operable Unit:	01
Material ID:	298747
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	True
Site ID:	268763
Operable Unit ID:	1084425
Operable Unit:	01
Material ID:	2106716
Material Code:	1213A
Material Name:	MTBE (METHYL-TERT-BUTYL ETHER)
Case No.:	01634044

AMOCO (Continued) **S104278682**

Material FA: Hazardous Material
Quantity: Not reported
Units: Not reported
Recovered: Not reported
Resource Affected: Not reported
Oxygenate: True

Tank Test:
Site ID: 268763
Spill Tank Test: 1547826
Tank Number: Not reported
Tank Size: 4000
Test Method: 20
Leak Rate: 0
Gross Fail: Not reported
Modified By: Spills
Last Modified: 10/1/2004
Test Method: USTest 2000/P/LL plus USTest 2000/U

HIST LTANKS:
Region of Spill: 2
Spill Number: 9909670
Spill Date: 11/09/1999
Spill Time: 13:30
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Gas Station
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: ROMMEL
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 11/09/99
Reported to Department Time: 14:34
SWIS: 60
Spiller Contact: JAY SEMMELMACHER
Spiller Phone: (516) 295-3400
Spiller Extention: Not reported
Spiller Name: AMOCO
Spiller Address: 99 EAST 149TH ST
Spiller City,St,Zip: BRONX, NY 08080-
Spiller Cleanup Date: / /
Facility Contact: JAY SEMMELMACHER
Facility Phone: (516) 295-3400
Facility Extention: Not reported

AMOCO (Continued) **S104278682**

Spill Notifier: Tank Tester
PBS Number: 2-600626
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: True
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 11/09/99
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 02/14/00
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 4000
Test Method: USTest 2000
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: WILL REPAIR AND RE-TEST AS OF TOMMOROW S DATE 11-10-99

NY Spills:
Site ID: 268760
Facility Addr2: Not reported
Facility ID: 0307681
Spill Number: 0307681
Facility Type: ER
SWIS: 0301
Investigator: KMFOLEY
Referred To: Not reported
Spill Date: 10/21/2003
Reported to Dept: 10/21/2003
CID: 281
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Gasoline Station
Spill Notifier: Other
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended

AMOCO (Continued) **S104278682**

UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/10/2003
Remediation Phase:	0
Date Entered In Computer:	10/21/2003
Spill Record Last Update:	6/1/2004
Spiller Name:	Not reported
Spiller Company:	SPARTAN PETROLEUM & MOBIL
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	IMPACT ENVIROMENTAL
Contact Phone:	(631) 269-8800
DEC Region:	2
DER Facility ID:	218930
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "K FOLEY" 10/21/03 TJD @duty desk Soil contamination letter sent to Amoco. 11/7/03 CALL FROM IMPACT ENV. //REQUESTING INFO// 11/18/03 Received CAP, 3rd Quarter 2003 monitoring report, and tank test results(pass). 11/21/03 transferred from tipple to vought 12/10/03 Reassigned from Vought to Foley. To be investigated and remediated under spill #9909670.(KMF)
Remarks:	Ground water samples taken at above location reveal contamination. No further information available at time of call.

Material:

Site ID:	268760
Operable Unit ID:	874077
Operable Unit:	01
Material ID:	501207
Material Code:	0066A
Material Name:	UNKNOWN PETROLEUM
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False
Site ID:	268760
Operable Unit ID:	874077
Operable Unit:	01
Material ID:	501206
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported

AMOCO (Continued) **S104278682**

Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

AD173 **LINCOLN** **LTANKS** **1001754757**
WSW **2142 MADISON AVENUE** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.340 mi.
1794 ft. **Site 1 of 3 in cluster AD**

LTANKS:

Site ID:	214153
Spill No:	9104756
Spill Date:	8/1/1991
Spill Cause:	Tank Overfill
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	Not reported
Spill Closed Dt:	8/2/1991
Facility Addr2:	Not reported
Cleanup Ceased:	8/2/1991
Cleanup Meets Standard:	True
SWIS:	3101
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	8/1/1991
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Affected Persons
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	8/7/1991
Spill Record Last Update:	12/27/1993
Spiller Name:	Not reported
Spiller Company:	COASTAL OIL
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	177424
DEC Memo:	Not reported
Remarks:	CONTRACTOR ON SCENE WITH VAC TRUCK TO CLEAN UP,SPILL CONTAINED IN SUMPPIT,SUMP TURNED OFF,WINSTON CONTRACTORS DID CLEAN UP,NO PRODUCT IN SEWERS.

Material:

Site ID:	214153

LINCOLN (Continued) **1001754757**

Operable Unit ID: 955528
Operable Unit: 01
Material ID: 423815
Material Code: 0002
Material Name: #4 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 50
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

HIST LTANKS:
Region of Spill: 2
Spill Number: 9104756
Spill Date: 08/01/1991
Spill Time: 16:00
Spill Cause: Tank Overfill
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Class: Not reported
Spill Closed Dt: 08/02/91
Cleanup Ceased: 08/02/91
Cleanup Meets Standard: True
Investigator: HEALY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 08/01/91
Reported to Department Time: 19:45
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: COASTAL OIL
Spiller Address: Not reported

LINCOLN (Continued) **1001754757**

Spiller City,St,Zip: Not reported
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Notifier: Affected Persons
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 08/07/91
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 12/27/93
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 50
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: CONTRACTOR ON SCENE WITH VAC TRUCK TO CLEAN UP,SPILL CONTAINED IN SUMPPIT,SUMP TURNED OFF,WINSTON CONTRACTORS DID CLEAN UP,NO PRODUCT IN SEWERS.

AE174 **RIVERTON APARTMENTS** **LTANKS** **S106385597**
West **2225-2237 5TH AVE** **N/A**
1/4-1/2 **NEW YORK, NY**
0.345 mi.
1823 ft. **Site 1 of 2 in cluster AE**

LTANKS:
Site ID: 260631
Spill No: 0313699
Spill Date: 3/15/2004
Spill Cause: Tank Test Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 6/19/2006

RIVERTON APARTMENTS (Continued) **S106385597**

Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	3101
Investigator:	Unassigned
Referred To:	Not reported
Reported to Dept:	3/15/2004
CID:	444
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	3/15/2004
Spill Record Last Update:	8/21/2008
Spiller Name:	ADAM HOLLAR
Spiller Company:	RIVERTON APARTMENTS
Spiller Address:	22-25 5TH AVE
Spiller City,St,Zip:	NEW YORK, NY
Spiller County:	999
Spiller Contact:	ADAM HOLLAR
Spiller Phone:	(212) 234-7500
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	212873
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "DEMEO" send TTF letter. 7/26/04 Tipple spoke with Mr. Hollar, Tim DeMeo working on site with Mr. Hollar///cleanup in progress///Site transferred to DeMeo, spill report faxed to Mr. Hollar, tank and contaminated soil to be removed Durnin: This spill was associated with spill 0312468 (#2 oil seeping from 25,000 gal. UST into basement) which was closed on May 16, 2006. This spill, #0313699, was a tank test failure of the same 25,000 gal. UST. Durnin: August 23, 2005-Airtek Environmental Corp. was hired to oversee the removal and replacement of the 25,000 gallon UST. Durnin: August 25, 2005-Durnin visits site to witness tank excavation pit and affected basement. Durnin: August 31, 2005- Durnin visits site to witness installation of new 25,000 gallon UST. Durnin: February 13, 2006-Airtek Environmental Corp. submits a Remedial Action Report, Exposure Assessment report and a CD of photographs. Durnin: The Remedial Action Report was reviewed and approved on April 17, 2006. Durnin: Spill No. 0313699 was closed based on the Remedial Action Report and a subsequent site investigation findings by the Owner's environmental consultant. Durnin: The site was closed on June 19, 2006.
Remarks:	DRY LERAK AND THEY HANDLING IT AT THIS TIME:

Material:

Site ID:	260631
Operable Unit ID:	880814
Operable Unit:	01
Material ID:	495296
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0

RIVERTON APARTMENTS (Continued) **S106385597**

Units: Pounds
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

AF175 **PATTERSON HOUSES -NYCHA** **LTANKS** **U001840647**
East **301 EAST 143RD STREET** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY** **HIST UST**
0.347 mi. **NY Spills**
1832 ft. **Site 1 of 2 in cluster AF**

LTANKS:
Site ID: 125319
Spill No: 9504190
Spill Date: 7/7/1995
Spill Cause: Tank Test Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/2/2005
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: SWKRASZE
Referred To: Not reported
Reported to Dept: 7/7/1995
CID: Not reported
Water Affected: Not reported
Spill Notifier: Tank Tester
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 7/7/1995
Spill Record Last Update: 12/2/2005
Spiller Name: Not reported
Spiller Company: NYC HOUSING AUTHORITY
Spiller Address: Not reported
Spiller City,St,Zip: ZZ
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

DEC Region:	2
DER Facility ID:	108400
DEC Memo:	12/02/05: This spill transferred from J.Kolleeny to S.Kraszewski. This spill closed to consolidate with open spill #0506695.
Remarks:	TANK #2 - GROSS FAILURE

Material:

Site ID:	125319
Operable Unit ID:	1015296
Operable Unit:	01
Material ID:	365688
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	125319
Spill Tank Test:	1543982
Tank Number:	002
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

Site ID:	125318
Spill No:	9414368
Spill Date:	1/19/1995
Spill Cause:	Tank Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	3/31/1995
Facility Addr2:	Not reported
Cleanup Ceased:	3/31/1995
Cleanup Meets Standard:	True
SWIS:	0301
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	1/19/1995
CID:	Not reported
Water Affected:	GROUNDWATER
Spill Notifier:	DEC
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

Date Entered In Computer: 2/2/1995
Spill Record Last Update: 3/31/1995
Spiller Name: Not reported
Spiller Company: NYC HOUSING AUTHORITY
Spiller Address: Not reported
Spiller City,St,Zip: ZZ
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 108400
DEC Memo: Not reported
Remarks: BROKEN FUEL LINES. SEEPAGE BEGAN IN NOVEMBER, HAS CONTINUED UNABATED. NYCHA TO REPLACE FUEL LINES.

Material:
Site ID: 125318
Operable Unit ID: 1007947
Operable Unit: 01
Material ID: 373110
Material Code: 0003
Material Name: #6 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: -1
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

HIST LTANKS:
Region of Spill: 2
Spill Number: 9504190
Spill Date: 07/07/1995
Spill Time: 12:00
Spill Cause: Tank Test Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 07/07/95
Reported to Department Time: 12:43
SWIS: 60
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYC HOUSING AUTHORITY
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: (212) 306-3142
Facility Extention: Not reported
Spill Notifier: Tank Tester
PBS Number: 2-473219
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 07/07/95
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: / /
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: 002
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: TANK 2 - GROSS FAILURE

Region of Spill: 2
Spill Number: 9414368
Spill Date: 01/19/1995
Spill Time: 13:50
Spill Cause: Tank Failure
Resource Affectd: Groundwater
Water Affected: GROUNDWATER
Spill Source: Other Non Commercial/Industrial
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 03/31/95
Cleanup Ceased: 03/31/95
Cleanup Meets Standard: True
Investigator: HEALY
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 01/19/95
Reported to Department Time: 13:50
SWIS: 60
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYC HOUSING AUTHORITY
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: (212) 306-3142
Facility Extention: Not reported
Spill Notifier: DEC
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 02/02/95
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 03/31/95
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: BROKEN FUEL LINES. SEEPAGE BEGAN IN NOVEMBER, HAS CONTINUED UNABATED. NYCHA TO REPLACE FUEL LINES.

HIST UST:
PBS Number: 2-473219
SPDES Number: Not reported
Emergency Contact: EMERGENCY SERVICE DEPT.
Emergency Telephone: (212) 289-3940
Operator: LUIS PONCE
Operator Telephone: (718) 707-5725
Owner Name: NYC HOUSING AUTHORITY
Owner Address: 23-02 49TH AVENUE
Owner City,St,Zip: LONG ISLAND CITY, NY 11101
Owner Telephone: (718) 707-5725
Owner Type: Local Government
Owner Subtype: 51
Mailing Name: NYC HOUSING AUTHORITY
Mailing Address: 23-02 49TH AVENUE
Mailing Address 2: Not reported
Mailing City,St,Zip: LONG ISLAND CITY, NY 11101
Mailing Contact: LUIS PONCE
Mailing Telephone: (718) 707-5725
Owner Mark: First Owner
Facility Status: 1 - Active PBS facility, i.e. total capacity of the PBS tanks is greater than 1,100 gallons, regardless if Subpart 360-14 tanks exist or not at the facility.
Facility Addr2: 301 EAST 143RD ST (MGMT OFFICE)
SWIS ID: 6001
Old PBS Number: Not reported
Facility Type: APARTMENT BUILDING
Inspected Date: Not reported
Inspector: Not reported
Inspection Result: Not reported
Federal ID: Not reported
Certification Flag: False
Certification Date: 12/28/2001
Expiration Date: 03/28/2004
Renew Flag: False
Renewal Date: Not reported
Total Capacity: 80000

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	Minor Data Missing
Tank Screen:	Minor Data Missing
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	60
Town or City:	01
Region:	2

Tank Id:	1
Tank Location:	UNDERGROUND
Tank Status:	In Service
Install Date:	19501201
Capacity (gals):	40000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Wrapped (Piping)
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987
Missing Data for Tank:	Minor Data Missing
Date Closed:	Not reported
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	2
Tank Location:	UNDERGROUND
Tank Status:	Temporarily Out Of Service
Install Date:	19741201
Capacity (gals):	40000
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	Not reported
Tank External:	Not reported
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	Not reported
Pipe External:	Wrapped (Piping)
Second Containment:	Not reported
Leak Detection:	Not reported
Overfill Prot:	Product Level Gauge
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	12/27/1987

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

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

NY Spills:
Site ID: 351953
Facility Addr2: Not reported
Facility ID: 0506695
Spill Number: 0506695
Facility Type: ER
SWIS: 0301
Investigator: jkkann
Referred To: CONSOLIDATED WITH 8906597
Spill Date: 8/31/2005
Reported to Dept: 8/31/2005
CID: 408
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Notifier: Responsible Party
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/30/2009
Remediation Phase: 0
Date Entered In Computer: 8/31/2005
Spill Record Last Update: 12/30/2009
Spiller Name: FRANK INOA
Spiller Company: Not reported
Spiller Address: 301 EAST 143RD STREET
Spiller City,St,Zip: BRONX, NY
Spiller Company: 001
Contact Name: FRANK INOA
Contact Phone: (718) 707-5718
DEC Region: 2
DER Facility ID: 108400
DEC Memo: 11/1/05: This spill transferred from J.Kolleeny to S.Kraszewski. 9/22/06: Spill transferred from Kraszewski to Kann. 12/30/09: J.kann - spill consolidated with 8906597
Remarks: TANK REMOVAL, SOIL BORINGS WERE DONE AND CAME BACK SHOWING CONTAMINATION

Material:
Site ID: 351953
Operable Unit ID: 1109456
Operable Unit: 01
Material ID: 2099480
Material Code: 0001
Material Name: #2 Fuel Oil
Case No.: Not reported

PATTERSON HOUSES -NYCHA (Continued) **U001840647**

Material FA:	Petroleum
Quantity:	Not reported
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

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176 NNE 1/4-1/2 0.349 mi. 1843 ft. **GRAND CONCOURSE REALTY CO** **LTANKS S104782387**
557 GRAND CONCOURSE **HIST LTANKS N/A**
BRONX, NY

LTANKS:

Site ID:	108555
Spill No:	0007591
Spill Date:	9/27/2000
Spill Cause:	Tank Overfill
Spill Source:	Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	10/1/2004
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	KMFOLEY
Referred To:	Not reported
Reported to Dept:	9/28/2000
CID:	390
Water Affected:	Not reported
Spill Notifier:	Local Agency
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	9/28/2000
Spill Record Last Update:	10/4/2004
Spiller Name:	BRUCE BECK
Spiller Company:	WOLF PETROLEUM
Spiller Address:	557 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX, ZZ
Spiller County:	001
Spiller Contact:	BRUCE BECK

GRAND CONCOURSE REALTY CO (Continued) **S104782387**

Spiller Phone:	(631) 226-9080
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	95382
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "K FOLEY" 12/4/03 Reassigned from Sangesland to Foley. Wolf Petroleum site. 2/24/04 File review(KMF): 2/6/01 UST closure report submitted by National Environmental for 1 550gal waste oil UST. Minor SVOC and lead issues. During excavation, 2 endpoint samples showed slightly above STARs. 1 composite sidewall sample was higher in SVOCs. Subsequent borings show ND or under MDLs for VOC/SVOC when tested by TCLP. These borings were taken 8-10' below bottom of excavation. 10/1/04 NFA mailed.
Remarks:	tank was either overfilled or failed

Material:

Site ID:	108555
Operable Unit ID:	828345
Operable Unit:	01
Material ID:	545125
Material Code:	0022
Material Name:	Waste Oil/Used Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	0007591
Spill Date:	09/27/2000
Spill Time:	12:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /

GRAND CONCOURSE REALTY CO (Continued) **S104782387**

Cleanup Meets Standard:	False
Investigator:	SANGESLAND
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	09/28/00
Reported to Department Time:	10:04
SWIS:	60
Spiller Contact:	BRUCE BECK
Spiller Phone:	(631) 226-9080
Spiller Extention:	Not reported
Spiller Name:	GRAND CONCOURSE REALTY CO
Spiller Address:	557 GRAND CONCOURSE
Spiller City,St,Zip:	BRONX
Spiller Cleanup Date:	/ /
Facility Contact:	BRUCE BECK
Facility Phone:	(631) 226-9080
Facility Extention:	Not reported
Spill Notifier:	Local Agency
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	09/28/00
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	09/28/00
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	WASTE OIL
Class Type:	WASTE OIL
Times Material Entry In File:	9509
CAS Number:	Not reported
Last Date:	19940927

GRAND CONCOURSE REALTY CO (Continued) **S104782387**

DEC Remarks: Not reported
Spill Cause: tank was either overfilled or failed

AB177 **AMES MEDICAL EQUIPMENT** **LTANKS** **S105230455**
South **2417 3RD AV** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.360 mi.
1899 ft. **Site 2 of 2 in cluster AB**

LTANKS:

Site ID:	109231
Spill No:	0108613
Spill Date:	11/27/2001
Spill Cause:	Tank Overfill
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/4/2001
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	JBVOUGHT
Referred To:	Not reported
Reported to Dept:	11/27/2001
CID:	390
Water Affected:	Not reported
Spill Notifier:	Citizen
Last Inspection:	12/3/2001
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	11/27/2001
Spill Record Last Update:	12/4/2001
Spiller Name:	Not reported
Spiller Company:	UNK
Spiller Address:	UNK
Spiller City,St,Zip:	UNK, ZZ
Spiller County:	001
Spiller Contact:	CARLOS PADILLA
Spiller Phone:	(718) 993-4400
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	95938
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "VOUGHT" ED. ROSSAN: VISITED SITE ON 12/03/2001. I OBSERVED SPILL CLEANED UP. SPEEDY DRY TRACE STILL ON SIDE WALK AND ROAD. N.B. SPILL LOCATION IS AT: 225 E 134 STREET BRONX NY
Remarks:	caller repoorts the company that fills the tank ACROSS the st has spileld oil - they are sweeping it down the st and poss into sewers

Material:

Site ID:	109231
Operable Unit ID:	846018
Operable Unit:	01
Material ID:	529852
Material Code:	0001

AMES MEDICAL EQUIPMENT (Continued) **S105230455**

Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	0108613
Spill Date:	11/27/2001
Spill Time:	12:30
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/04/01
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	VOUGHT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	11/27/01
Reported to Department Time:	12:49
SWIS:	60
Spiller Contact:	CARLOS PADILLA
Spiller Phone:	(718) 993-4400
Spiller Extention:	Not reported
Spiller Name:	UNK
Spiller Address:	UNK
Spiller City,St,Zip:	UNK
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported

AMES MEDICAL EQUIPMENT (Continued) **S105230455**

Facility Phone: (000) 000-0000
Facility Extention: Not reported
Spill Notifier: Citizen
PBS Number: Not reported
Last Inspection: 12/03/01
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 11/27/01
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 12/04/01
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: ED. ROSSAN: VISITED SITE ON 12/03/2001. I OBSERVED SPILL CLEANED UP. SPEEDY DRY TRACE STILL ON SIDE WALK AND ROAD. N.B. SPILL LOCATION IS AT: 225 E 134 STREET BRONX NY
Spill Cause: caller repoorts the company that fills the tank ACROSS the st has spileld oil - they are sweeping it down the st and poss into sewers

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AF178 **PATTERSON HOUSES** **LTANKS** **S102238909**
East **314 E 143RD ST** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY** **NY Spills**
0.362 mi. **NY Hist Spills**
1911 ft. **Site 2 of 2 in cluster AF**

LTANKS:
Site ID: 96667
Spill No: 9410857
Spill Date: 11/14/1994
Spill Cause: Tank Overfill
Spill Source: Tank Truck
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/17/1994
Facility Addr2: Not reported

PATTERSON HOUSES (Continued) **S102238909**

Cleanup Ceased:	11/17/1994
Cleanup Meets Standard:	True
SWIS:	0301
Investigator:	HEALY
Referred To:	Not reported
Reported to Dept:	11/14/1994
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Affected Persons
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	11/15/1994
Spill Record Last Update:	12/28/1994
Spiller Name:	Not reported
Spiller Company:	CASTLE OIL CO.
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	86199
DEC Memo:	Not reported
Remarks:	OIL COMPANY OVERFILLED THE TANK. SPILL IS CONTAINED IN MANWAY VAULT. CLEAN UP CONTRACTORS WILL RESPOND IN THE MORNING. NO CALL BACK REQUIRED.

Material:

Site ID:	96667
Operable Unit ID:	1004778
Operable Unit:	01
Material ID:	376726
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	125
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	96667
Spill Tank Test:	1543347
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

PATTERSON HOUSES (Continued) **S102238909**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9410857
Spill Date:	11/14/1994
Spill Time:	15:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Tank Truck
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/17/94
Cleanup Ceased:	11/17/94
Cleanup Meets Standard:	True
Investigator:	HEALY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	11/14/94
Reported to Department Time:	20:39
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	CASTLE OIL CO.
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Affected Persons
PBS Number:	2-473219
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/15/94
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/28/94
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00

PATTERSON HOUSES (Continued) **S102238909**

Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 125
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: OIL COMPANY OVERFILLED THE TANK. SPILL IS CONTAINED IN MANWAY VAULT. CLEAN UP CONTRACTORS WILL RESPOND IN THE MORNING. NO CALL BACK REQUIRED.

NY Spills:
Site ID: 156158
Facility Addr2: Not reported
Facility ID: 9710056
Spill Number: 9710056
Facility Type: ER
SWIS: 0301
Investigator: SACCACIO
Referred To: Not reported
Spill Date: 12/1/1997
Reported to Dept: 12/1/1997
CID: 252
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Responsible Party
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/1/1997
Remediation Phase: 0
Date Entered In Computer: 12/1/1997
Spill Record Last Update: 2/6/2006
Spiller Name: BART PULLEY
Spiller Company: NYC HOUSING AUTHORITY
Spiller Address: 314 E 143RD ST
Spiller City,St,Zip: BRONX, ZZ
Spiller Company: 001
Contact Name: BART PULLEY
Contact Phone: (718) 585-2382
DEC Region: 2
DER Facility ID: 108400
DEC Memo: Not reported
Remarks: GAUGE BROKE CAUSING SPILL WITH APPROX 100 GALS GOING INTO SEWER. CLEAN UP CREW (WINSTON CONTRACTING) ON WAY TO CLEAN UP SPILL.

PATTERSON HOUSES (Continued) **S102238909**

Material:

Site ID:	156158
Operable Unit ID:	1056435
Operable Unit:	01
Material ID:	328378
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	240
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

Site ID:	251665
Facility Addr2:	Not reported
Facility ID:	9513726
Spill Number:	9513726
Facility Type:	ER
SWIS:	0301
Investigator:	HEALY
Referred To:	Not reported
Spill Date:	1/29/1996
Reported to Dept:	1/29/1996
CID:	312
Spill Cause:	Housekeeping
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	2/1/1996
Remediation Phase:	0
Date Entered In Computer:	1/29/1996
Spill Record Last Update:	2/6/2006
Spiller Name:	FRANK OCELLO
Spiller Company:	NYC HOUSING AUTHORITY

PATTERSON HOUSES (Continued) **S102238909**

Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	GENE STEELE
Contact Phone:	(718) 585-2382
DEC Region:	2
DER Facility ID:	108400
DEC Memo:	Not reported
Remarks:	jane healy was notified - EMP'S WERE LIFTING 55 GALLON DRUM FROM ONE LEVEL TO ANOTHER LEVEL IN BASEMENT WHEN IT SLIPPED OFF THE HOIST - SPILL IS CONTAINED,BUT NOT CLEANED UP

Material:

Site ID:	251665
Operable Unit ID:	1024553
Operable Unit:	01
Material ID:	357436
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	55
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

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

NY Hist Spills:

Region of Spill:	2
Spill Number:	9710056
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	12/01/1997 12:05
Reported to Dept Date/Time:	12/01/97 14:10
SWIS:	60
Spiller Name:	NYC HOUSING AUTHORITY

PATTERSON HOUSES (Continued) **S102238909**

Spiller Contact:	BART PULLEY
Spiller Phone:	(718) 585-2382
Spiller Contact:	BART PULLEY
Spiller Phone:	(718) 585-2382
Spiller Address:	314 E 143RD ST
Spiller City,St,Zip:	BRONX
Spill Cause:	Equipment Failure
Reported to Dept:	In Sewer
Water Affected:	Not reported
Spill Source:	02
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/01/97
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	12/01/97
Date Spill Entered In Computer Data File:	Not reported
Update Date:	12/03/97
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	240
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Winston cleaned up spill and washed out sump
Remark:	GAUGE BROKE CAUSING SPILL WITH APPROX 100 GALS GOING INTO SEWER. CLEAN UP CREW WINSTON CONTRACTING) ON WAY TO CLEAN UP SPILL.

Region of Spill:	2
Spill Number:	9513726
Investigator:	HEALY
Caller Name:	Not reported

PATTERSON HOUSES (Continued) **S102238909**

Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	01/29/1996 12:00
Reported to Dept Date/Time:	01/29/96 14:02
SWIS:	60
Spiller Name:	NYC HOUSING AUTHORITY
Spiller Contact:	FRANK OCELLO
Spiller Phone:	(212) 306-3229
Spiller Contact:	GENE STEELE
Spiller Phone:	(718) 585-2382
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Housekeeping
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	02
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	02/01/96
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	01/29/96
Date Spill Entered In Computer Data File:	Not reported
Update Date:	02/05/96
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	55
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#6 FUEL OIL
Class Type:	#6 FUEL OIL
Times Material Entry In File:	2190
CAS Number:	Not reported

PATTERSON HOUSES (Continued) **S102238909**

Last Date: 19940728
DEC Remarks: Drum of oil from separator was spilled and got into floor drains but sump was shut dow. Winston crew cleaned spill and power washed the floor drains and the sump. Close out.
Remark: jane healy was notified - EMP S WERE LIFTING 55 GALLON DRUM FROM ONE LEVEL TO ANOTHER LEVEL IN BASEMENT WHEN IT SLIPPED OFF THE HOIST - SPILL IS CONTAINED,BUT NOT CLEANED UP

AD179 **LINCOLN** **LTANKS** **S100167943**
WSW **2132 MADISON AVENUE** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.362 mi.
1913 ft. **Site 2 of 3 in cluster AD**

LTANKS:
Site ID: 63205
Spill No: 9004249
Spill Date: 7/17/1990
Spill Cause: Tank Test Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/26/2005
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 3101
Investigator: SWKRASZE
Referred To: Not reported
Reported to Dept: 7/17/1990
CID: Not reported
Water Affected: Not reported
Spill Notifier: Tank Tester
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 7/19/1990
Spill Record Last Update: 10/26/2005
Spiller Name: Not reported
Spiller Company: NYCHA
Spiller Address: 250 BROADWAY
Spiller City,St,Zip: NEW YORK, NY
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 61116
DEC Memo: 10/26/05: This spill closed to consolidate with open spill #9607561. S.Kraszewski
Remarks: (2) 25K TANKS MANIFOLDED FAILED A HORNER EZY CHECK WITH A GROSS LEAK, WILL EXCAVATE,ISOLATE & RETEST.

Material:
Site ID: 63205
Operable Unit ID: 942070

LINCOLN (Continued) **S100167943**

Operable Unit:	01
Material ID:	435353
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Not reported
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	63205
Spill Tank Test:	1537311
Tank Number:	002
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown
Site ID:	63205
Spill Tank Test:	1537310
Tank Number:	001
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

HIST LTANKS:

Region of Spill:	2
Spill Number:	9004249
Spill Date:	07/17/1990
Spill Time:	12:00
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported

LINCOLN (Continued) **S100167943**

Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	07/17/90
Reported to Department Time:	14:33
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	NYCHA
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, N.Y.
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	(212) 306-3142
Facility Extention:	Not reported
Spill Notifier:	Tank Tester
PBS Number:	2-474908
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	07/19/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/28/94
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	001
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported
PBS Number:	Not reported
Tank Number:	002
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	Not reported
Spill Cause:	2) 25K TANKS MANIFOLDED FAILED A HORNER EZY CHECK WITH A GROSS LEAK, WILL

LINCOLN (Continued) **S100167943**

EXCAVATE,ISOLATE RETEST.

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180 NW 1/4-1/2 0.370 mi. 1955 ft. **143RD STREET ASSOCIATES**
44-58 WEST 143RD ST.
NEW YORK, NY 10037

HIST LTANKS **U003241881**
UST **N/A**
HIST UST
NY Spills

HIST LTANKS:

Region of Spill:	2
Spill Number:	9706699
Spill Date:	09/04/1997
Spill Time:	14:00
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	O'DOWD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	09/04/97
Reported to Department Time:	16:22
SWIS:	62
Spiller Contact:	JAY PERETZKY
Spiller Phone:	(212) 370-1333
Spiller Extention:	Not reported
Spiller Name:	143RD ST ASSOCIATES
Spiller Address:	44-58 WEST 143RD ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Cleanup Date:	/ /
Facility Contact:	JAY PERETZKY
Facility Phone:	(212) 370-1333
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	09/04/97
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	09/05/97
Is Updated:	False

143RD STREET ASSOCIATES (Continued) **U003241881**

Tank:
- PBS Number: Not reported
- Tank Number: Not reported
- Tank Size: Not reported
- Test Method: Not reported
- Leak Rate Failed Tank: Not reported
- Gross Leak Rate: Not reported

Material:
- Material Class Type: Petroleum
- Quantity Spilled: 0
- Unkonwn Quantity Spilled: True
- Units: Gallons
- Quantity Recovered: 0
- Unkonwn Quantity Recovered: False
- Material: #2 FUEL OIL
- Class Type: #2 FUEL OIL
- Times Material Entry In File: 24464
- CAS Number: Not reported
- Last Date: 19941207
- DEC Remarks: Not reported
- Spill Cause: CALLER DID TANK REMOVAL AND FOUND SOIL CONTAMINATION - CALLER ALSO BELIEVES GROUNDWATER MAY HAVE BEEN AFFECTED ALSO

UST:
- Facility Id: 2-603205
- Region: STATE
- DEC Region: 2
- Site Status: Unregulated
- Program Type: PBS
- Expiration Date: N/A
- UTM X: 589769.973
- UTM Y: 4519149.4075800003

Affiliation Records:
- Site Id: 25141
- Affiliation Type: On-Site Operator
- Company Name: 143RD STREET ASSOCIATES
- Contact Type: Not reported
- Contact Name: MR. JAY PERETZKY
- Address1: Not reported
- Address2: Not reported
- City: Not reported
- State: NN
- Zip Code: Not reported
- Country Code: 001
- Phone: (212) 925-6282
- Phone Ext: Not reported
- Email: Not reported
- Fax Number: Not reported
- Modified By: TRANSLAT
- Date Last Modified: 3/4/2004

- Site Id: 25141
- Affiliation Type: Mail Contact
- Company Name: 143RD STREET ASSOCIATES
- Contact Type: Not reported

143RD STREET ASSOCIATES (Continued) **U003241881**

Contact Name:	JAY PERETZKY
Address1:	216 EAST 45TH STREET SUITE 902
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10017
Country Code:	001
Phone:	(212) 370-1333
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	25141
Affiliation Type:	Owner
Company Name:	143RD STREET ASSOCIATES
Contact Type:	Not reported
Contact Name:	Not reported
Address1:	216 EAST 45TH STREET SUITE 902
Address2:	Not reported
City:	NEW YORK
State:	NY
Zip Code:	10017
Country Code:	001
Phone:	(212) 370-1333
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Site Id:	25141
Affiliation Type:	Emergency Contact
Company Name:	143RD STREET ASSOCIATES
Contact Type:	Not reported
Contact Name:	MR. LOUIS CHIRICHELLA
Address1:	Not reported
Address2:	Not reported
City:	Not reported
State:	NN
Zip Code:	Not reported
Country Code:	001
Phone:	(212) 925-6282
Phone Ext:	Not reported
Email:	Not reported
Fax Number:	Not reported
Modified By:	TRANSLAT
Date Last Modified:	3/4/2004

Equipment Records:

F00 - Pipe External Protection - None
H00 - Tank Leak Detection - None
B00 - Tank External Protection - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
B00 - Tank External Protection - None
H00 - Tank Leak Detection - None

143RD STREET ASSOCIATES (Continued) **U003241881**

H00 - Tank Leak Detection - None
C02 - Pipe Location - Underground/On-ground
I00 - Overfill - None
D01 - Pipe Type - Steel/Carbon Steel/Iron
A00 - Tank Internal Protection - None
C02 - Pipe Location - Underground/On-ground
J02 - Dispenser - Suction
G10 - Tank Secondary Containment - Impervious Underlayment
G10 - Tank Secondary Containment - Impervious Underlayment
I00 - Overfill - None
A00 - Tank Internal Protection - None
J02 - Dispenser - Suction
F00 - Pipe External Protection - None
I00 - Overfill - None
J02 - Dispenser - Suction
C02 - Pipe Location - Underground/On-ground
D01 - Pipe Type - Steel/Carbon Steel/Iron
G10 - Tank Secondary Containment - Impervious Underlayment
A00 - Tank Internal Protection - None
B00 - Tank External Protection - None
F00 - Pipe External Protection - None

Tank Info:

Site ID:	25141
Tank Number:	001
Tank ID:	53482
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	550
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/1/1997
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	25141
Tank Number:	002
Tank ID:	53483
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	1080
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/1/1997
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True

143RD STREET ASSOCIATES (Continued) **U003241881**

Modified By:	TRANSLAT
Last Modified:	3/4/2004
Site ID:	25141
Tank Number:	003
Tank ID:	53484
Tank Status:	Closed - Removed
Tank Model:	Not reported
Pipe Model:	Not reported
Install Date:	Not reported
Capacity Gallons:	1500
Tightness Test Method:	NN
Next Test Date:	Not reported
Date Tank Closed:	8/1/1997
Tank Location:	5
Tank Type:	Steel/carbon steel
Date Test:	Not reported
Register:	True
Modified By:	TRANSLAT
Last Modified:	3/4/2004

HIST UST:

PBS Number:	2-603205
SPDES Number:	Not reported
Emergency Contact:	MR. LOUIS CHIRICHELLA
Emergency Telephone:	(212) 925-6282
Operator:	MR. JAY PERETZKY
Operator Telephone:	(212) 925-6282
Owner Name:	143RD STREET ASSOCIATES
Owner Address:	216 EAST 45TH STREET SUITE 902
Owner City,St,Zip:	NEW YORK, NY 10017
Owner Telephone:	(212) 370-1333
Owner Type:	Corporate/Commercial
Owner Subtype:	Not reported
Mailing Name:	143RD STREET ASSOCIATES
Mailing Address:	216 EAST 45TH STREET SUITE 902
Mailing Address 2:	Not reported
Mailing City,St,Zip:	NEW YORK, NY 10017
Mailing Contact:	JAY PERETZKY
Mailing Telephone:	(212) 370-1333
Owner Mark:	First Owner
Facility Status:	2 - Unregulated by PBS (the total capacity is less than 1,101 gallons) and Subpart 360-14.
Facility Addr2:	43-57 WEST 142ND STREET
SWIS ID:	6201
Old PBS Number:	Not reported
Facility Type:	MANUFACTURING
Inspected Date:	Not reported
Inspector:	Not reported
Inspection Result:	Not reported
Federal ID:	Not reported
Certification Flag:	False
Certification Date:	Not reported
Expiration Date:	11/14/2002
Renew Flag:	False
Renewal Date:	Not reported

143RD STREET ASSOCIATES (Continued) **U003241881**

Total Capacity:	0
FAMT:	True
Facility Screen:	No Missing Data
Owner Screen:	No Missing Data
Tank Screen:	0
Dead Letter:	False
CBS Number:	Not reported
Town or City:	NEW YORK CITY
County Code:	62
Town or City:	01
Region:	2

Tank Id:	001
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	550
Product Stored:	UNLEADED GASOLINE
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	55
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	002
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	1080
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	55
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported

143RD STREET ASSOCIATES (Continued) **U003241881**

Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

Tank Id:	003
Tank Location:	UNDERGROUND
Tank Status:	Closed-Removed
Install Date:	Not reported
Capacity (gals):	1500
Product Stored:	NOS 1,2, OR 4 FUEL OIL
Tank Type:	Steel/carbon steel
Tank Internal:	None
Tank External:	None
Pipe Location:	Underground
Pipe Type:	STEEL/IRON
Pipe Internal:	None
Pipe External:	None
Second Containment:	55
Leak Detection:	None
Overfill Prot:	None
Dispenser:	Suction
Date Tested:	Not reported
Next Test Date:	Not reported
Missing Data for Tank:	No Missing Data
Date Closed:	08/01/1997
Test Method:	Not reported
Deleted:	False
Updated:	True
Lat/long:	Not reported

NY Spills:

Site ID:	209289
Facility Addr2:	Not reported
Facility ID:	9706699
Spill Number:	9706699
Facility Type:	ER
SWIS:	3101
Investigator:	SFRAHMAN
Referred To:	Not reported
Spill Date:	9/4/1997
Reported to Dept:	9/4/1997
CID:	211
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response.

143RD STREET ASSOCIATES (Continued) **U003241881**

	Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	6/10/2010
Remediation Phase:	0
Date Entered In Computer:	9/4/1997
Spill Record Last Update:	6/10/2010
Spiller Name:	JAY PERETZKY
Spiller Company:	143RD ST ASSOCIATES
Spiller Address:	44-58 WEST 143RD ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Company:	001
Contact Name:	JAY PERETZKY
Contact Phone:	(212) 370-1333
DEC Region:	2
DER Facility ID:	173559
DEC Memo:	04/12/06 - Hough - Next Step: Site visit is warranted to ascertain current conditions. Based upon this appropriate followup to prior activities may be required. 3/31/09 - Austin - Transferred from Needs Reassignment to Rahman for further work to remeidate and close - end 04/27/10 Investigation work plan in edocs.(sr) 05/24/10 Investigation summary report in eodcs.(sr) 06/09/10 The site is a commercial self storage building.Three USTs were removed in 1997. One 550 gal gasoline, one 1,500 gal heating oil UST, and one 5,000 gal #2 oil UST were removed. Seven soil samples were taken for lab analysis.VOCs were below TAGM.Ground water is at 12ft bgs.Three ground water samples were taken. No VOCs in ground water were detected.SVOCs in ground water were marginal.Case closed.(sr)
Remarks:	CALLER DID TANK REMOVAL AND FOUND SOIL CONTAMINATION - CALLER ALSO BELIEVES GROUNDWATER MAY HAVE BEEN AFFECTED ALSO

Material:

Site ID:	209289
Operable Unit ID:	1050063
Operable Unit:	01
Material ID:	332281
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

AG181 **257 ALEXANDER AVE** **HIST LTANKS** **S101658484**
SE **257 ALEXANDER AVE** **NY Spills** **N/A**
1/4-1/2 **BRONX, NY** **NY Hist Spills**
0.377 mi.
1992 ft. **Site 1 of 4 in cluster AG**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9506885
Spill Date:	09/01/1995
Spill Time:	14:30
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	KRIMGOLD
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	09/06/95
Reported to Department Time:	10:38
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	True
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	10/05/95
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported

257 ALEXANDER AVE (Continued) **S101658484**

Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: GASOLINE
Class Type: GASOLINE
Times Material Entry In File: 21329
CAS Number: Not reported
Last Date: 19940929
DEC Remarks: Not reported
Spill Cause: CALLER DOING WORK AND FOUND GROUND CONTAMINATED - BELIEVES TANK FAILURE IS CAUSE

NY Spills:
Site ID: 309007
Facility Addr2: Not reported
Facility ID: 9506885
Spill Number: 9506885
Facility Type: ER
SWIS: 0301
Investigator: adzhitom
Referred To: REMEDY IMPLEMENTED QTRLY MONIT CONTINUE
Spill Date: 9/1/1995
Reported to Dept: 9/6/1995
CID: Not reported
Spill Cause: Unknown
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Other
Cleanup Ceased: Not reported
Cleanup Meets Std: False
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: True
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: Not Closed
Remediation Phase: 1
Date Entered In Computer: 10/5/1995
Spill Record Last Update: 4/11/2011
Spiller Name: Not reported
Spiller Company: UNKNOWN
Spiller Address: Not reported
Spiller City,St,Zip: NY
Spiller Company: 999
Contact Name: Not reported
Contact Phone: Not reported
DEC Region: 2
DER Facility ID: 249553
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was

257 ALEXANDER AVE (Continued) **S101658484**

"KOLLEENY" TRANSFERRED FROM Y.KRIMGOLD TO KOLLEENY TO ISLAM. 6/28/09- The site's impacted soil and GW are being remediated by URS Corp. by operating SVE and In-Situ Oxygen distribution systems (injection of Permeox Plus) respectively. Reviewed the Dec/04-Mar/05 monitoring report. It appears from the presented data that both the systems in-place are not working effectively to remediate soil and GW. URS apprehends of extraction wells short-circuiting and lowering of soil permeability due to Permeox Plus injection. as such,URS recommends expanding of the SVE system by adding additional extraction wells and increasing the blower size capacity to treat the soil. Also, URS recommends installing a GW extraction and treatment system to remove and treat GW contamination. NYSDEC approves these recommendations but requires detailed plan and schedule to be submitted. - II. 9/30/05- Reviewed the April - July/05 monitoring report dt. Sept.7/05. The report states that the three in-place SVE systems are not functioning effectively, based on low vacuum measured in ventilation wells. URS considers modifying the SVE system, and recommends soil sampling prior to that to determine the extent of vadose zone soil contamination. URS is required to submit a work plan to this effect to NYSDEC for review and appropval. On the other hand, the groundwater sampling results show that contaminant concentrations have remained relatively unchanged for a substantial period of time. URS recommends installing a groundwater extraction and treatment system to actively remove and treat the dissolved phase groundwater contamination. URS awaiting approval from the Police Building Maintenance Dept. prior to starting design of the system as the proposed system will occupy a significant amount of floor space. In the interim, URS proposes to continue to evaluate alternative remedial strategies including innovative technologies. It appears that no progress has been made in this regard so far since the last reporting period. However, URS is advised to expedite in preparing and submitting their proposed work plans to the Dept.- II 12/9/05- Reviewed the Soil Sampling Plan to Determine the SVE System Effectiveness dt. Oct.28/05 by URS Corp. These soil borings are proposed to modify the on-site SVE system. The proposed ten soil borings (SB-02 to SB-11)locations and plan are hereby approved. It is wonder to note that URS has not submitted anything since they recommended in their Apr.-Jul/05 monitoring report about the installation of a GW extraction and treatment system to actively remove the dissolved phase GW contamination . Also, there is no word about the development of acquiring the required permission from the Police Building Maintenance Dept. in connection with the space required for the water extraction and treament system.- II 02/13/06: This spill transferred from I.Islam to S.Kraszewski. Reviewed the System Performance Monitoring Report for Aug. - Oct. 2005 submitted by URS on November 29, 2005. The report summarizes the overall effectiveness of the SVE system and in-situ ORC treatment. According to past monitoring reports the performace of the SVE system has dropped significantly. This report reaches the same conclusions of the previous reports. For almost every ventilation well, no detectable vaccum is present, which indicates the presence of preferential pathways for airflow. Those ventilation wells with vaccums are below requirements for an effective SVE system. PID readings for the extraction wells indicate that VOC removal rates have significantly decreased since August and have remained consistently low. The In-Situ ORC injections have kept the DO levels above baseline readings according to readings taken from the

257 ALEXANDER AVE (Continued) **S101658484**

monitoring wells. However, the number indicate that ORC injections are decreasing the contamination levels slower that expected. Also, total VOC concentration numbers from each well are elevated but have remained unchanged for several sampling events. URS recommends installing a GW recovery system to address the dissolved-phase contamination. To evaluate the requirements for this system, URS recommends a round of soil samples to be collected. I.Islam recieved the work plan for these soil borings on December 9, 2005 and approved the work. I spoke with Jane Staten @ URS about the current site situation. Due to financial constraints, the SVE system is not running. They have begun to monitor the site again but they are still waiting to hear back about the soil boring and GW extraction proposal. She is sending me the current RP info via email. - SK 02/21/06: Paul Pleho? from URS called to update the site status. It appears that the DDC has approved the GW treatment system and Jane Staten is currently working on submitting a work plan. - SK 04/04/06: Called Jane Staten and left a message to call back. - SK 04/26/06: Jane Staten called with a progress update. Currently, URS has hired a driller for the new contract but they are waiting on the City's approval, which takes roughly a month for the paperwork to go through. They are planning a more in-depth subsurface investigation that includes the saturated zone or GW. Originally, just soil samples were planned to evaluate the need to redesign the SVE system. She said it looks like the system wiull need to be expanded into a grid system which may include the garage area. There is possiblity of a dual-treatment option but that is to be determined. She will send me the adjustments to Imdad's original approval to reflect future activities. - SK 05/01/06: Reviewed Soil Sampling Plan submitted by URS Corp. dated May 1, 2006. URS will advance 10 soil borings in the vacinity of current monitoring, recovery, injection and vent wells to re-assess the the vadose zone. URS may, based on the results, choose to modify the recovery system by introducing a liquid extraction system in tandem with the SVE. Currently, the SVE and in-situ bioremediation injections demonstrate slow progress and effectiveness. URS believes that must address the saturated zone directly. - SK 05/02/06: Sent out approval for soil sampling plan via Email. - SK 06/29/06: Staff attended URS meeting @ 10AM in the 2nd floor conference room. Jane Staten handed out site updates and proposed work schedules for all URS sites. URS plans to start work on the additonal soil sampling plan in mid-July to modify the SVE system. The tentative start date is July 12. - SK 07/10/06: Recevied O & M Email from URS. They will be performing Vac Truck work all week at the site, does not mention any boring work. Staff will contact Jane Staten to confirm. Called Jane Staten @ 718-856-5636 (office). VacTron is availalbe to start pre-clearing for drilling. Obstacles like dumpsters and contrucrtion materials are causing delays. Megan Dascoli @ URS is on-site to supervise the work (Cell: 908-623-0145) - SK 07/12/06: Recived a voice-message from Jane Staten at URS (716-923-1152). It seems that due to lack of access for the utility markout and clutter in the garage area drilling work will be postponed for now. Jane believes that the issue here is safety and a lack of access to the garage simply compounds this problem. She will keep me updated. - SK 10/27/06 Spill case transferred from S. Kraszewski to J. Maisonave. - JAM 01/11/07 Spill number 0301707 (case lead Q. Abidi) is for a fuel oil spill across Alexander Avenue. The consultant working on that spill sampled monitoring well MW-5 associated with spill 9506885 and found some low levels of VOCs above

257 ALEXANDER AVE (Continued) **S101658484**

criteria (MTBE was 280ppb). Currently, URS will perform soil sampling as per the work plan that was approved by the NYSDEC in May 2006. The scafolding that delayed the drilling event in the past is now down so drilling will occurr as soon as possible. I called Jane Staten at URS to make sure groundwater sampling also occurs at the site around the same time. I requested that all wells be put back on the sampling list including MW-5 and MW-7. These two wells were removed from the list after results from two consecutive monitoring events were under criteria. - JAM 6/8/2007 Reviewed Summary of Soil Sampling, and Recomended Remedial Alternative Report submitted by URS and dated June 8, 2007. Residual soil and groundwater contamination are present beneath the sidewalk along Alexander Ave and beneath the Precinct garage, as per soil samples collected between January - April 2007 and groundwater samples collected in March 2007. URS proposes to excavate contaminated soils beneath the sidewalk and apply RegenOx through 12 injection points in the garage and 18 in the sidewalk. Report is uploaded to edocs. - JAM 10/1/07 Reviewed Revision to Previously Recommended Remedial Strategy Report submitted by URS and dated July 24, 2007. URS states that the NYPD has installed a gym in the Precinct garage that had previously been used for miscellaneous storage. The previous remedial strategy proposed installing 12 injection wells inside the garage, however, this will not be possible. URS revised the June 8, 2007 proposed strategy to exclude the work inside the Precinct garage, i.e. injection of RegenOx into 12 injection wells. All remedial work will take place in the sidewalk adjacent to the garage and will include excavation of vadose zone contamination and injection of RegenOx into 25 injection wells. Since the garage is down-gradient from the location of the proposed injection points, it is anticipated that groundwater under the garage will be treated. A letter was issued today conditionally approving the revised remedial strategy. If the groundwater contamination beneath the garage does not improve, other remedial measures must be evaluated. Letter is uploaded to edocs - JAM 12/19/07 Received a call from John Busse at URS. The excavation in the sidewalk may not be cost effective. There are concerns with undermining the precinct building that may increase cost significantly. I recommended either doing a limited excavation around SB-09 (approx. dimensions 10'x12'x10' deep) or using a surfactant enhanced chemical oxidant. The injection must be aimed at the 5'-7' interval and may require installing another well near SB-09. Mr. Busse will evaluate the alternatives and propose in another report. - JAM 1/17/08 Received an email from John Busse on 1/9/08. URS proposes limiting the excavation area to encompass only borings SB-09 and SB-01, and to excavate only to a max depth of 7 feet. This is necessary to avoid compromising the structural integrity of the garage and precinct building. The RegenOx injections will still proceed as planned. This email is uploaded to edocs. I sent a letter approval today. Soil should be screened with a PID and the excavation should be extended in any direction feasible to remove as much contamination as possible. Soil samples from the sidewalls and bottom of excavation should be analyzed for gasoline-related VOCs. This letter is uploaded to edocs. - JAM 5/1/09 Reviewed System Performance Monitoring Report for the 40th Precinct Period through February 2009 submitted by URS dated March 16, 2009. Envirotrac was awarded the contract and completed installing 16 injection wells on October 29, 2009. The first round of RegenOx injections were completed on February 24, 2009. Due to difficulty drilling and unexpected clogged wells, the amount of injection wells

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was reduced to 18 wells and the amount of RegenOx injected was slightly reduced. The next round of injections is scheduled for May 2009. Groundwater samples were collected on December 2, 2008 from wells MW-1 through MW-07. No VOCs were detected in MW-7. The remaining wells exhibited VOCs above NYSDEC Groundwater Quality Criteria with total VOCs ranging from 14ppb in MW-04 to 39,550ppb in MW-01. URS will continue quarterly groundwater monitoring to evaulate the effectiveness of the RegenOx injections. Report uploaded to eDocs. - JAM 11/16/09 Reviewed the System Performance Monitoring Report through May 2009 submitted by URS dated June 16, 2009. On May 26, 2009, Envirotrac completed the soil excavation beneath the sidewalk along Alexander Ave. Among 5 confirmation soil samples collected from the excavation, VOCs exceeded NYSDEC RSCOs only in the sample collected from the wall adjacent to the street. Approx. 36 tons of contaminated soil was excavated. Injection wells IW-15, IW-17, and IW-19 were in the excavation footprint and were decommissioned. Wells IW-15 and IW-17 were scheduled to be re-installed June 2009. The second round of RegenOx injections was not performed in May 2009. Groundwater samples were collected from five monitoring wells (MW-01, MW-02, MW-04, MW-06 and MW-07) on March 4, 2009. Wells MW-03 and MW-05 were not sampled because MW-03 was dry and MW-05 had an obstruction. No VOCs were detected in MW-04 and MW-07. The remaining 3 wells had total VOCs concentrations ranging from 43ppb in MW-06 to 32,244ppb in MW-01. URS states that the March 4, 2009 groundwater data is not a good gauge of the effectiveness of the remedial work because it was collected before the excavation and only one week after the RegenOx injection. The next round of groundwater sampling is scheduled for June 2009. No additional RegenOx injections have been scheduled. Report uploaded to eDocs. Reviewed System Performance Monitoring through 3rd Qtr 2009 submitted by URS dated September 30, 2009. On June 9 and August 31/September 9, 2009, URS collected groundwater samples from wells MW-01, MW-02, MW-03, MW-04, MW-06 and MW-07. Well MW-05 could not be sampled because of an obstruction. In June VOCs were detected above criteria in wells MW-01 through MW-04 ranging from 25ppb in MW-04 to 4,445ppb in MW-01. In August/September VOCs were detected above criteria in wells MW-01 through MW-03 ranging from 1,414ppb in MW-02 to 10,273 in well MW-01. URS states that the groundwater has improved because of the remedial activities performed. Quarterly groundwater sampling will continue. Report uploaded to eDocs. - JAM 10/25/10 In the quarterly status update meeting with the DDC and URS on 10/19/10, DEC verbally approved recommendation to perform additional ChemOx injections. A work plan will be submitted. - JAM 11-10-2010 The spill was transferred from J. Maisonave to Alex Zhitomirsky, as per V. Brevdo/J. Kolleeny. AZ 2-18-2011 Reviewed System performance monitoring report submitted on Nov. 12, 2010. Discussed this site in a meeting with URS/DDC on 2/17/2011.URS informed DEC that they injection will be postponed due to contractual delays. DEC requested that soil data and soil plume map be included in the ORC injection proposal. Also, results of the hot spot excavation should be included in the Work Plan. AZ 4-11-2011 Discussed the site with Kevin Shenahan. The plume is not delineated on the west side. Total VOC concentrations in MW-1 were about 19,000 ppb in September 2010. At one point the total VOCs contamination was about 40,000 ppb in MW-1. Contamination levels temporarily decreased in MW-1 but went up again. PermeOx injection was performed about eight years ago but the site has not been remediated. ORC injection has been performed. URS

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suggested repeating PermeOX injection but on the sidewalk up gradient away from the center of the plume. It appears that the concentrations are increasing downgradient and the plume might migrate downgradient. Wells should installed west of MW-1 downgradient. MW-8 should be sampled. URS is considering RegenOX Injection on the sidewalk. However this injection might not be sufficient to remediate the current levels of contamination. More active approach should be undertaken. URS should submit a Remedial Plan to address the existing contamination levels. Kevin stated that URS will perform a site visit and accessibility study for more aggressive remediation strategy. A rt medial system could be located inside of the gym if the precinct concurs. Tank inventory, soil plume and the excavation area with end point samples will be submitted to DEC. AZ

Remarks: CALLER DOING WORK AND FOUND GROUND CONTAMINATED - BELIEVES TANK FAILURE IS CAUSE

Material:

Site ID:	309007
Operable Unit ID:	1017633
Operable Unit:	01
Material ID:	364843
Material Code:	0009
Material Name:	Gasoline
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

Site ID:	227148
Facility Addr2:	Not reported
Facility ID:	9612728
Spill Number:	9612728
Facility Type:	ER
SWIS:	0301
Investigator:	SMMARTIN
Referred To:	Not reported
Spill Date:	1/27/1997
Reported to Dept:	1/27/1997
CID:	312
Spill Cause:	Human Error
Water Affected:	Not reported

257 ALEXANDER AVE (Continued) **S101658484**

Spill Source:	Tank Truck
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	1/27/1997
Remediation Phase:	0
Date Entered In Computer:	1/27/1997
Spill Record Last Update:	12/22/2004
Spiller Name:	CALLER
Spiller Company:	CRYSTAL TRANSPORTATION
Spiller Address:	2010 WHITE PLAINS RD
Spiller City,St,Zip:	BRONX, NY 10462-
Spiller Company:	001
Contact Name:	Not reported
Contact Phone:	Not reported
DEC Region:	2
DER Facility ID:	249553
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "MARTINKAT" 40TH PCT. 476-7613. CALLED RIZZO 1040 FOR ESTIMATED AMOUNT.
Remarks:	DRIVER SPILLED UNK QTY IN ALLY - CLEAN UP CREW THERE NOW

Material:

Site ID:	227148
Operable Unit ID:	1040462
Operable Unit:	01
Material ID:	341374
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

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

257 ALEXANDER AVE (Continued) **S101658484**

NY Hist Spills:

Region of Spill:	2
Spill Number:	9612728
Investigator:	MARTINKAT
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	01/27/1997 10:10
Reported to Dept Date/Time:	01/27/97 10:20
SWIS:	60
Spiller Name:	CRYSTAL TRANSPORTATION
Spiller Contact:	CALLER
Spiller Phone:	(718) 828-3100
Spiller Address:	2010 WHITE PLAINS RD
Spiller City,St,Zip:	BRONX, NY 10462-
Spill Cause:	Human Error
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	08
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/27/97
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	01/27/97
Date Spill Entered In Computer Data File:	Not reported
Update Date:	01/28/97
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL

257 ALEXANDER AVE (Continued) **S101658484**

Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: 40TH PCT. 476-7613. CALLED RIZZO 1040 FOR ESTIMATED AMOUNT.
Remark: DRIVER SPILLED UNK QTY IN ALLY - CLEAN UP CREW THERE NOW

AG182 **JOHN GEUIBES** **LTANKS** **S105995555**
SE **262 ALEXANDER AVENUE** **N/A**
1/4-1/2 **BRONX, NY**
0.377 mi.
1993 ft. **Site 2 of 4 in cluster AG**

LTANKS:
Site ID: 295220
Spill No: 0200169
Spill Date: 4/5/2002
Spill Cause: Tank Failure
Spill Source: Private Dwelling
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 7/16/2003
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: MXTIPPLE
Referred To: Not reported
Reported to Dept: 4/5/2002
CID: 405
Water Affected: Not reported
Spill Notifier: Local Agency
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 4/5/2002
Spill Record Last Update: 7/16/2003
Spiller Name: JOHN GEUIBES
Spiller Company: JOHN GEUIBES
Spiller Address: 262 ALEXANDER AVENUE
Spiller City,St,Zip: BRONX, NY 10463-
Spiller County: 001
Spiller Contact: PAUL WIATER
Spiller Phone: (718) 763-6100
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 238892
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIPPLE" 04/11/2002Eastman did the cleanup of the #2fo in the basement, manifests and report to follow. The contact at the building is Christine in apt. 4 phone:718-401-4926. 7/16/2003 Tipple updating//see spill # 03-01707 for active spill# also closed spill #03-03928 at this location
Remarks: caller states that the customer just called him and stated his tank just ruptered - it is unknown how much spilled - crew enroute to investigate and clean up

JOHN GEUIBES (Continued) **S105995555**

Material:

Site ID:	295220
Operable Unit ID:	851168
Operable Unit:	01
Material ID:	525165
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

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183 **138 EAST 150TH STREET** **LTANKS** **S102672286**
NNE **138 EAST 150TH STREET** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.377 mi.
1993 ft.

LTANKS:

Site ID:	284811
Spill No:	9310947
Spill Date:	12/9/1993
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/10/1993
Facility Addr2:	Not reported
Cleanup Ceased:	12/10/1993
Cleanup Meets Standard:	True
SWIS:	0301
Investigator:	CAMMISA
Referred To:	Not reported
Reported to Dept:	12/9/1993
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0

138 EAST 150TH STREET (Continued) **S102672286**

Date Entered In Computer:	12/13/1993
Spill Record Last Update:	9/30/2004
Spiller Name:	Not reported
Spiller Company:	UNK
Spiller Address:	Not reported
Spiller City,St,Zip:	***UPDATE***, ZZ
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	230947
DEC Memo:	Not reported
Remarks:	VENT ALARM BROKE - TANK WAS ALREADY PULL. SENDING SOMEONE THERE TO CHECK IT OUT. THEN WILL CLEAN UP, SPEEDY DRY - WILL BE USED - BAG IT & DISPOSE OF IT.

Material:

Site ID:	284811
Operable Unit ID:	989612
Operable Unit:	01
Material ID:	390009
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	5
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9310947
Spill Date:	12/09/1993
Spill Time:	10:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.

138 EAST 150TH STREET (Continued) **S102672286**

Spill Closed Dt:	12/10/93
Cleanup Ceased:	12/10/93
Cleanup Meets Standard:	True
Investigator:	CAMMISA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	12/09/93
Reported to Department Time:	10:08
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	UNK
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	12/13/93
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	/ /
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	5
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464

138 EAST 150TH STREET (Continued) **S102672286**

CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: VENT ALARM BROKE - TANK WAS ALREADY PULL. SENDING SOMEONE THERE TO CHECK IT OUT. THEN WILL CLEAN UP, SPEEDY DRY - WILL BE USED - BAG IT DISPOSE OF IT.

AD184 **LINCOLN HOUSES** **LTANKS** **S101102900**
WSW **2130 MADISON AV** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK, NY** **NY Spills**
0.379 mi. **NY Hist Spills**
1999 ft. **Site 3 of 3 in cluster AD**

LTANKS:
Site ID: 91028
Spill No: 9315464
Spill Date: 3/6/1991
Spill Cause: Tank Test Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/26/2005
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 3101
Investigator: SWKRASZE
Referred To: Not reported
Reported to Dept: 3/30/1994
CID: Not reported
Water Affected: Not reported
Spill Notifier: DEC
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 4/5/1994
Spill Record Last Update: 10/26/2005
Spiller Name: Not reported
Spiller Company: NYCHA - JOE MONTELLA
Spiller Address: Not reported
Spiller City,St,Zip: ZZ
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 61116
DEC Memo: 10/26/05: This spill closed to consolidate with open spill #9607561. S.Kraszewski
Remarks: LEAK RATE OF -0.06 GPH - REPORTED AS PASSED BY TESTER.

Material:
Site ID: 91028
Operable Unit ID: 997513
Operable Unit: 01
Material ID: 554003
Material Code: 0002

LINCOLN HOUSES (Continued) **S101102900**

Material Name: #4 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: -1
Units: Not reported
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: 91028
Spill Tank Test: 1542569
Tank Number: 001
Tank Size: 0
Test Method: 00
Leak Rate: 0
Gross Fail: Not reported
Modified By: Spills
Last Modified: 10/1/2004
Test Method: Unknown

HIST LTANKS:
Region of Spill: 2
Spill Number: 9607561
Spill Date: 09/16/1996
Spill Time: 10:00
Spill Cause: Tank Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 09/16/96
Reported to Department Time: 12:25
SWIS: 62
Spiller Contact: MARIO MANDALONE
Spiller Phone: (718) 649-7017
Spiller Extention: Not reported
Spiller Name: NYC HOUSING AUTHORITY
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spiller Cleanup Date: / /
Facility Contact: MARIO MANDALONE

LINCOLN HOUSES (Continued) **S101102900**

Facility Phone: (718) 649-7017
Facility Extention: Not reported
Spill Notifier: Responsible Party
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 09/16/96
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 09/26/96
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: TANKS BEING REMOVED - CONTAMINATED SOIL FOUND

Region of Spill: 2
Spill Number: 9315464
Spill Date: 03/06/1991
Spill Time: 12:00
Spill Cause: Tank Test Failure
Resource Affectd: Groundwater
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported

LINCOLN HOUSES (Continued) **S101102900**

Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 03/30/94
Reported to Department Time: 10:10
SWIS: 62
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: NYCHA - JOE MONTELLA
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: (212) 306-3142
Facility Extention: Not reported
Spill Notifier: DEC
PBS Number: 2-474908
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/05/94
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/23/94
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: 001
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: LEAK RATE OF -0.06 GPH - REPORTED AS PASSED BY TESTER.

NY Spills:
Site ID: 318928
Facility Addr2: Not reported

LINCOLN HOUSES (Continued) **S101102900**

Facility ID:	9607561
Spill Number:	9607561
Facility Type:	ER
SWIS:	3101
Investigator:	jkkann
Referred To:	WP RCVD 5/20/09
Spill Date:	9/16/1996
Reported to Dept:	9/16/1996
CID:	349
Spill Cause:	Unknown
Water Affected:	Not reported
Spill Source:	Institutional, Educational, Gov., Other
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	Not Closed
Remediation Phase:	1
Date Entered In Computer:	9/16/1996
Spill Record Last Update:	5/20/2009
Spiller Name:	MARIO MANDALONE
Spiller Company:	NYC HOUSING AUTHORITY
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller Company:	001
Contact Name:	MARIO MANDALONE
Contact Phone:	(718) 649-7017
DEC Region:	2
DER Facility ID:	61116
DEC Memo:	12/12/05: This spill transferred from J.Kolleeny to S.Kraszewski. 07/28/06: Two 25K USTs installed in 1948 that stored #4/#6 oil were closed-removed in 1996. One 30K UST that stores #2 oil was installed in 1997 and is currently in service. Soil contamination was encountered during tank replacement. 4 MWs were installed in 1996 and is currently bailing oil/water. NYCHA recommends that a site assessment be performed. - SK 9/26/06: This spill was transferred from S.Kraszewski to J. Kann. -JK
Remarks:	TANKS BEING REMOVED - CONTAMINATED SOIL FOUND

Material:

Site ID:	318928
Operable Unit ID:	1038730
Operable Unit:	01
Material ID:	346815
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

LINCOLN HOUSES (Continued) **S101102900**

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

Site ID:	154573
Facility Addr2:	Not reported
Facility ID:	9609643
Spill Number:	9609643
Facility Type:	ER
SWIS:	3101
Investigator:	HEALY
Referred To:	Not reported
Spill Date:	11/1/1996
Reported to Dept:	11/1/1996
CID:	257
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/13/1996
Remediation Phase:	0
Date Entered In Computer:	11/1/1996
Spill Record Last Update:	12/12/2005
Spiller Name:	TODD MC INDOO
Spiller Company:	YELLOWSTONE CONTRACTING
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	ED MALONE
Contact Phone:	(212) 306-8480
DEC Region:	2
DER Facility ID:	61116
DEC Memo:	Not reported
Remarks:	seperator was not working correctly and cause oil to go through seperator into the drain

Material:

Site ID:	154573
Operable Unit ID:	1037610
Operable Unit:	01
Material ID:	345371

LINCOLN HOUSES (Continued) **S101102900**

Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

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

NY Hist Spills:

Region of Spill:	2
Spill Number:	9609643
Investigator:	HEALY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	11/01/1996 15:30
Reported to Dept Date/Time:	11/01/96 16:07
SWIS:	62
Spiller Name:	YELLOWSTONE CONTRACTING
Spiller Contact:	TODD MC INDOO
Spiller Phone:	(516) 485-0000
Spiller Contact:	ED MALONE
Spiller Phone:	(212) 306-8480
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	In Sewer
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

LINCOLN HOUSES (Continued) **S101102900**

Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 12/13/96
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 11/01/96
Date Spill Entered In Computer Data File: Not reported
Update Date: 12/13/96
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: SPILL WAS REPORTED TO D.E.P., BUT THEY DID NOT RESPOND TO SITE. CHECKED HOUSE TRAP ON MONDAY, NOV. 4 - CLEAN. SEPARATOR NEEDS TO BE CLEANED OUT BEFORE BEING RESTARTED.
Remark: seperator was not working correctly and cause oil to go through seperator into the drain

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AH185 **234 EAST 149TH STREET** **LTANKS** **S100782150**
NE **234 EAST 149TH STREET** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY** **NY Spills**
0.380 mi. **NY Hist Spills**
2004 ft. **Site 1 of 2 in cluster AH**

LTANKS:
Site ID: 235057
Spill No: 9310375
Spill Date: 11/26/1993
Spill Cause: Tank Overfill
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/27/1993
Facility Addr2: Not reported
Cleanup Ceased: 11/27/1993
Cleanup Meets Standard: True
SWIS: 0301

234 EAST 149TH STREET (Continued) **S100782150**

Investigator:	KSTANG
Referred To:	Not reported
Reported to Dept:	11/26/1993
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Fire Department
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	11/30/1993
Spill Record Last Update:	12/1/1993
Spiller Name:	Not reported
Spiller Company:	UNK.
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	999
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	193601
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TANG"
Remarks:	TANK OVERFLOW INTO SEWER, DEP ON SCENE TO CLEAN.

Material:

Site ID:	235057
Operable Unit ID:	992089
Operable Unit:	01
Material ID:	392989
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	30
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2

234 EAST 149TH STREET (Continued) **S100782150**

Spill Number:	9310375
Spill Date:	11/26/1993
Spill Time:	21:45
Spill Cause:	Tank Overfill
Resource Affectd:	In Sewer
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/27/93
Cleanup Ceased:	11/27/93
Cleanup Meets Standard:	True
Investigator:	TANG
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	11/26/93
Reported to Department Time:	22:00
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	UNK.
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Fire Department
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/30/93
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	12/01/93
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

234 EAST 149TH STREET (Continued) **S100782150**

Material Class Type: Petroleum
Quantity Spilled: 30
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #6 FUEL OIL
Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: TANK OVERFLOW INTO SEWER, DEP ON SCENE TO CLEAN.

NY Spills:
Site ID: 235056
Facility Addr2: Not reported
Facility ID: 9208811
Spill Number: 9208811
Facility Type: ER
SWIS: 0301
Investigator: KSTANG
Referred To: Not reported
Spill Date: 10/30/1992
Reported to Dept: 10/30/1992
CID: Not reported
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Other
Cleanup Ceased: 10/30/1992
Cleanup Meets Std: True
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/30/1992
Remediation Phase: 0
Date Entered In Computer: 11/4/1992
Spill Record Last Update: 9/30/2004
Spiller Name: Not reported
Spiller Company: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: ***Update***, ZZ
Spiller Company: 001
Contact Name: Not reported
Contact Phone: Not reported
DEC Region: 2
DER Facility ID: 193601
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TANG"
Remarks: CLEANED BY HOSPITAL MAINTENANCE CREW IT IS ON CONCRETE

Material:
Site ID: 235056
Operable Unit ID: 972349

234 EAST 149TH STREET (Continued) **S100782150**

Operable Unit: 01
Material ID: 405889
Material Code: 0001
Material Name: #2 Fuel Oil
Case No.: Not reported
Material FA: Petroleum
Quantity: 3
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

NY Hist Spills:
Region of Spill: 2
Spill Number: 9208811
Investigator: TANG
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 10/30/1992 10:45
Reported to Dept Date/Time: 10/30/92 11:02
SWIS: 60
Spiller Name: Not reported
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: Not reported
Spill Cause: Equipment Failure
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 02
Spill Notifier: Other
PBS Number: Not reported
Cleanup Ceased: 10/30/92
Cleanup Meets Std: True
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /

234 EAST 149TH STREET (Continued) **S100782150**

UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/30/92
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 11/04/92
Date Spill Entered In Computer Data File: Not reported
Update Date: / /
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 3
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Remark: CLEANED BY HOSPITAL MAINTENANCE CREW IT IS ON CONCRETE

AH186 **LINCOLN MEDICAL CENTER** **LTANKS** **S106385467**
NE **234 EAST 149TH ST** **N/A**
1/4-1/2 **BRONX, NY**
0.380 mi.
2004 ft. **Site 2 of 2 in cluster AH**

LTANKS:
Site ID: 211660
Spill No: 0313236
Spill Date: 3/2/2004
Spill Cause: Tank Test Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: No spill occured. No DEC Response. No corrective action required.
Spill Closed Dt: 1/6/2006
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: BKFALVEY
Referred To: Not reported
Reported to Dept: 3/2/2004
CID: 403
Water Affected: Not reported
Spill Notifier: Other
Last Inspection: Not reported

LINCOLN MEDICAL CENTER (Continued) **S106385467**

Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	3/2/2004
Spill Record Last Update:	9/26/2006
Spiller Name:	EDWARD ZAMNETT
Spiller Company:	LINCOLN MEDICAL CENTER
Spiller Address:	234 EAST 149TH ST
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	EDWARD ZAMNETT
Spiller Phone:	(718) 579-5683
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	175403
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIPPLE" 8/18/04 tipple updating////Island tank 718-967-9424 doing work//investigating tank #1///tank #4 failed///// Spill assigned to James Drumm for SCI 11/7/05 tank was repaired and re-tested. passed. report in file 08/29/06-Vought-Received message from Brian Shaw (212-922-0777) asking whether tanks could be used. Vought returned call and unable to leave message as number left is not correct number for Shaw. 9/26/06 spoke to J. Drumm of CO. Spill was closed 1/06: report reviewed by Reg. 2 staff prior to 1/06. sent NFA letter at request of Edward Zammet of lincoln Medical Center. bf
Remarks:	tank test failure. they are unable to reach a pressure set type.possible man way gasket leak.

Material:

Site ID:	211660
Operable Unit ID:	878475
Operable Unit:	01
Material ID:	498394
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Pounds
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	211660
Spill Tank Test:	1529014
Tank Number:	4
Tank Size:	50000
Test Method:	14
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	VacuTest

AG187 **CLOSED-LACKOF RECENT INFO** **LTANKS** **S100144791**
SE **230 ALEXANDER AVE.** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.390 mi.
2060 ft. **Site 3 of 4 in cluster AG**

LTANKS:

Site ID:	65873
Spill No:	8705434
Spill Date:	9/28/1987
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	3/4/2003
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	ADMIN. CLOSED
Referred To:	Not reported
Reported to Dept:	9/28/1987
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	9/30/1987
Spill Record Last Update:	3/14/2003
Spiller Name:	Not reported
Spiller Company:	ST. JEROME'S CHURCH
Spiller Address:	230 ALEXANDER AVE.
Spiller City,St,Zip:	BX, NY
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	63165
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ADMIN.CLOSED" / / : Excavate And Determine Source Of Leak. 03/04/2003-Closed Due To The Nature / Extent Of The Spill Report
Remarks:	HIGH VOLUME LEAK.-CLOSED DUE TO LACK OF ANY RECENT INFO- DOES NOT MEET ANY CLEAN UP REQUIREMENTS.

Material:

Site ID:	65873
Operable Unit ID:	911632
Operable Unit:	01
Material ID:	468038
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Pounds
Recovered:	No

CLOSED-LACKOF RECENT INFO (Continued) **S100144791**

Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: 65873
Spill Tank Test: 1531755
Tank Number: Not reported
Tank Size: 0
Test Method: 00
Leak Rate: 0
Gross Fail: Not reported
Modified By: Spills
Last Modified: 10/1/2004
Test Method: Unknown

HIST LTANKS:
Region of Spill: 2
Spill Number: 8705434
Spill Date: 09/28/1987
Spill Time: 18:00
Spill Cause: Tank Test Failure
Resource Affectd: Groundwater
Water Affected: Not reported
Spill Source: Other Non Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: BATTISTA
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 09/28/87
Reported to Department Time: 21:22
SWIS: 60
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
Spiller Name: ST. JEROME'S CHURCH
Spiller Address: 230 ALEXANDER AVE.
Spiller City,St,Zip: BX, NY
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: Not reported
Facility Extention: Not reported
Spill Notifier: Tank Tester
PBS Number: 2-197637
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended

CLOSED-LACKOF RECENT INFO (Continued) **S100144791**

Enforcement Date: / /
Investigation Complete: / /
UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 09/30/87
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 11/24/92
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: 0
Test Method: Not reported
Leak Rate Failed Tank: 0.00
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: -1
Unkonwn Quantity Spilled: False
Units: Not reported
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: / / : EXCAVATE AND DETERMINE SOURCE OF LEAK.
Spill Cause: HIGH VOLUME LEAK.

AE188 **10 W 135TH ST** **LTANKS** **S102671276**
WSW **10 W 135TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK, NY**
0.392 mi.
2070 ft. **Site 2 of 2 in cluster AE**

LTANKS:
Site ID: 148350
Spill No: 8801143
Spill Date: 5/5/1988
Spill Cause: Tank Overfill
Spill Source: Private Dwelling
Spill Class: Not reported
Spill Closed Dt: 2/27/1989
Facility Addr2: Not reported
Cleanup Ceased: 2/27/1989
Cleanup Meets Standard: True
SWIS: 3101
Investigator: SIGONA
Referred To: Not reported
Reported to Dept: 5/5/1988
CID: Not reported
Water Affected: Not reported
Spill Notifier: Responsible Party
Last Inspection: Not reported

10 W 135TH ST (Continued) **S102671276**

Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	4/11/1988
Spill Record Last Update:	2/27/1989
Spiller Name:	Not reported
Spiller Company:	AMARADA HESS
Spiller Address:	231 W FT. LEE RD.
Spiller City,St,Zip:	BOGATA, NJ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	126259
DEC Memo:	Not reported
Remarks:	ADSORBANT MATERIAL DOWN/ BUILDING DOES NOT ALLOW TO STICK TANKS/ THUS OVERFLOW OCCURRED .ADDITIONAL MEASURES WERE TAKEN AFTER MEETING WITH HESS.THE CLEAN-UP OF AREAS WERE INVESTIGATED BY FIELD DEC.

Material:

Site ID:	148350
Operable Unit ID:	916631
Operable Unit:	01
Material ID:	460299
Material Code:	0003
Material Name:	#6 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	55
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	8801143
Spill Date:	05/05/1988
Spill Time:	22:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported

10 W 135TH ST (Continued) **S102671276**

Spill Source:	Private Dwelling
Spill Class:	Not reported
Spill Closed Dt:	02/27/89
Cleanup Ceased:	02/27/89
Cleanup Meets Standard:	True
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	05/05/88
Reported to Department Time:	22:14
SWIS:	62
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	AMARADA HESS
Spiller Address:	231 W FT. LEE RD.
Spiller City,St,Zip:	BOGATA, NJ
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	(201) 489-5100
Facility Extention:	Not reported
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/11/88
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/27/89
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	55
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#6 FUEL OIL

10 W 135TH ST (Continued) **S102671276**

Class Type: #6 FUEL OIL
Times Material Entry In File: 2190
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: Not reported
Spill Cause: ADSORBANT MATERIAL DOWN/ BUILDING DOES NOT ALLOW TO STICK TANKS/ THUS OVERFLOW OCCURRED .ADDITIONAL MEASURES WERE TAKEN AFTER MEETING WITH HESS.THE CLEAN-UP OF AREAS WERE INVESTIGATED BY FIELD DEC.

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189 SE 1/4-1/2 0.403 mi. 2127 ft. **MITCHELL HOUSES -NYCHA** **S103036974**
205-207 ALEXANDER AVE **HIST LTANKS** **N/A**
BRONX, NY **NY Spills**
NY Hist Spills

LTANKS:
Site ID: 180309
Spill No: 9802631
Spill Date: 5/29/1998
Spill Cause: Tank Overfill
Spill Source: Commercial/Industrial
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 6/1/1998
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: SACCACIO
Referred To: Not reported
Reported to Dept: 5/29/1998
CID: 365
Water Affected: Not reported
Spill Notifier: DEC
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 5/29/1998
Spill Record Last Update: 12/7/2005
Spiller Name: Not reported
Spiller Company: GORDON ENVIROMENTAL & MEC
Spiller Address: 2878 GOLF AV
Spiller City,St,Zip: STATEN ISLAND, NY 10303-
Spiller County: 001
Spiller Contact: Not reported
Spiller Phone: Not reported
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 82627
DEC Memo: Not reported
Remarks: OIL WATER SEPERATOR OVERFLOWED SPUING SEPARATED OIL ONTO GROUND - EITHER #2 OR #4 OIL

Material:
Site ID: 180309
Operable Unit ID: 1063288

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Operable Unit:	01
Material ID:	320953
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1
Units:	Gallons
Recovered:	Yes
Resource Affected:	Not reported
Oxygenate:	False
Site ID:	180309
Operable Unit ID:	1063288
Operable Unit:	01
Material ID:	320954
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9802631
Spill Date:	05/29/1998
Spill Time:	15:30
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	06/01/98
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	05/29/98
Reported to Department Time:	18:18
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
Spiller Name:	GORDON ENVIROMENTAL & MEC
Spiller Address:	2878 GOLF AV
Spiller City,St,Zip:	STATEN ISLAND, NY 10303-
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	(718) 442-3879
Facility Extention:	Not reported
Spill Notifier:	DEC
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	05/29/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	08/04/98
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	1
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	1
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Oil water seporator overflowed spilling a small amount of oil onto the ground and sidewalk less than 1 gallon). After my request the Joe project manager) put down some wipes but showed negative interest in cleaning it up to my satisfaction. Spill was never reported by the spiller which is a violation of 6NYCRR part 613.8. The spill was closed out do to the inability to recover anymore of the spilled product. All the unrecovered product was washed away by that evenings rain event.
Spill Cause: OIL WATER SEPERATOR OVERFLOWED SPUING SEPARATED OIL ONTO GROUND - EITHER 2 OR 4 OIL

Region of Spill: 2
Spill Number: 9801188
Spill Date: 04/28/1998
Spill Time: 08:40
Spill Cause: Tank Failure
Resource Affectd: On Land
Water Affected: Not reported
Spill Source: Private Dwelling
Spill Class: Known release that creates potential for fire or hazard. (Highly Improbable)
Spill Closed Dt: / /
Cleanup Ceased: / /
Cleanup Meets Standard: False
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Caller Extension: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Notifier Extension: Not reported
Reported to Department Date: 04/28/98
Reported to Department Time: 09:12
SWIS: 60
Spiller Contact: SUPERINTENDENT MARTINEZ
Spiller Phone: (718) 939-0630
Spiller Extention: Not reported
Spiller Name: NYC HOUSING AUTHORITY
Spiller Address: 250 BROADWAY
Spiller City,St,Zip: NEW YORK, NY
Spiller Cleanup Date: / /
Facility Contact: Not reported
Facility Phone: ( ) -
Facility Extention: Not reported
Spill Notifier: Responsible Party
PBS Number: Not reported
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Enforcement Date: / /
Investigation Complete: / /

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

UST Involvement: False
Date Region Sent Summary to Central Office: / /
Corrective Action Plan Submitted: / /
Date Spill Entered In Computer Data File: 04/28/98
Time Spill Entered In Computer Data File: Not reported
Spill Record Last Update: 05/29/98
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: CALLER WAS REMOVING TOPSOIL TO REMOVE TANKS AND REALIZED SOIL WAS CONTAMINATED. CONTRACT WORK WAS STOPPED UNTIL DEC NOTIFIED.

NY Spills:
Site ID: 283107
Facility Addr2: Not reported
Facility ID: 9906428
Spill Number: 9906428
Facility Type: ER
SWIS: 0301
Investigator: SACCACIO
Referred To: Not reported
Spill Date: 8/30/1999
Reported to Dept: 8/30/1999
CID: 312
Spill Cause: Human Error
Water Affected: Not reported
Spill Source: Tank Truck
Spill Notifier: Local Agency
Cleanup Ceased: Not reported
Cleanup Meets Std: True
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 3/25/2003
Remediation Phase: 0

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Date Entered In Computer:	8/30/1999
Spill Record Last Update:	1/21/2005
Spiller Name:	Not reported
Spiller Company:	S & J FUEL
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	MR PERKINS
Contact Phone:	(718) 993-0630
DEC Region:	2
DER Facility ID:	229622
DEC Memo:	Not reported
Remarks:	DRIVER FORGOT TO OPEN VENT COMPARTMENTS ON TRUCK AND BUILT UP ENOUGH PRESSURE INSIDE THE TRUCK, FORCING OIL OUT OF THE TANK TRUCK - SPILLED TO THE STREET - NYC HOUSING CLEANED UP MOST OF SPILL - WAITING FOR S&J TO SEND A PRESSURE WASHER TO FINISH CLEANING THE STREET

Material:

Site ID:	283107
Operable Unit ID:	1080877
Operable Unit:	01
Material ID:	302699
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50
Units:	Gallons
Recovered:	50
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

Site ID:	325819
Facility Addr2:	Not reported
Facility ID:	9900260
Spill Number:	9900260
Facility Type:	ER
SWIS:	0301
Investigator:	jkkann
Referred To:	CONSOLIDATED WITH 9801188
Spill Date:	4/7/1999
Reported to Dept:	4/7/1999
CID:	384

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Notifier:	Other
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	12/11/2007
Remediation Phase:	0
Date Entered In Computer:	4/7/1999
Spill Record Last Update:	12/11/2007
Spiller Name:	Not reported
Spiller Company:	EASTCO BOILER CORP
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	ED MALONE
Contact Phone:	(212) 306-8480
DEC Region:	2
DER Facility ID:	82627
DEC Memo:	11/29/05: This spill transferred from J.Kolleeny to S.Kraszewski. 02/02/06: This spill transferred from S.Kraszewski to Q.Abidi. 04/04/06: This spill transferred from Q. Abidi to Koon Tang. 12/11/07: Spill transferred to J.Kann and consolidated with 9801188. J.Kann
Remarks:	EASCO WAS HOOKING UP A PORTABLE BOILER WHEN THEY NOTICED THEY WERE LEAKING. CLEANUP WILL BE DONE BY EASCO.

Material:

Site ID:	325819
Operable Unit ID:	1075080
Operable Unit:	01
Material ID:	307401
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	20
Units:	Gallons
Recovered:	20
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Test Method: Not reported

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

NY Hist Spills:

Region of Spill:	2
Spill Number:	9906428
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	08/30/1999 12:30
Reported to Dept Date/Time:	08/30/99 13:57
SWIS:	60
Spiller Name:	S & J FUEL
Spiller Contact:	Not reported
Spiller Phone:	(718) 855-6060
Spiller Contact:	MR PERKINS
Spiller Phone:	(718) 993-0630
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Human Error
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	08
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	08/30/99
Date Spill Entered In Computer Data File:	Not reported
Update Date:	02/08/00
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Material:

Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	50
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Remark:	DRIVER FORGOT TO OPEN VENT COMPARTMENTS ON TRUCK AND BUILT UP ENOUGH PRESSURE INSIDE THE TRUCK, FORCING OIL OUT OF THE TANK TRUCK - SPILLED TO THE STREET - NYC HOUSING CLEANED UP MOST OF SPILL - WAITING FOR S J TO SEND A PRESSURE WASHER TO FINISH CLEANING THE STREET
Region of Spill:	2
Spill Number:	9900260
Investigator:	SACCACIO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	04/07/1999 10:45
Reported to Dept Date/Time:	04/07/99 12:01
SWIS:	60
Spiller Name:	EASTCO BOILER CORP
Spiller Contact:	Not reported
Spiller Phone:	(718) 378-3000
Spiller Contact:	ED MALONE
Spiller Phone:	(212) 306-8480
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	09
Spill Notifier:	Other
PBS Number:	-473243
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	04/07/99

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Date Spill Entered In Computer Data File: Not reported
Update Date: 06/03/99
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 20
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 20
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Remark: EASTCO WAS HOOKING UP PORT BOILERS WHEN THE NOTICED THEY WERE LEAKING. CLEAN UP WILL BE DONE BY EASTCO.

Region of Spill: 2
Spill Number: 9714368
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 03/27/1998 03:00
Reported to Dept Date/Time: 03/27/98 03:17
SWIS: 60
Spiller Name: NYC HOUSING AUTHORITY
Spiller Contact: UNK
Spiller Phone: Not reported
Spiller Contact: CALLER
Spiller Address: 250 BROADWAY
Spiller City,St,Zip: MANHATTEN, NY 10007-
Spill Cause: Unknown
Reported to Dept: On Land
Water Affected: Not reported
Spill Source: 09
Spill Notifier: DEC
PBS Number: Not reported
Cleanup Ceased: / /
Cleanup Meets Std: False
Last Inspection: / /
Recommended Penalty: Penalty Not Recommended
Spiller Cleanup Dt: / /
Enforcement Date: / /

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: / /
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 03/27/98
Date Spill Entered In Computer Data File: Not reported
Update Date: 06/19/98
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 0
Unkonwn Quantity Spilled: True
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: True
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Engelhardt responded: arrived at 04:30 - Ed Malone NYCHA) and Keith Williams NYCDEP) on scene. Ed updated spill volume to several thousand gallons based on inventory. NYCFD had already sprayed down road and left flushing most of oil into catchbasins. Frank Ocello NYCHA) arrived at 05:00. Winston cleanup contractor) arrived at 05:45. NYCHA had no booms available to block sewers and prevent dispersing of product. Leak resulted from valve in piping of manifolded tanks being left inthe wrong position. Instead of unburned oil returning to source tank it filled another tank, eventually overfilling it. At 06:40 Keith Williams received report that Wards Island WPCP was starting to see some oil. Inspected shoreline with USCG - no oil observed. Saccacio arrived at 08:30. Visited pump station at 132nd St and St. Annes - no oil observed in flow chambers or in bar screen roll offs. Engelhardt left scene at 09:45, Saccacio remained. Spill transferred to Saccacio on 3/27/98.
Remark: OIL COMING OUT OF THE FUEL CAP/UNK AMOUNT/STILL COMING OUT OF PIPE/PD ON SCENE ***CALLER AGENCY CHANGE FROM DEC TO DEP - SPELLING CHANGES

Region of Spill: 2
Spill Number: 9714270
Investigator: SACCACIO
Caller Name: Not reported
Caller Agency: Not reported
Caller Phone: Not reported
Notifier Name: Not reported
Notifier Agency: Not reported
Notifier Phone: Not reported
Spill Date/Time: 03/24/1998 15:30

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

Reported to Dept Date/Time:	03/24/98 17:35
SWIS:	60
Spiller Name:	NYC HOUSING AUTHORITY
Spiller Contact:	ED MALONE
Spiller Phone:	(212) 306-8480
Spiller Contact:	EDWARD MALONE
Spiller Phone:	(212) 306-8480
Spiller Address:	250 BROADWAY
Spiller City,St,Zip:	NEW YORK, NY 10007-
Spill Cause:	Human Error
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	02
Spill Notifier:	Other
PBS Number:	2-473243
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	03/24/98
Date Spill Entered In Computer Data File:	Not reported
Update Date:	03/25/98
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	50
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	Not reported
Remark:	CONTRACTOR WORKING ON OIL TANK FORGOT TO OPEN RETURN LINE TO THE IN GORUND TANK AND THE OIL THAT WAS TAKEN FROM INGOROUND TANK WAS BEIMNG RETURNED TO AN ABOVE GROUND 20,000 GAL TANK INGROUND IS A 25,000 GAL). WINSTON CONTRACTING ON SITE FOR CLEANUP.

MITCHELL HOUSES -NYCHA (Continued) **S103036974**

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

AG190 **3 BROTHERS CLEANERS** **RCRA-NonGen** **1000368098**
SE **347 E 138TH ST** **LTANKS** **NYD083997718**
1/4-1/2 **BRONX, NY 10454** **HIST LTANKS**
0.416 mi. **MANIFEST**
2194 ft. **Site 4 of 4 in cluster AG**

RCRA-NonGen:

Date form received by agency:	01/01/2007
Facility name:	3 BROTHERS CLEANERS
Facility address:	347 E 138TH ST BRONX, NY 10454
EPA ID:	NYD083997718
Mailing address:	E 138TH ST BRONX, NY 10454
Contact:	NOEMI SURITA
Contact address:	E 138TH ST BRONX, NY 10454
Contact country:	US
Contact telephone:	(718) 292-2728
Contact email:	Not reported
EPA Region:	02
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

Owner/Operator Summary:

Owner/operator name:	SUTRE CORP
Owner/operator address:	321 CONCORD AVE BRONX, NY 10454
Owner/operator country:	US
Owner/operator telephone:	(718) 742-1802
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	01/01/2001
Owner/Op end date:	Not reported

Owner/operator name:	SUTRE CORP
Owner/operator address:	321 CONCORD AVE BRONX, NY 10454
Owner/operator country:	US
Owner/operator telephone:	(718) 742-1802
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	01/01/2001
Owner/Op end date:	Not reported

Handler Activities Summary:

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

3 BROTHERS CLEANERS (Continued) **1000368098**

Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 01/01/2006
Facility name: 3 BROTHERS CLEANERS
Classification: Conditionally Exempt Small Quantity Generator

Date form received by agency: 04/13/2001
Facility name: 3 BROTHERS CLEANERS
Classification: Small Quantity Generator

Date form received by agency: 04/05/1995
Facility name: 3 BROTHERS CLEANERS
Classification: Not a generator, verified

Date form received by agency: 08/15/1985
Facility name: 3 BROTHERS CLEANERS
Classification: Large Quantity Generator

Violation Status: No violations found

LTANKS:
Site ID: 241799
Spill No: 9605052
Spill Date: 7/17/1996
Spill Cause: Tank Failure
Spill Source: Private Dwelling
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 6/15/2004
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: True
SWIS: 5200
Investigator: RDDECAND
Referred To: Not reported
Reported to Dept: 7/18/1996
CID: 351
Water Affected: Not reported
Spill Notifier: Affected Persons
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 7/18/1996
Spill Record Last Update: 6/21/2004
Spiller Name: Not reported
Spiller Company: UNKNOWN
Spiller Address: Not reported
Spiller City,St,Zip: NY
Spiller County: 999

3 BROTHERS CLEANERS (Continued) **1000368098**

Spiller Contact:	THOMAS LAPOINTE
Spiller Phone:	(516) 433-9719
Spiller Extention:	Not reported
DEC Region:	1
DER Facility ID:	198758
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "DECANDIA" TANK IS A/G & USUALLY LEAKING,ADVISED HIM TO CONTACT FUEL OIL CO TO REMOVE OIL AND SET UP TEMP SYSTEM & MAKE ARRANGEMENTS FOR NEW TANK TO BE INSTALLED CLEANUP BY TRADEWINDS
Remarks:	caller just bought residence and was told when he bought it that the tank was not leaking - he now finds that it is leaking - caller would like a call back

Material:

Site ID:	241799
Operable Unit ID:	1032587
Operable Unit:	01
Material ID:	347802
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	1
Spill Number:	9605052
Spill Date:	07/17/1996
Spill Time:	12:00
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	DECANDIA

3 BROTHERS CLEANERS (Continued) **1000368098**

Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	07/18/96
Reported to Department Time:	12:10
SWIS:	47
Spiller Contact:	THOMAS LAPOINTE
Spiller Phone:	(516) 433-9719
Spiller Extention:	Not reported
Spiller Name:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Affected Persons
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	07/18/96
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	07/19/96
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#2 FUEL OIL
Class Type:	#2 FUEL OIL
Times Material Entry In File:	24464
CAS Number:	Not reported
Last Date:	19941207
DEC Remarks:	TANK IS A/G USUALLY LEAKING,ADVISED HIM TO CONTACT FUEL OIL CO TO REMOVE OIL AND SET UP TEMP SYSTEM MAKE ARRANGEMENTS FOR NEW TANK TO BE INSTALLED

3 BROTHERS CLEANERS (Continued) **1000368098**

Spill Cause: caller just bought residence and was told when he bought it that the tank was not leaking - he now finds that it is leaking - caller would like a call back

NY MANIFEST:

EPA ID:	NYD083997718
Country:	USA
Mailing Name:	THREE BROTHERS CLEANERS
Mailing Contact:	THREE BROTHERS CLEANERS
Mailing Address:	347 EAST 138 STREET
Mailing Address 2:	Not reported
Mailing City:	BRONX
Mailing State:	NY
Mailing Zip:	10454
Mailing Zip4:	Not reported
Mailing Country:	USA
Mailing Phone:	212-292-2728

Document ID:	NYA6914687
Manifest Status:	Completed copy
Trans1 State ID:	AMP4503
Trans2 State ID:	Not reported
Generator Ship Date:	871204
Trans1 Recv Date:	871204
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	871204
Part A Recv Date:	871217
Part B Recv Date:	871215
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00160
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NYA6714843
Manifest Status:	Completed copy
Trans1 State ID:	AM6252
Trans2 State ID:	Not reported
Generator Ship Date:	870715
Trans1 Recv Date:	870715
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870715
Part A Recv Date:	870729
Part B Recv Date:	870728
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV

3 BROTHERS CLEANERS (Continued) **1000368098**

Quantity: 00160
Units: P - Pounds
Number of Containers: 002
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 87

Document ID: NYA6820198
Manifest Status: Completed copy
Trans1 State ID: NYAP4503
Trans2 State ID: Not reported
Generator Ship Date: 870930
Trans1 Recv Date: 870930
Trans2 Recv Date: Not reported
TSD Site Recv Date: 870930
Part A Recv Date: 871007
Part B Recv Date: 871007
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00080
Units: P - Pounds
Number of Containers: 001
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00195
Units: P - Pounds
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 87

Document ID: NYA8807218
Manifest Status: Completed copy
Trans1 State ID: NYAP4503
Trans2 State ID: Not reported
Generator Ship Date: 880323
Trans1 Recv Date: 880323
Trans2 Recv Date: Not reported
TSD Site Recv Date: 880323
Part A Recv Date: 880407
Part B Recv Date: 880329
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00080
Units: P - Pounds

3 BROTHERS CLEANERS (Continued) **1000368098**

Number of Containers: 001
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 88

Document ID: NYA8828526
Manifest Status: Completed copy
Trans1 State ID: NYPP4503
Trans2 State ID: Not reported
Generator Ship Date: 880517
Trans1 Recv Date: 880517
Trans2 Recv Date: Not reported
TSD Site Recv Date: 880517
Part A Recv Date: 880609
Part B Recv Date: 880525
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00080
Units: P - Pounds
Number of Containers: 001
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 88

Document ID: NYA8707814
Manifest Status: Completed copy
Trans1 State ID: NYAMP4503
Trans2 State ID: Not reported
Generator Ship Date: 880223
Trans1 Recv Date: 880223
Trans2 Recv Date: Not reported
TSD Site Recv Date: 880223
Part A Recv Date: 880314
Part B Recv Date: 880307
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00080
Units: P - Pounds
Number of Containers: 001
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 88

Document ID: NYA3716302
Manifest Status: Completed copy

3 BROTHERS CLEANERS (Continued) **1000368098**

Trans1 State ID:	IL009
Trans2 State ID:	Not reported
Generator Ship Date:	870205
Trans1 Recv Date:	870205
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870205
Part A Recv Date:	870218
Part B Recv Date:	870218
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00320
Units:	P - Pounds
Number of Containers:	004
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00150
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NYA5722137
Manifest Status:	Completed copy
Trans1 State ID:	16549-GW
Trans2 State ID:	Not reported
Generator Ship Date:	870227
Trans1 Recv Date:	870227
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	870227
Part A Recv Date:	870312
Part B Recv Date:	870313
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD000805911
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00160
Units:	P - Pounds
Number of Containers:	002
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	87

Document ID:	NYC0854019
Manifest Status:	Completed copy
Trans1 State ID:	NYEU1732
Trans2 State ID:	Not reported

3 BROTHERS CLEANERS (Continued) **1000368098**

Generator Ship Date:	910327
Trans1 Recv Date:	910327
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910327
Part A Recv Date:	910416
Part B Recv Date:	910404
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NYC1025987
Manifest Status:	Completed copy
Trans1 State ID:	NYHW8207
Trans2 State ID:	Not reported
Generator Ship Date:	910611
Trans1 Recv Date:	910611
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910611
Part A Recv Date:	910701
Part B Recv Date:	910619
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	91

Document ID:	NYC0905376
Manifest Status:	Completed copy
Trans1 State ID:	AM6252NY
Trans2 State ID:	Not reported
Generator Ship Date:	910417
Trans1 Recv Date:	910417
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	910417
Part A Recv Date:	910430
Part B Recv Date:	910425
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD051060408
Trans2 EPA ID:	Not reported

3 BROTHERS CLEANERS (Continued) **1000368098**

TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00060
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 91

Document ID: NYC0961571
Manifest Status: Completed copy
Trans1 State ID: NYHW8207
Trans2 State ID: Not reported
Generator Ship Date: 910516
Trans1 Recv Date: 910516
Trans2 Recv Date: Not reported
TSD Site Recv Date: 910516
Part A Recv Date: 910605
Part B Recv Date: 910523
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00060
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 91

Document ID: NYC1249839
Manifest Status: Completed copy
Trans1 State ID: NYLP3919
Trans2 State ID: Not reported
Generator Ship Date: 911003
Trans1 Recv Date: 911003
Trans2 Recv Date: Not reported
TSD Site Recv Date: 911003
Part A Recv Date: 911016
Part B Recv Date: 911011
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00060
Units: P - Pounds
Number of Containers: 001
Container Type: DM - Metal drums, barrels
Handling Method: B Incineration, heat recovery, burning.
Specific Gravity: 100
Year: 91

3 BROTHERS CLEANERS (Continued) **1000368098**

Document ID:	NYC2899732
Manifest Status:	Completed copy
Trans1 State ID:	LP3931NY
Trans2 State ID:	Not reported
Generator Ship Date:	940316
Trans1 Recv Date:	940316
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940316
Part A Recv Date:	940411
Part B Recv Date:	940324
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94

Document ID:	NYC3019983
Manifest Status:	Completed copy
Trans1 State ID:	LP3931NY
Trans2 State ID:	Not reported
Generator Ship Date:	940511
Trans1 Recv Date:	940511
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940511
Part A Recv Date:	940519
Part B Recv Date:	940519
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94

Document ID:	NYC2964925
Manifest Status:	Completed copy
Trans1 State ID:	LP3931NY
Trans2 State ID:	Not reported
Generator Ship Date:	940415
Trans1 Recv Date:	940415
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	940415
Part A Recv Date:	940505

3 BROTHERS CLEANERS (Continued) **1000368098**

Part B Recv Date:	940426
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	Not reported
TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DM - Metal drums, barrels
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	94

Document ID:	NYC4784591
Manifest Status:	Completed after the designated time period for a TSDF to get a copy to the DEC
Trans1 State ID:	NYLP3931
Trans2 State ID:	MO001
Generator Ship Date:	970702
Trans1 Recv Date:	970702
Trans2 Recv Date:	970708
TSD Site Recv Date:	970709
Part A Recv Date:	970731
Part B Recv Date:	970805
Generator EPA ID:	NYD083997718
Trans1 EPA ID:	ILD984908202
Trans2 EPA ID:	MOD095038998
TSDF ID:	OHD980587364
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00060
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Waste Code:	Not reported
Quantity:	00195
Units:	P - Pounds
Number of Containers:	001
Container Type:	DF - Fiberboard or plastic drums (glass)
Handling Method:	B Incineration, heat recovery, burning.
Specific Gravity:	100
Year:	97

Document ID:	NYA8654578
Manifest Status:	Completed copy
Trans1 State ID:	NYAMP4503
Trans2 State ID:	Not reported
Generator Ship Date:	880127
Trans1 Recv Date:	880127
Trans2 Recv Date:	Not reported
TSD Site Recv Date:	880127
Part A Recv Date:	880208
Part B Recv Date:	880203
Generator EPA ID:	NYD083997718

3 BROTHERS CLEANERS (Continued) **1000368098**

Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00160
Units: P - Pounds
Number of Containers: 002
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Waste Code: Not reported
Quantity: 00195
Units: P - Pounds
Number of Containers: 001
Container Type: DF - Fiberboard or plastic drums (glass)
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 88

Document ID: NYA9037449
Manifest Status: Completed copy
Trans1 State ID: NYAP4503
Trans2 State ID: Not reported
Generator Ship Date: 880912
Trans1 Recv Date: 880912
Trans2 Recv Date: Not reported
TSD Site Recv Date: 880912
Part A Recv Date: 880923
Part B Recv Date: 880922
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported
TSDF ID: NYD980785760
Waste Code: F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity: 00080
Units: P - Pounds
Number of Containers: 001
Container Type: CF - Fiber or plastic boxes, cartons
Handling Method: R Material recovery of more than 75 percent of the total material.
Specific Gravity: 100
Year: 88

Document ID: NYA9185488
Manifest Status: Completed copy
Trans1 State ID: NYPP4503
Trans2 State ID: Not reported
Generator Ship Date: 880809
Trans1 Recv Date: 880809
Trans2 Recv Date: Not reported
TSD Site Recv Date: 880809
Part A Recv Date: 880819
Part B Recv Date: 880817
Generator EPA ID: NYD083997718
Trans1 EPA ID: ILD051060408
Trans2 EPA ID: Not reported

3 BROTHERS CLEANERS (Continued) **1000368098**

TSDF ID:	NYD980785760
Waste Code:	F002 - HALO SOLV + STILL BOTTOMS FM REC OF SOLV
Quantity:	00080
Units:	P - Pounds
Number of Containers:	001
Container Type:	CF - Fiber or plastic boxes, cartons
Handling Method:	R Material recovery of more than 75 percent of the total material.
Specific Gravity:	100
Year:	88

Click this hyperlink while viewing on your computer to access
132 additional NY_MANIFEST: record(s) in the EDR Site Report.

AI191 **500 GRAND CONCOURSE** **LTANKS** **S104073431**
NNE **500 GRAND CONCOURSE** **HIST LTANKS** **N/A**
1/4-1/2 **NEW YORK CITY, NY**
0.417 mi.
2204 ft. **Site 1 of 2 in cluster AI**

LTANKS:

Site ID:	92997
Spill No:	9002366
Spill Date:	5/31/1990
Spill Cause:	Tank Test Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	9/30/1992
Facility Addr2:	Not reported
Cleanup Ceased:	9/30/1992
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	BATTISTA
Referred To:	Not reported
Reported to Dept:	5/31/1990
CID:	Not reported
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	6/1/1990
Spill Record Last Update:	5/12/1994
Spiller Name:	Not reported
Spiller Company:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	***Update***, ZZ
Spiller County:	001
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	83396
DEC Memo:	Not reported
Remarks:	10K TANK (SYSTEM) FAILED HORNER EZY CHECK, VISUAL GROSS LEAK, FUEL LEAKING THROUGH CONCRETE BASEMENT WALL, TO PUMP TANK, WILL EXCAVATE, ISOLATE & RETEST.

500 GRAND CONCOURSE (Continued) **S104073431**

Material:

Site ID:	92997
Operable Unit ID:	942221
Operable Unit:	01
Material ID:	437109
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	-1
Units:	Not reported
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	92997
Spill Tank Test:	1537140
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

HIST LTANKS:

Region of Spill:	2
Spill Number:	9002366
Spill Date:	05/31/1990
Spill Time:	12:30
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	09/30/92
Cleanup Ceased:	09/30/92
Cleanup Meets Standard:	False
Investigator:	BATTISTA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	05/31/90
Reported to Department Time:	13:39
SWIS:	60
Spiller Contact:	Not reported
Spiller Phone:	Not reported

500 GRAND CONCOURSE (Continued) **S104073431**

Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Tank Tester
PBS Number:	2-452319
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	06/01/90
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	05/12/94
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Not reported
Leak Rate Failed Tank:	0.00
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	-1
Unkonwn Quantity Spilled:	False
Units:	Not reported
Quantity Recovered:	0
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	/ / : 41 1 1 0 4 2 N.T.R2 2-056146 0011100/00+ D 41 1 1 3 4 2 N.T.R2 2-056154 0013100/00++P 4100 1100 1 0 4 2 N.T.R1 T .
Spill Cause:	10K TANK SYSTEM) FAILED HORNER EZY CHECK, VISUAL GROSS LEAK, FUEL LEAKING THROUGH CONCRETE BASEMENT WALL, TO PUMP TANK, WILL EXCAVATE, ISOLATE RETEST.

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192 South 1/4-1/2 0.443 mi. 2339 ft. **TRANSFER STATION** **SWF/LF** **S104787679**
98 LINCOLN AVE **NY Spills** **N/A**
BRONX, NY **NY Hist Spills**
FINANCIAL ASSURANCE

SWF/LF:

Flag:	ACTIVE
Region Code:	2
Phone Number:	7183845151
Owner Name:	Waste Management of NY

TRANSFER STATION (Continued) **S104787679**

Owner Type:	Private
Owner Address:	123 Varick Ave
Owner Addr2:	Not reported
Owner City,St,Zip:	Brooklyn, NY 11237
Owner Email:	Not reported
Owner Phone:	Not reported
Contact Name:	Tara Hemmer
Contact Address:	123 Varick Avenue
Contact Addr2:	Not reported
Contact City,St,Zip:	Brooklyn, NY 11237
Contact Email:	Not reported
Contact Phone:	7185335308
Activity Desc:	Transfer station - regulated
Activity Number:	[03T79]
Active:	Yes
East Coordinate:	590307
North Coordinate:	4517929
Accuracy Code:	Not reported
Regulatory Status:	None
Waste Type:	MSW (Residential/Institutional & Commercial);Construction & Demolition Debris
Authorization #:	Not reported
Authorization Date:	Not reported
Expiration Date:	9/15/2002

NY Spills:

Site ID:	167679
Facility Addr2:	Not reported
Facility ID:	0005007
Spill Number:	0005007
Facility Type:	ER
SWIS:	0301
Investigator:	MXTIPPLE
Referred To:	Not reported
Spill Date:	7/26/2000
Reported to Dept:	7/26/2000
CID:	252
Spill Cause:	Other
Water Affected:	Not reported
Spill Source:	Commercial/Industrial
Spill Notifier:	Local Agency
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	2/13/2003
Remediation Phase:	0
Date Entered In Computer:	7/26/2000
Spill Record Last Update:	2/13/2003
Spiller Name:	KURT KLEIN
Spiller Company:	COLUMBIA UNIVERSITY
Spiller Address:	630 W 168TH ST
Spiller City,St,Zip:	MANHATTAN, NY 10032-
Spiller Company:	001

TRANSFER STATION (Continued) **S104787679**

Contact Name: ED MULLEN
Contact Phone: (718) 401-4126
DEC Region: 2
DER Facility ID: 141269
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIPPLE" same as 0004999
Remarks: MATERIAL WAS DISPOSED OF IN DUMPSTER AT WASTE MANAGEMENT APPEARS TO BE ORANGE IN COLOR. APPROX 15 GALLONS - REQ CALL BACK FOR CONTRACTOR ON SITE- 917-376-4478

Material:
Site ID: 167679
Operable Unit ID: 826051
Operable Unit: 01
Material ID: 549748
Material Code: 0064A
Material Name: UNKNOWN MATERIAL
Case No.: Not reported
Material FA: Other
Quantity: 15
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False
Site ID: 167679
Operable Unit ID: 826051
Operable Unit: 01
Material ID: 549747
Material Code: 0063A
Material Name: UNKNOWN HAZARDOUS MATERIAL
Case No.: Not reported
Material FA: Hazardous Material
Quantity: 0
Units: Gallons
Recovered: No
Resource Affected: Not reported
Oxygenate: False

Tank Test:
Site ID: Not reported
Spill Tank Test: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate: Not reported
Gross Fail: Not reported
Modified By: Not reported
Last Modified: Not reported
Test Method: Not reported

Site ID: 337939
Facility Addr2: Not reported
Facility ID: 0412457
Spill Number: 0412457
Facility Type: ER
SWIS: 0301

TRANSFER STATION (Continued) **S104787679**

Investigator:	RWAUSTIN
Referred To:	Not reported
Spill Date:	2/23/2005
Reported to Dept:	2/23/2005
CID:	444
Spill Cause:	Equipment Failure
Water Affected:	Not reported
Spill Source:	Commercial Vehicle
Spill Notifier:	Responsible Party
Cleanup Ceased:	Not reported
Cleanup Meets Std:	False
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Trust:	False
Spill Class:	Not reported
Spill Closed Dt:	3/29/2005
Remediation Phase:	0
Date Entered In Computer:	2/24/2005
Spill Record Last Update:	3/29/2005
Spiller Name:	Not reported
Spiller Company:	NYC GARBAGE TRUCK
Spiller Address:	Not reported
Spiller City,St,Zip:	ZZ
Spiller Company:	001
Contact Name:	JIM VANWOERT
Contact Phone:	(718) 401-4126
DEC Region:	2
DER Facility ID:	141269
DEC Memo:	3/29/05 - Austin - Minor spill - closed - previously unassigned
Remarks:	IN PROCESS CLEANING UP: HOSE BROKE:

Material:

Site ID:	337939
Operable Unit ID:	1099948
Operable Unit:	01
Material ID:	580223
Material Code:	0010
Material Name:	Hydraulic Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	8
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

TRANSFER STATION (Continued) **S104787679**

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

NY Hist Spills:

Region of Spill:	2
Spill Number:	0005007
Investigator:	TIPPLE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	07/26/2000 17:00
Reported to Dept Date/Time:	07/26/00 22:30
SWIS:	60
Spiller Name:	COLUMBIA UNIVERSITY
Spiller Contact:	KURT KLEIN
Spiller Phone:	(212) 305-6780
Spiller Contact:	ED MULLEN
Spiller Phone:	(718) 401-4126
Spiller Address:	630 W 168TH ST
Spiller City,St,Zip:	MANHATTAN, NY 10032-
Spill Cause:	Other
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	01
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	/ /
Cleanup Meets Std:	False
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Spiller Cleanup Dt:	/ /
Enforcement Date:	/ /
Invstgn Complete:	/ /
UST Involvement:	False
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Corrective Action Plan Submitted:	/ /
Date Region Sent Summary to Central Office:	/ /
Date Spill Entered In Computer Data File:	07/26/00
Date Spill Entered In Computer Data File:	Not reported
Update Date:	07/28/00
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Nonpetroleum/Nonhazardous

TRANSFER STATION (Continued) **S104787679**

Quantity Spilled:	0
Unkonwn Quantity Spilled:	True
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	UNKNOWN HAZARDOUS MATERIAL
Class Type:	UNKNOWN HAZARDOUS MATERIAL
Times Material Entry In File:	2093
CAS Number:	Not reported
Last Date:	19940728
Material Class Type:	Raw Sewage
Quantity Spilled:	15
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	0
Unkonwn Quantity Recovered:	True
Material:	UNKNOWN MATERIAL
Class Type:	UNKNOWN MATERIAL
Times Material Entry In File:	9140
CAS Number:	Not reported
Last Date:	19941109
DEC Remarks:	Not reported
Remark:	MATERIAL WAS DISPOSED OF IN DUMPSTER AT WASTE MANAGEMENT APPEARS TO BE ORANGE IN COLOR. APPROX 15 GALLONS - REQ CALL BACK FOR CONTRACTOR ON SITE- 917-376-4478

FINANCIAL ASSURANCE 1:

Owner Name:	Waste Management of NY
Region:	2
Planning Unit:	New York City
Estimate Type:	Closure
Estimate Amount:	975000
Estimate Date:	3/1/2001
Mechanism:	Surety bond - Performance
Mechanism Amount:	1006460
Financial Institution:	American International Company
Issue Date:	Not reported
Expiration Date:	Not reported
Activity Number:	03T79
Activity Description:	Transfer station - regulated

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193 **556 MORRIS AVE** **LTANKS** **S102673199**
ENE **556 MORRIS AVE** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.449 mi.
2372 ft.

LTANKS:

Site ID:	287485
Spill No:	9513120
Spill Date:	1/20/1996
Spill Cause:	Tank Overfill
Spill Source:	Private Dwelling
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	1/22/1996
Facility Addr2:	Not reported

556 MORRIS AVE (Continued) **S102673199**

Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	0301
Investigator:	GUTIERREZ
Referred To:	Not reported
Reported to Dept:	1/20/1996
CID:	322
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	1/20/1996
Spill Record Last Update:	2/2/1996
Spiller Name:	Not reported
Spiller Company:	PETRO ASTORIA
Spiller Address:	36-16 19 TH AVE
Spiller City,St,Zip:	ASTORIA, NY
Spiller County:	001
Spiller Contact:	JOSEPH ESPOSITO
Spiller Phone:	(718) 585-4709
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	232889
DEC Memo:	Not reported
Remarks:	tank overfilled - only about 1 qt involved - spill has been cleaned

Material:

Site ID:	287485
Operable Unit ID:	1027453
Operable Unit:	01
Material ID:	356850
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1
Units:	Gallons
Recovered:	Yes
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

556 MORRIS AVE (Continued) **S102673199**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9513120
Spill Date:	01/20/1996
Spill Time:	08:00
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	01/22/96
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	GUTIERREZ
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	01/20/96
Reported to Department Time:	09:57
SWIS:	60
Spiller Contact:	JOSEPH ESPOSITO
Spiller Phone:	(718) 585-4709
Spiller Extention:	Not reported
Spiller Name:	PETRO ASTORIA
Spiller Address:	36-16 19 TH AVE
Spiller City,St,Zip:	ASTORIA, NY
Spiller Cleanup Date:	/ /
Facility Contact:	Not reported
Facility Phone:	Not reported
Facility Extention:	Not reported
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	01/20/96
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	02/02/96
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported

556 MORRIS AVE (Continued) **S102673199**

Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 1
Unkonwn Quantity Recovered: False
Material: #2 FUEL OIL
Class Type: #2 FUEL OIL
Times Material Entry In File: 24464
CAS Number: Not reported
Last Date: 19941207
DEC Remarks: Not reported
Spill Cause: tank overfilled - only about 1 qt involved - spill has been cleaned

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194 SSW 1/4-1/2 0.453 mi. 2393 ft. **110 EAST 130ST STREET** **MANHATTAN 10 GARAGE** **MANHAATAN, NY** **LTANKS HIST LTANKS NY Spills NY Hist Spills** **S102147087 N/A**

LTANKS:
Site ID: 274271
Spill No: 9709777
Spill Date: 11/19/1997
Spill Cause: Tank Test Failure
Spill Source: Commercial/Industrial
Spill Class: Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: Not reported
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 3101
Investigator: AXDORONO
Referred To: REGENOX INJECTION WAS APPROVED ON 03/11/11
Reported to Dept: 11/19/1997
CID: 282
Water Affected: Not reported
Spill Notifier: Responsible Party
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 5
Date Entered In Computer: 11/21/1997
Spill Record Last Update: 8/30/2011
Spiller Name: LOUIS CASANOVA
Spiller Company: NYC DEPT OF SANITATION
Spiller Address: 110 EAST 131 STREET
Spiller City,St,Zip: MANHATTAN, NY 10004-
Spiller County: 001
Spiller Contact: LOUIS CASANOVA
Spiller Phone: (212) 837-8372
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 270621

110 EAST 130ST STREET (Continued) **S102147087**

DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "KOLLEENY" TRANSFERRED FROM Y.KRIMGOLD TO KOLLEENY TO I.ISLAM 5/3/05- The site's soil & GW are currently under remediation by LiRo Engineers by injecting bio-nutrient(through 24 wells) and Iso-Gen Oxygen (through 8 wells). Reviewed the quarterly site monitoring report (Nov./04-Jan./05). Initially, vacuum track was also used to remove Free Product from wells which was followed by bio-nutrient injection. Relative to baseline sampling data, significant improvement in GW quality has been achieved so far in almost all site wells. Installation of ORC socks has been recommended via email for the wells showing persistently high level of Total VOC concentration. Soil investigation is done annually and groundwater quarterly. All wells are found free from Free Product.Installed the quarterly report in the eDoc Folder. - II 7/29/05- Reviewed the Feb.- May/05 monitoring report. Overall GW contamination improved compared to the baseline sampling conducted in 2003. Recent data exhibit low hetero-trophic bacteria count in some of the wells even though DO and other biotreatment parameters are reasonable. The next soil sampling is planned for October 2005. Oxygen delivery system running and site monitoring will continue. Installed the report in the eDoc folder.- II 11/29/05- Reviewed the Jun-Aug/05 site monitoring report dt. Sept. 30/05. The final injection of bio-nutrient occurred in April 21/04. In addition,oxygen supplement through delivery wells started with eight delivery wells have now been reduced to four wells down the road due to failure of the Iso-Gen well controllers. ORC socks were also installed in wells LW-9 and LW-19 in Jan/05 and wells LW-5 and LW-15 in May/05. No free product has been observed recently. August/05 GW sampling results exhibit mixed results as TVOCs concentrations increased at some wells(particularly at LW-10) while decreased at others. But overall significant improvement is observed compared to the baseline samplings conducted in 2003. The consultant LiRo is supposed to resample well LW-10 to evaluate the sudden discrepancy. The proposed upcoming soil sampling plan by LiRo is hereby approved with two additional borings to be advanced adjacent to LW-14 and LW-19. Filed the report in the EDoc folder.- II 03/08/06: this spill transferred from I. Islam to Q. Abidi. 4/19/06: Reviewed Quarterly Monitoring report Sept. 2005 - Dec. 2005. Six groundwater samples were taken on December 28, 2005 during monitoring. Analytical data show four groundwater samples are still contaminated. Free product was not observed during monitoring. Soil samples were taken on December 20, 2005. Two new soil borings were made, LW-9 and LW-11 data shows TVOCs are very high. Only two of five planned soil borings were completed.. LiRo recommends postponing completion of the other soil borings for about six months.They also recommend continuing oxygen delivery system and monitoring at the site. Sent an e-mail to DDC and consultants on 4/19/06 approving these recommendations, and suggesting that the new CM (URS) review all data and evaluate the site to recommend a future course of action. - QA 08/18/06: Transferred to S.Kraszewski. According to the URS Bi-monthly update report on june 9, 2006 URS collected GW samples. VOC analysis revealed no VOCs above GW quality criteria except in LW-09. - SK 10/27/06 Spill case transferred from S. Kraszewski to J. Maisonave. - JAM 12/8/06 Reviewed the Revised Remedial Strategy Report submitted by URS dated November 17, 2006. Site Summary: On Jan. 27, 2003 the DEC approved a remedial strategy by Liro to inject a bio-nutrient slurry and to install the Iso-Gen Oxygen Delivery Sytem (uses a low capacity pump and electrolytic cell

110 EAST 130ST STREET (Continued) **S102147087**

to dissociate water into hydrogen and oxygen) on eight wells. In Jan 2005 the number of oxygen delivery wells was reduced to four due to failure of the well controllers. Consequently, Liro installed ORC socs in the other four wells between Jan and May 2005. The bio-nutrient slurry was injected into twenty-four injection wells between Nov 2003 and Apr 2004. URS was retained as the site manager in Mar 2006 and provided this revised remedial strategy because the manufacturer of the Iso-Gen Oxygen Delivery System had gone out of business and continued operation and maintenance of the system requires monthly replacement of the electrolytic cells. URS proposes implementing chemical oxidation followed by enhanced bioremediation if warranted in lieu of the currently approved remedial strategy. RegenOx will be injected in 10 wells at a rate of 200lbs per injection well with injections occurring once a month for 4 months. Additionaly, URS proposes advancing 4 soil borings near the previously detected vadose zone soil contamination at monitoring well LW-06 to determine if remedial measures are required. Report uploaded to eDocs. -JAM 1/10/07 Meeting with DDC and URS. Verbally approved Revised Remedial Strategy. - JAM 1/19/07 Reviewed UST Closure Report submitted by James McCullah Co., Inc. dated Nov. 2006. DDC contracted to remove two 2,000-gallon diesel oil tanks and one 1,000-gallon Gasoling tank. The tanks were removed on July 11, 2006. All three tanks were steel, five-foot diameter, double-walled tanks buried approx. four feet below grade. Tanks were found to be in good condition. All piping was also removed. Five end-point soil samples were collected from between 7'-12' below grade and analyzed for VOCs and SVOCs. Groundwater was not encountered before reaching bedrock at 11 feet below grade. No signs of contamination were observed, through olfactory and PID screening. Some VOCs were detected however, no detections were above TAGM. SVOCs in sample 1 were the only detections above TAGM. Report uploaded to eDocs. - JAM 8/17/07 Reviewed Soil Sampling Results Report dated July 31, 2007 submitted by URS. On June 12, 2007, URS advanced four soil borings near monitoring well LW-06. Two soil samples were collected from each and the analytical results showed no VOCs detected above TAGM. On May 1, and 2, 2007, URS collected groundwater samples from 16 monitoring wells. Five wells were inaccessible or dry and could not be sampled. VOCs were non-detectible in eight wells. VOC exceedences were detected in wells with concentrations ranging from 16ppb in well LW-06 to 2,018ppb in well LW-10. Elevated concentrations persist in wells LW-10 and LW-20. Conclusions: Soil analytical show that no VOCs exceed TAGM. However, elevated PID readings were detected during the screening of soil samples, which contradict sample results. URS attributes this to the hot humid weather, which may have affected the PID readings. Petroleum odors were not observed from the soil. Minor SVOCs exceeded TAGM, attributed to urban fill. URS proposes chemical oxidation to address dissolved phase contamination observed. URS will prepare a bid package and perform this work. I expect a remedial summary report when work is completed. Report uploaded to eDocs. - JAM 11/18/08 Reviewed System Performance Report for Monitoring Period July through September 2008 submitted by URS dated October 24, 2008. Franklin was contracted by URS to install the injections wells and on August 1, August 29 and October 10, 2008 completed three rounds of RegenOx injections. Thirty-three injection wells were installed and in each of the three injection rounds, 140lbs of RegenOx and 100 gallons of water was applied in each well. URS collected groundwater samples monthly between July and September, 2008. URS states that

110 EAST 130ST STREET (Continued) **S102147087**

groundwater samples show improvement after the RegenOx injection and recommends continuing groundwater monitoring monthly while the injections are still occurring. URS anticipates Franklin will perform the next injections in December 2008. The report is uploaded to eDocs. - JAM 10/19/09 Reviewed the System Performance Report for Monitoring Period October through December 2008 submitted by URS dated February 18, 2009. On December 18, 2008, URS collected groundwater samples from eight wells in the monitoring program. Analytical results showed total VOC concentrations ranging from 43ppb in LW-19 to 4,502ppb in LW-14. Compared with results from the previous sampling event in September 2008, three wells showed decreased total VOCs and four wells showed increased total VOCs. URS states, "After three rounds of RegenOx injections, the groundwater analytical data show fluctuating contaminant concentrations... Franklin is expected to perform a fourth round of injections in March 2009. URS will continue to monitor groudnwater quality." This report is uploaded to eDocs. - JAM 11/18/09 Reviewed System Performance Report through 3rd Quarter 2009 submitted by URS dated October 6, 2009. The report summarizes four rounds of RegenOx injections and 2 rounds of groundwater sampling, which occurred after the injections. The four rounds of injections occurred on August 1, August 28, October 14 of 2008 and February 27, 2009. On June 10, and September 17, 2009, URS collected groundwater samples from 12 of the 13 monitoring wells. Well LW-12 was inadvertently missed in June and well LW-20 was dry in September. NO VOCs were detected above GWQS in wells LW-02, LW-04, LW-07, LW-12, and MW-01. The remaining wells had total VOC concentrations ranging from 166ppb in LW-19 to 7,291ppb in LW-14. URS states that the "rebound" effect is attributed to the desorption of contaminants from soils in the northeast portion of the site. This corresponds to the conclusion presented in the ISRP by LiRO submitted in 2002, which noted contamination in the northeast portion of the site that could be attributed to the heating oil system or an unknown source. URS will perform soil sampling in the northeast portion of the site in November of 2009. No RegenOx injections are scheduled. URS is also considering using a stronger oxidant like sodium persulfate. The report is uploaded to eDocs. - JAM 6/9/10 Reviewed the System Performance Report through 4th Quarter 2009 submitted by URS dated February 5, 2010. URS conducted groundwater sampling on December 16 and 17, 2009 and results showed VOC concentrations ranging from 100 ppb in LW-10 to 2,938 ppb in LW-14. URS has performed 4 rounds of ChemOx injections and the results of groundwater monitoring after injections initially showed improvement. According to URS, it appears rebound is occuring in the northeast portion and the source may be from contamintion adsorbed on the soil in the smear-zone dissolving into the groundwater. In November 2009, URS performed a limited soil investigation in the northeast portion of the site and found contamination in 5 soil samples collected just above and below the water table in that area (groundwater is at 10ft below grade). URS proposes additional RegenOx injections into existing injection wells to target two areas; the area near wells LW-3 and LW-6, and the other area near borings SB-08, SB-09, SB-10, and SB-11. They also propose installing ORC socks in wells BN-03 and BN-08, located along the sidewalk along 131st Street. Report uploaded to eDocs. I called and left a message with Kevin Shanahan today to discuss the status of the out of service fuel oil tank in the northeast portion of the site. - JAM 6/10/10 Spoke to Kevin Shanahan at URS. I searched the PBS Registration (PBS #

110 EAST 130ST STREET (Continued) **S102147087**

2-455849) and found that a 5,000-gallon #2 Fuel Oil UST is listed as "In Service." I asked Kevin to have the tank inspected and if it is in fact out of service, then the tank should be closed and the PBS registration updated. Perhaps the tank should be removed as it may be a source for contamination found in soil and groundwater. If so then contaminated soil should be excavated and the source removed prior to implementing another round of ChemOx injections. He agreed and will get back to me after URS inspects the tank. The latest groundwater sampling report will be issued and when Kevin gets back to me after the tank inspection, I will write a response with DEC's requirements to DDC. - JAM 10/25/10 In the quarterly status update meeting with the DDC and URS on 10/19/10, URS said that the results from the site reconnaissance was submitted in the report dated September 30th. URS will propose additional ChemOx injections to treat residual dissolved phase contamination under a separate letter. - JAM 11/05/2010: This spill case was transferred to A. Doronova. - AD 02/17/2011: Had a quarterly meeting with DDC and URS. Discussed the proposed 5th round of RegenOx injections. Since the previous rounds did not indicate significant improvements in GW quality, asked URS to do USTs inventarization and find out if it is feasible to remove closed-in-place USTs which are acting as a continuous sources of contamination according to a GW contamination plume map. Put RegenOx injection proposal on hold, till the requested info will be submitted to DEC. AD 02/18/2011: Received a Remediation Performance Report, submitted by URS Corporation (URS) and dated February 15, 2011. The report presents groundwater sampling results and states that some of the site's monitoring wells showed elevated levels of VOCs and that one well (LW-20) exhibited free product during the last monitoring round. Based on the data, URS recommends an additional round of RegenOx injections in two areas of the site. Will wait for USTs info before making decision. AD 03/07/2011: Received a call from K. Shanahan of URS regarding feasibility of removal of USTs in question from the site. He said that there are some issues with their removal. Told him that then these areas should be investigated further and long-term remediation will be required. Also he insisted on implementation of RegenOx injections since it was already approved by DDC and they have contractor ready to perform it. Told him that previous rounds of injection did not show significant improvement, and that they should consider different compound for injections. I said that they can submit their proposal for RegenOx application for my review. Later received an e-mail from K. Shanahan saying: "Ainura, Thank you for taking some time this morning to discuss the latest developments for this site. Here is a basic summary of our discussions: 1. URS informed DEC that removal of the closed-in-place 4,000-gallon heating oil UST is not considered feasible due to structural concerns of the adjacent elevator. DEC indicated that if this tank cannot be removed, it may result in a long-term remediation project since any source areas associated with this tank would remain. 2. URS informed DEC that removal of the six closed-in-place 550-gallon USTs is complicated by the presence of the new diesel and gasoline supply piping and electrical conduit running directly over the closed tanks. DEC requested that URS consider protecting the lines and removing the tanks. If the lines are damaged during construction, they could be repaired. URS preliminarily agreed and will arrange for the UST removal in this area. 3. URS requested that DEC approve the limited Regenox Injection Plan URS prepared in December 2010 (see attached). The design is complete and the

110 EAST 130ST STREET (Continued) **S102147087**

contractor has been procured for this work. DEC reiterated that they did not feel the four Regenox applications have resulted in significant VOC reductions but they would consider the request to complete this addition work. DEC also suggested that URS look at alternative bioremediation technologies for this site. In summary, URS will have the six closed-in-place 550-gallon USTs removed and DEC will review the attached plan for limited Regenox Injections. If possible DEC will provide URS an approval to move forward. Thanks, Kevin J. Shanahan Project Manager URS Corporation 77 Goodell Street Buffalo, New York 14203 716-923-1215" Reviewed the attached scope of work where URS proposes implement additional round of RegenOx injections in two areas of the site, using ten existing injection wells. Free product will be removed from the affected well (LW-20) before beginning the injections. A summary report with conclusions and recommendations will be provided to DEC. AD 03/10/2011: Discussed this proposal with J. Kolleeny of DEC. AD 03/11/2011: Issued and sent an approval letter with the following comment: " If the RegenOx application is not effective in reducing VOC levels, an alternative remediation approach should be proposed for the site." DL the letter to eDocs. AD 08/25/2011: received an e-mail from Kevin saying: "Ainura, Closed in-place USTs are being removed today, tomorrow and possibly on Monday depending upon utility complications. Kevin J. Shanahan Project Manager URS Corporation 77 Goodell Street Buffalo, New York 14203 716-923-1215" AD

Remarks: THEY DID A TEST ON THE TANK SYSTEM AND IT FAILED THE TEST.THE TANK IS NEW SO THEY SUSPECT IT IS THE PIPELINE SYSTEM. THIS IS THE AT DEPT SANITATION GARAGE.

Material:

Site ID:	Not reported
Operable Unit ID:	Not reported
Operable Unit:	Not reported
Material ID:	Not reported
Material Code:	Not reported
Material Name:	Not reported
Case No.:	Not reported
Material FA:	Not reported
Quantity:	Not reported
Units:	Not reported
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	Not reported

Tank Test:

Site ID:	274271
Spill Tank Test:	1545481
Tank Number:	Not reported
Tank Size:	0
Test Method:	00
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Unknown

110 EAST 130ST STREET (Continued) **S102147087**

HIST LTANKS:

Region of Spill:	2
Spill Number:	9709777
Spill Date:	11/19/1997
Spill Time:	12:00
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Commercial/Industrial
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	KOLLEENY
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	11/19/97
Reported to Department Time:	15:22
SWIS:	62
Spiller Contact:	LOUIS CASANOVA
Spiller Phone:	(212) 837-8372
Spiller Extention:	Not reported
Spiller Name:	NYC DEPT OF SANITATION
Spiller Address:	110 EAST 130 STREET
Spiller City,St,Zip:	MANHATTAN, NY 10004-
Spiller Cleanup Date:	/ /
Facility Contact:	LOUIS CASANOVA
Facility Phone:	(212) 837-8372
Facility Extention:	Not reported
Spill Notifier:	Responsible Party
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	11/21/97
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	11/26/97
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	0
Test Method:	Unknown
Leak Rate Failed Tank:	0.00

110 EAST 130ST STREET (Continued) **S102147087**

Gross Leak Rate: Not reported

Material:
Material Class Type: Not reported
Quantity Spilled: Not reported
Unkonwn Quantity Spilled: Not reported
Units: Not reported
Quantity Recovered: Not reported
Unkonwn Quantity Recovered: Not reported
Material: Not reported
Class Type: Not reported
Times Material Entry In File: Not reported
CAS Number: Not reported
Last Date: Not reported
DEC Remarks: Not reported
Spill Cause: THEY DID A TEST ON THE TANK SYSTEM AND THE IT FAILED THE TEST.THE TANK IS NEW SO THEY SUSPECT IT IS THE PIPELINE SYSTEM. THIS IS THE AT DEPT SANATATION GARAGE.

NY Spills:
Site ID: 274270
Facility Addr2: Not reported
Facility ID: 9308006
Spill Number: 9308006
Facility Type: ER
SWIS: 3101
Investigator: CAMMISA
Referred To: Not reported
Spill Date: 10/1/1993
Reported to Dept: 10/1/1993
CID: Not reported
Spill Cause: Equipment Failure
Water Affected: Not reported
Spill Source: Institutional, Educational, Gov., Other
Spill Notifier: Local Agency
Cleanup Ceased: 10/1/1993
Cleanup Meets Std: True
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Trust: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/1/1993
Remediation Phase: 0
Date Entered In Computer: 10/4/1993
Spill Record Last Update: 9/30/2004
Spiller Name: Not reported
Spiller Company: Not reported
Spiller Address: Not reported
Spiller City,St,Zip: ***Update***, ZZ
Spiller Company: 001
Contact Name: Not reported
Contact Phone: Not reported
DEC Region: 2
DER Facility ID: 270621
DEC Memo: Not reported
Remarks: GAGE MALFUNCTION - CONTAINED ON CONCRETE - CLEAN UP IS DONE.

110 EAST 130ST STREET (Continued) **S102147087**

Material:

Site ID:	274270
Operable Unit ID:	986514
Operable Unit:	01
Material ID:	394249
Material Code:	0008
Material Name:	Diesel
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	1
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

NY Hist Spills:

Region of Spill:	2
Spill Number:	9308006
Investigator:	CAMMISA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Spill Date/Time:	10/01/1993 10:37
Reported to Dept Date/Time:	10/01/93 10:41
SWIS:	62
Spiller Name:	Not reported
Spiller Contact:	Not reported
Spiller Phone:	Not reported
Spiller Address:	Not reported
Spiller City,St,Zip:	Not reported
Spill Cause:	Equipment Failure
Reported to Dept:	On Land
Water Affected:	Not reported
Spill Source:	02
Spill Notifier:	Local Agency
PBS Number:	Not reported
Cleanup Ceased:	10/01/93
Cleanup Meets Std:	True
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended

110 EAST 130ST STREET (Continued) **S102147087**

Spiller Cleanup Dt: / /
Enforcement Date: / /
Invstgn Complete: / /
UST Involvement: False
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 10/01/93
Corrective Action Plan Submitted: / /
Date Region Sent Summary to Central Office: / /
Date Spill Entered In Computer Data File: 10/04/93
Date Spill Entered In Computer Data File: Not reported
Update Date: / /
Is Updated: False

Tank:
PBS Number: Not reported
Tank Number: Not reported
Tank Size: Not reported
Test Method: Not reported
Leak Rate Failed Tank: Not reported
Gross Leak Rate: Not reported

Material:
Material Class Type: Petroleum
Quantity Spilled: 1
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: DIESEL
Class Type: DIESEL
Times Material Entry In File: 10625
CAS Number: Not reported
Last Date: 19940728
DEC Remarks: 10/10/95: This is additional information about material spilled from the translation of the old spill file: LOW SULFUR.
Remark: GAGE MALFUNCTION - CONTAINED ON CONCRETE - CLEAN UP IS DONE.

AI195 **CARMEL HAYS HIGH SCHOOL** **LTANKS** **S103239085**
NNE **650 GRAND CONCORSE** **HIST LTANKS** **N/A**
1/4-1/2 **BRONX, NY**
0.462 mi.
2439 ft. **Site 2 of 2 in cluster AI**

LTANKS:
Site ID: 142990
Spill No: 9801301
Spill Date: 4/29/1998
Spill Cause: Tank Overfill
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 3/3/2003
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 0301
Investigator: TOMASELLO
Referred To: Not reported

CARMEL HAYS HIGH SCHOOL (Continued) **S103239085**

Reported to Dept:	4/29/1998
CID:	365
Water Affected:	Not reported
Spill Notifier:	Other
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	4/29/1998
Spill Record Last Update:	3/3/2003
Spiller Name:	FATHER FERNAN
Spiller Company:	CARMEL HAYS HIGH SCHOOL
Spiller Address:	650 GRAND CONCORSE
Spiller City,St,Zip:	BRONX, NY
Spiller County:	001
Spiller Contact:	FATHER FERNAN
Spiller Phone:	(718) 292-6100
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	121994
DEC Memo:	Not reported
Remarks:	DRIVER DELIVERED OIL AMOUNT THAT WAS ORDERED BY CUSTOMER BUT THERE WAS MORE OIL IN TANK THAN CUSTOMER ORIGINALLY STATED - OIL CAME OUT VENT PIPE - CLEAN UP CREW ENROUTE

Material:

Site ID:	142990
Operable Unit ID:	1061946
Operable Unit:	01
Material ID:	323236
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	15
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9801301

CARMEL HAYS HIGH SCHOOL (Continued) **S103239085**

Spill Date:	04/29/1998
Spill Time:	16:20
Spill Cause:	Tank Overfill
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	TOMASELLO
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	04/29/98
Reported to Department Time:	16:55
SWIS:	60
Spiller Contact:	FATHER FERNAN
Spiller Phone:	(718) 292-6100
Spiller Extention:	Not reported
Spiller Name:	CARMEL HAYS HIGH SCHOOL
Spiller Address:	650 GRAND CONCORSE
Spiller City,St,Zip:	BRONX, NY
Spiller Cleanup Date:	/ /
Facility Contact:	FATHER FERNAN
Facility Phone:	(718) 292-6100
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/29/98
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/30/98
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum

CARMEL HAYS HIGH SCHOOL (Continued) **S103239085**

Quantity Spilled: 15
Unkonwn Quantity Spilled: False
Units: Gallons
Quantity Recovered: 0
Unkonwn Quantity Recovered: False
Material: #4 FUEL OIL
Class Type: #4 FUEL OIL
Times Material Entry In File: 1751
CAS Number: Not reported
Last Date: 19941205
DEC Remarks: Not reported
Spill Cause: DRIVER DELIVERED OIL AMOUNT THAT WAS ORDERED BY CUSTOMER BUT THERE WAS MORE OIL IN TANK THAN CUSTOMER ORIGINALLY STATED - OIL CAME OUT VENT PIPE - CLEAN UP CREW ENROUTE

AJ196 **101 W 140TH ST** **LTANKS** **S102233285**
WNW **101 W 140TH ST** **HIST LTANKS** **N/A**
1/4-1/2 **MANHATTAN, NY**
0.463 mi.
2442 ft. **Site 1 of 3 in cluster AJ**

LTANKS:
Site ID: 283313
Spill No: 9514579
Spill Date: 2/14/1996
Spill Cause: Tank Failure
Spill Source: Institutional, Educational, Gov., Other
Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt: 11/22/1996
Facility Addr2: Not reported
Cleanup Ceased: Not reported
Cleanup Meets Standard: False
SWIS: 3101
Investigator: MCTIBBE
Referred To: Not reported
Reported to Dept: 2/14/1996
CID: 349
Water Affected: Not reported
Spill Notifier: Other
Last Inspection: Not reported
Recommended Penalty: Penalty Not Recommended
UST Involvement: False
Remediation Phase: 0
Date Entered In Computer: 2/14/1996
Spill Record Last Update: 1/26/1998
Spiller Name: KEVIN WILSON
Spiller Company: Not reported
Spiller Address: 101 W 140TH ST
Spiller City,St,Zip: MANHATTAN, NY
Spiller County: 001
Spiller Contact: KEVIN WILSON
Spiller Phone: (212) 234-7802
Spiller Extention: Not reported
DEC Region: 2
DER Facility ID: 229794
DEC Memo: Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIBBE" CLEANED BY PTC.

101 W 140TH ST (Continued) **S102233285**

Remarks: ruptured tank - contained to boiler room - location is a mutiple dwelling - clean in process

Material:

Site ID:	283313
Operable Unit ID:	1025679
Operable Unit:	01
Material ID:	354709
Material Code:	0002
Material Name:	#4 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	200
Units:	Gallons
Recovered:	200
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

HIST LTANKS:

Region of Spill:	2
Spill Number:	9514579
Spill Date:	02/14/1996
Spill Time:	12:10
Spill Cause:	Tank Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Other Non Commercial/Industrial
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/22/96
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	TIBBE
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	02/14/96
Reported to Department Time:	12:44

101 W 140TH ST (Continued) **S102233285**

SWIS:	62
Spiller Contact:	KEVIN WILSON
Spiller Phone:	(212) 234-7802
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	101 W 140TH ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Cleanup Date:	/ /
Facility Contact:	KEVIN WILSON
Facility Phone:	(212) 234-7802
Facility Extention:	Not reported
Spill Notifier:	Other
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	02/14/96
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	01/26/98
Is Updated:	False

Tank:

PBS Number:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate Failed Tank:	Not reported
Gross Leak Rate:	Not reported

Material:

Material Class Type:	Petroleum
Quantity Spilled:	200
Unkonwn Quantity Spilled:	False
Units:	Gallons
Quantity Recovered:	200
Unkonwn Quantity Recovered:	False
Material:	#4 FUEL OIL
Class Type:	#4 FUEL OIL
Times Material Entry In File:	1751
CAS Number:	Not reported
Last Date:	19941205
DEC Remarks:	CLEANED BY PTC.
Spill Cause:	ruptured tank - contained to boiler room - location is a mutiple dwelling - clean in process

AJ197 **APT COMPLEX** **LTANKS** **S106719706**
WNW **101 W.140TH ST** **N/A**
1/4-1/2 **MANHATTAN, NY**
0.463 mi.
2442 ft. **Site 2 of 3 in cluster AJ**

LTANKS:

Site ID:	318950
Spill No:	9814882
Spill Date:	3/15/1999
Spill Cause:	Tank Failure
Spill Source:	Institutional, Educational, Gov., Other
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/19/2003
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	3101
Investigator:	SMSANGES
Referred To:	Not reported
Reported to Dept:	3/15/1999
CID:	323
Water Affected:	Not reported
Spill Notifier:	Responsible Party
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	3/15/1999
Spill Record Last Update:	12/11/2003
Spiller Name:	CHRIS MCNEUR
Spiller Company:	APT COMPLEX
Spiller Address:	101 W.140TH ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	CHRIS MCNEUR
Spiller Phone:	(212) 972-0700
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	257102
DEC Memo:	Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SANGESLAND" 4:30PM 3/15- CALLED EASTMOND. TANK WAS CORRODED. 2.300 GALLONS IN TANK ROOM. EASTMOND EMPTIED TANK. PUT DOWN SPEEDY DRY. 4/1/99 CHRIS MCNEUR AT MAHA REALTY SAYS SITE WAS CLEANED UP AND TEMP TANKS WERE INSTALLED. OWNER IS THINKING ABOUT EITHER A NEW TANK OR REPAIRING THE OLD ONE. 5/20/99 CHRIS MCNEUR SAID MAHA REALTY NO LONGER MANAGES THIS BUILDING. THE OWNER WENT BANKRUPT AND MANAGEMENT OF THE BUILDING WAS TAKEN OVER BY NEW YORK CITY HPD. 1/17/2002 - Sangesland spoke with Tom Middleton (environmental consultant) who now works for the new owner of the property. Apparently the former property owner lost the building to the city. The city recently sold the building and now the new owner is trying to figure out what needs to be done to bring it into compliance. Mr. Middleton says he believes there is a new tank in the building, but this needs to be confirmed. Sangesland requested a submittal to the DEC including details of the original spill clean up, information related to either the repair or replacement for the subject tank and information on the present owner. As of 1/17/2002, the PBS records are out of date.

APT COMPLEX (Continued) **S106719706**

(expired 1997) The new owner needs to update the PBS information and submit the appropriate PBS information. 3/21/2002 Sangesland received a 1 page letter from State Environmental Services, Inc. (718-265-3355) stating that the tank size was 3,000 (aboveground), it has a concrete Wrap in good condition, the area is clean and shows no leaks, a new seal gasket was installed and the tank and piping system tested tight on March 6, 2002. As of 3/21/2002 the PBS form still was out of date. Sangesland told Mr. Middleton that he needs to get the PBS paperwork straightened out before this spill number will be closed out. 11/19/2003 Sangesland received a copy of an updated PBS form (2-196525) for this site. Now that the PBS has been registered, the spill can be closed out.

Remarks: CONTAINED IN A VAULTED AREA. TANK WILL BE REPALCED. EASTMAN CO CLEANED IT UP AND DID INSTALL TEMP. TANKS. ***MAY 20, 1999 UPDATE*** MAHA REALTY NO LONGER MANAGES THE BLDNG. ***NEW YORK CITY HPD TOOK OVER MANAGEMENT*** SEE DEC NOTES PAGE

Material:

Site ID:	318950
Operable Unit ID:	1072744
Operable Unit:	01
Material ID:	311551
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	200
Units:	Gallons
Recovered:	200
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

198
WNW **106 WEST 139TH ST** **LTANKS** **S105054560**
1/4-1/2 **MANHATTAN, NY** **HIST LTANKS** **N/A**
0.480 mi.
2532 ft.

LTANKS:

Site ID:	218432
Spill No:	0100156
Spill Date:	4/5/2001
Spill Cause:	Tank Test Failure
Spill Source:	Private Dwelling

(Continued) **S105054560**

Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	11/10/2005
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	3101
Investigator:	jdjarrat
Referred To:	Not reported
Reported to Dept:	4/5/2001
CID:	211
Water Affected:	Not reported
Spill Notifier:	Tank Tester
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	4/5/2001
Spill Record Last Update:	11/10/2005
Spiller Name:	SCOTT SWANSON
Spiller Company:	Not reported
Spiller Address:	106 WEST 139TH ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller County:	001
Spiller Contact:	SCOTT SWANSON
Spiller Phone:	(718) 539-4515
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	180709
DEC Memo:	7/15/05 Transferred to Jarratt (co) Fenley & Nicol contacted about latest status of tank test failure - awaiting response 11/10/05 Closure report prepared by TDX Construction Corp (dated 1/12/04) added to file. Repairs documented. Spill closed.
Remarks:	TANK TAKEN OUT OF SERVICE - HOLE DISCOVERED ON TOP OF TANK - TEMPORARY PATCH APPLIED - SOIL NOT IMPACTED

Material:

Site ID:	218432
Operable Unit ID:	838704
Operable Unit:	01
Material ID:	539428
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	0
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	218432
Spill Tank Test:	1526198
Tank Number:	1
Tank Size:	2000

(Continued) **S105054560**

Test Method:	03
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Spills
Last Modified:	10/1/2004
Test Method:	Horner EZ Check I or II

HIST LTANKS:

Region of Spill:	2
Spill Number:	0100156
Spill Date:	04/05/2001
Spill Time:	10:00
Spill Cause:	Tank Test Failure
Resource Affectd:	On Land
Water Affected:	Not reported
Spill Source:	Private Dwelling
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	/ /
Cleanup Ceased:	/ /
Cleanup Meets Standard:	False
Investigator:	SIGONA
Caller Name:	Not reported
Caller Agency:	Not reported
Caller Phone:	Not reported
Caller Extension:	Not reported
Notifier Name:	Not reported
Notifier Agency:	Not reported
Notifier Phone:	Not reported
Notifier Extension:	Not reported
Reported to Department Date:	04/05/01
Reported to Department Time:	10:07
SWIS:	62
Spiller Contact:	SCOTT SWANSON
Spiller Phone:	(718) 539-4515
Spiller Extention:	Not reported
Spiller Name:	Not reported
Spiller Address:	106 WEST 139TH ST
Spiller City,St,Zip:	MANHATTAN, NY
Spiller Cleanup Date:	/ /
Facility Contact:	SCOTT SWANSON
Facility Phone:	(718) 539-4515
Facility Extention:	Not reported
Spill Notifier:	Tank Tester
PBS Number:	Not reported
Last Inspection:	/ /
Recommended Penalty:	Penalty Not Recommended
Enforcement Date:	/ /
Investigation Complete:	/ /
UST Involvement:	False
Date Region Sent Summary to Central Office:	/ /
Corrective Action Plan Submitted:	/ /
Date Spill Entered In Computer Data File:	04/05/01
Time Spill Entered In Computer Data File:	Not reported
Spill Record Last Update:	04/05/01
Is Updated:	False

(Continued) **S105054560**

Tank:
- PBS Number: Not reported
- Tank Number: 1
- Tank Size: 2000
- Test Method: Horner EZ Check
- Leak Rate Failed Tank: 0.00
- Gross Leak Rate: Not reported

Material:
- Material Class Type: Petroleum
- Quantity Spilled: 0
- Unkonwn Quantity Spilled: False
- Units: Gallons
- Quantity Recovered: 0
- Unkonwn Quantity Recovered: False
- Material: #2 FUEL OIL
- Class Type: #2 FUEL OIL
- Times Material Entry In File: 24464
- CAS Number: Not reported
- Last Date: 19941207
- DEC Remarks: Not reported
- Spill Cause: TANK TAKEN OUT OF SERVICE - HOLE DISCOVERED ON TOP OF TANK - TEMPORARY PATCH APPLIED - SOIL NOT IMPACTED

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199 WSW 1/4-1/2 0.481 mi. 2540 ft. **RESIDENCE** **LTANKS** **S106868663**
4 E. 132ND ST. **N/A**
NEW YORK CITY, NY 10014

LTANKS:
- Site ID: 337423
- Spill No: 0412055
- Spill Date: 2/11/2005
- Spill Cause: Tank Test Failure
- Spill Source: Private Dwelling
- Spill Class: Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
- Spill Closed Dt: 7/18/2005
- Facility Addr2: Not reported
- Cleanup Ceased: Not reported
- Cleanup Meets Standard: True
- SWIS: 3101
- Investigator: MDBRAND
- Referred To: Not reported
- Reported to Dept: 2/11/2005
- CID: 408
- Water Affected: Not reported
- Spill Notifier: Tank Tester
- Last Inspection: Not reported
- Recommended Penalty: Penalty Not Recommended
- UST Involvement: False
- Remediation Phase: 0
- Date Entered In Computer: 2/11/2005
- Spill Record Last Update: 7/18/2005
- Spiller Name: YOSHI
- Spiller Company: RESIDENCE
- Spiller Address: 4 EAST 132 ST.

RESIDENCE (Continued) **S106868663**

Spiller City,St,Zip:	NEW YORK CITY, NY
Spiller County:	999
Spiller Contact:	CHRIS GORGA
Spiller Phone:	(646) 772-1404
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	272766
DEC Memo:	2/10/05 MT// Leak above product line, owner instructed not to refill tank,but he can use all of the oil currently in the tank. Owner's office 718-454-8555 contact Joe Cohen for the next 3 weeks, Yoshi is the lead person is going on vacation next week for 3 weeks. Owners plan to convert to gas, empty and remove the oil tank and conduct whatever cleanup that is needed.////TTF letter sent 07/18/2005: Called owner of the property at 4 East 132nd Street (Mr. Yoshi of 4 East 132nd Realty LLC) to determine status of cleanup. Yoshi faxed documentation of tank removal that occurred in March 2005. Contents of tank were removed, tank cleaned and purged, fill and vent lines cut, oil lines disconnected and removed, and the tank was cut up and removed. Tank closure was reviewed by a licensed NYC Fire Department Underground Tank Installer and a Certificate of Affidavit was submitted to the NYC Fire Department Bureau of Fire Prevention on April 21, 2005. There was no release of product from tank into the environment. Documentation was determined to be adequate to close spill. No Further Action letter sent to owner. M. Brand DER NYSDEC Albany.
Remarks:	ABOVE LIQUID LEVEL LEAK. HAS NOT BEEN CLEANED UP YET.

Material:

Site ID:	337423
Operable Unit ID:	1099378
Operable Unit:	01
Material ID:	579718
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	Not reported
Units:	Gallons
Recovered:	No
Resource Affected:	Not reported
Oxygenate:	False

Tank Test:

Site ID:	337423
Spill Tank Test:	1548583
Tank Number:	Not reported
Tank Size:	1080
Test Method:	03
Leak Rate:	0
Gross Fail:	Not reported
Modified By:	Watchdog
Last Modified:	2/11/2005
Test Method:	Horner EZ Check I or II

AJ200 **120 W 140TH ST** **LTANKS** **S107789109**
WNW **120 W 140TH ST** **N/A**
1/4-1/2 **MANHATTAN, NY**
0.495 mi.
2613 ft. **Site 3 of 3 in cluster AJ**

LTANKS:

Site ID:	362249
Spill No:	0600278
Spill Date:	4/8/2006
Spill Cause:	Tank Failure
Spill Source:	Unknown
Spill Class:	Known release with minimal potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.
Spill Closed Dt:	4/10/2006
Facility Addr2:	Not reported
Cleanup Ceased:	Not reported
Cleanup Meets Standard:	False
SWIS:	3101
Investigator:	SFRAHMAN
Referred To:	Not reported
Reported to Dept:	4/8/2006
CID:	64
Water Affected:	Not reported
Spill Notifier:	Fire Department
Last Inspection:	Not reported
Recommended Penalty:	Penalty Not Recommended
UST Involvement:	False
Remediation Phase:	0
Date Entered In Computer:	4/8/2006
Spill Record Last Update:	6/27/2006
Spiller Name:	Not reported
Spiller Company:	UNKNOWN
Spiller Address:	Not reported
Spiller City,St,Zip:	NY
Spiller County:	999
Spiller Contact:	DSP 225
Spiller Phone:	(212) 628-2900
Spiller Extention:	Not reported
DEC Region:	2
DER Facility ID:	312482
DEC Memo:	4/10/2006 Sharif dealt with this spill case. DEP responded to the site. OK to close
Remarks:	Cracked fuel tank which leaked into the sewer.

Material:

Site ID:	362249
Operable Unit ID:	1120351
Operable Unit:	01
Material ID:	2109846
Material Code:	0001
Material Name:	#2 Fuel Oil
Case No.:	Not reported
Material FA:	Petroleum
Quantity:	50
Units:	Gallons
Recovered:	Not reported
Resource Affected:	Not reported
Oxygenate:	False

120 W 140TH ST (Continued) **S107789109**

Tank Test:

Site ID:	Not reported
Spill Tank Test:	Not reported
Tank Number:	Not reported
Tank Size:	Not reported
Test Method:	Not reported
Leak Rate:	Not reported
Gross Fail:	Not reported
Modified By:	Not reported
Last Modified:	Not reported
Test Method:	Not reported

Count: 507 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	S104652273	VAULT VS2109	I & FO 850 WALTON AVE		NY Spills, NY Hist Spills
BRONX	1009242171	CONSOLIDTED EDISON	F & O 4394 PARK AVE E		MANIFEST
BRONX	1010566612	NYSDOT BIN 106666A	I-278 - 1 MI NE OF I-87	10454	RCRA-LQG
BRONX	S108294108	1GAL FROM DEAD A TRANS FEEDER	120TH EXTERIOR RD & FORDAM RD		NY Spills
BRONX	S109584274	CONSOLIDATED EDISON	E 132ND ST & GRAND CONCOURSE		MANIFEST
BRONX	S102239238	138TH ST	138TH ST		NY Spills, NY Hist Spills
BRONX	S110490885	CONSOLIDATED EDISON	138TH & WALNUT AVE		MANIFEST
BRONX	S110490886	CONSOLIDATED EDISON	138TH ST & WLANUT AVE	10451	MANIFEST
BRONX	1009237851	CONSOLIDATED EDISON	MH11401 138TH ST & WILLIS AVE		MANIFEST
BRONX	1007208362	CONSOLIDATED EDISON	MH17508 138TH ST & LOCUST AVE		RCRA-NonGen, MANIFEST
BRONX	1009243955	CONSOLIDATED EDISON	138TH ST & WALNUT AVE MH23145		MANIFEST
BRONX	1014398722	CON EDISON	138TH ST & WALNUT AVE	10451	RCRA-NonGen
BRONX	1014398202	CON EDISON	E 138TH ST & WALNUT AVE	10451	RCRA-NonGen
BRONX	1014398618	CON EDISON	E 138TH ST & LOCUST AVE	10451	RCRA-NonGen
BRONX	S108296259	CROSS STREETS	138TH ST & SAINT ANNES		NY Spills
BRONX	S108296264	ROADWAY	138TH ST & SAINT ANNES		NY Spills
BRONX	1010566625	NYSDOT BIN 1066790	138TH ST OVER I-87	10451	RCRA-LQG
BRONX	S109064733	CONSOLIDATED EDISON	138TH ST & WALNUT AVE	10451	MANIFEST
BRONX	S109414581	SERVICE 10277	E 138TH SAINT GRAND CONCORD		NY Spills
BRONX	S110306120	NYSDOT BIN 1066790	138TH	10451	MANIFEST
BRONX	S102143712	EAST 138TH STREET	E 138TH ST		NY Spills, NY Hist Spills
BRONX	1014397671	CON EDISON	1398TH GRAND CONCOURSE & E 17	10451	RCRA-CESQG
BRONX	S107909387	CONSOLIDATED EDISON CO OF NY	E 140TH ST		MANIFEST
BRONX	S104509825	MANHOLE 20362	140TH 9TH ST & MORRIS AVE		NY Spills, NY Hist Spills
BRONX	1009243018	CONSOLIDATED EDISON	E 140TH ST & WALNUT MH 10		MANIFEST
BRONX	1009243410	CONSOLIDATED EDISON	E 140TH & WALNUT AVE MH6707		MANIFEST
BRONX	1009243449	CONSOLIDATED EDISON	E 140TH ST & WALNUT AVE MH11		MANIFEST
BRONX	S110750528	221481; 140TH	140TH		NY Spills
BRONX	S106736463	MANHOLE #3861	E 140TH ST & EXTERIOR		NY Spills
BRONX	S106737347	MANHOLE #14X	E 140TH ST & BUCKNER		NY Spills
BRONX	1007208217	CONSOLIDATED EDISON	MH12 140TH SAINT BRUCKER & WA		RCRA-NonGen, MANIFEST
BRONX	1009244182	NYCDEP	141ST & PARK AVE		MANIFEST
BRONX	S110823980	CONSOLIDATED EDISON	E 144TH ST & GRAND CONCOURSE	10451	MANIFEST
BRONX	1009238416	CONSOLIDATED EDISON	14523RD E 140TH ST & RIDER AV		MANIFEST
BRONX	S107409448	VAULT # 3200	231 E 149 SAINT NEAR PARK AVE		NY Spills
BRONX	S110709512	CONSOLIDATED EDISON	E 149TH ST & GERARD AVE	10451	MANIFEST
BRONX	S110610694	CONSOLIDATED EDISON	M 15006TH GRAND CONCOURSE & 1		MANIFEST
BRONX	S111157589	CONSOLIDATED EDISON	E 150ST GRAND CONCOURSE		MANIFEST
BRONX	1007207741	CONSOLIDATED EDISON	MH3895 150TH ST & EXTERIOR ST		RCRA-NonGen, MANIFEST
BRONX	S109786014	METRO NORTH COMMUTER RAIL ROAD, MO	151ST & GRAND CONCOURSE		MANIFEST
BRONX	S104952804	MANHOLE 4526	E 153RD STREET+GERARD		NY Spills, NY Hist Spills
BRONX	1009232065	METRO NORTH COMMUTER RAILROAD	154TH GRAND CONCOURSE	10455	MANIFEST
BRONX	1010787566	NYSDOT BIN 124009D	155TH ST RAMP TO I-87 NB	10451	RCRA-LQG

Count: 507 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	1009241458	CONSOLIDATED EDISON	E 158TH ST & RIVER AVE MH23254		MANIFEST
BRONX	S104283340	MANHOLE 4513	E 15TH SAINT GERARD AVE		NY Spills, NY Hist Spills
BRONX	1009242342	CONSOLIDATED EDISON	MH7315 161ST ST & RIVER AVE		MANIFEST
BRONX	S106737010	SERVICE ROAD	W 161ST ST & MAJOR DEA		NY Spills
BRONX	1008195727	CONSOLIDATED EDISON	E 165TH & GRAND CONCOURSE TM5		RCRA-NonGen, MANIFEST
BRONX	1009240381	CONSOLIDATED EDISON	MH7801 167TH ST & WALTON AVE		MANIFEST
BRONX	S110044210	GRAND CONCOURSE	170TH SAINT GRAND CONCOURSE		NY Spills
BRONX	1009242391	CONSOLIDATED EDISON	TM502 171ST ST & GRAND CONCOU		MANIFEST
BRONX	S106016656	TM-502	E 171ST ST & GRAND CONCOURS		NY Spills
BRONX	S106001201	REG 51	176TH ST & HARLEM RIVER DR		NY Spills
BRONX	S106735953	APARTMNET BUILDING	1777TH GRAND CONCOURSE & 175T		NY Spills
BRONX	1009241674	CONSOLIDATED EDISON	180TH ST & MORRIS PARK AVE EX		MANIFEST
BRONX	1009240925	CONSOLIDATED EDISON	E 180TH ST & PARK AVE FD38X03		MANIFEST
BRONX	S106006940	FEEDER # 30X03	E 180TH ST & MORRIS PARK		NY Spills
BRONX	1005905812	CONSOLIDATED EDISON	E 180TH ST & MORRIS PARK AVE		RCRA-NonGen, FINDS, MANIFEST
BRONX	S107488301	VS #2715	E 182ND ST & THE GRAND CONCOU		NY Spills
BRONX	S111238665	VAULT	W 183RD ST & GRAND AVE		NY Spills
BRONX	S110540229	PAD MOUNT TRANSFORMER 1451	E 183RD ST & GRAND CONCOURSE		NY Spills
BRONX	S110490995	CONSOLIDATED EDISON	E 187TH ST & GRAND CONCOURSE	10451	MANIFEST
BRONX	S106968567	MAN HOLE #15149	E 187TH ST & GRAND		NY Spills
BRONX	1010326542	CONSOLIDATED EDISON	189TH SAINT BTW WEBSTER & PAR		RCRA-NonGen, MANIFEST
BRONX	1010566735	NYSDOT BIN 106745A	I-87 1MI S OF I-95 OVER RAMP	10451	RCRA-LQG
BRONX	1009240873	CONSOLIDATED EDISON	MH15238 203RD & GRAND CONCOUR		MANIFEST
BRONX	S104282782	MANHOLE #148	E 233TH ST & MAJOR DECON		NY Spills, NY Hist Spills
BRONX	S109208676	PS 33	2424TH JEROME AVE & 2413 WALT		NY Spills
BRONX	S106126631	SERVICE BOX #4855	261ST GR CONCOURSE & 138TH ST		NY Spills
BRONX	S110709754	NYSDOT BIN 106666B	I 278 & RAMP BBIN 106666B	10454	MANIFEST
BRONX	S110611136	NYSDOT BIN 106666C	I 278 RAMP OVERAG	10454	MANIFEST
BRONX	S106001198	MANHOLE #17516	290TH LOCUST ST & 140TH ST		NY Spills
BRONX	1014397809	CON EDISON	3434TH PARK AVE & S OF167TH S	10451	RCRA-NonGen
BRONX	1014398493	CON EDISON	3474TH PARK AVE & E 167TH SAI	10451	RCRA-NonGen
BRONX	S110305928	CONSOLIDATED EDISON	71 3928TH PARK AVE		MANIFEST
BRONX	1007371342	NYSDOT	4TH WALTON BRG & CROSS BRONX		RCRA-SQG, MANIFEST, MANIFEST
BRONX	S103036058	NEAR CITY BUS PARKING	I 95 RAMP		NY Spills, NY Hist Spills
BRONX	1009235667	NYCDEP	I 95 RAMP EXIT 12		MANIFEST
BRONX	S104652466	MANHOLE TM0244	19 9TH SAINT GRAND CONCOUR		NY Spills, NY Hist Spills
BRONX	S109064798	CONSOLIDATED EDISON	ALEXANDER AVE & HARLEM RIVER	10451	MANIFEST
BRONX	1012184989	CON EDISON	ALEXANDER AVE & HARLEM RIVER	10454	RCRA-CESQG
BRONX	S111065371	VAULT # 612	146 ST AND PARK AVE		NY Spills
BRONX	S109064804	CONSOLIDATED EDISON	BECFORD PARK BLVD & WEBSTER A	10451	MANIFEST
BRONX	S105140699	MTA, BEDFORD & CONCOURSE	BEDFORD PARK & CONCOURSE		NY Spills, NY Hist Spills
BRONX	S105236153	MAN HOLE #1418	BEDFORD PARK BV & BAINBRIDG		NY Spills, NY Hist Spills
BRONX	1007208310	CONSOLIDATED EDISON	1418 BEDFORD PARK BLVD		RCRA-NonGen, MANIFEST
BRONX	S103560657	MAJOR DEEGAN EXPRESSWAY	N BOUND VAN CORTLAND PARK		NY Spills, NY Hist Spills
BRONX	S102146617	BROADWAY & VANCOURTLAND P	BROADWAY & VANCOURTLAND PARK		NY Spills, NY Hist Spills
BRONX	S104653047	HUNTS POINT DRAWBRIDGE	BRONX RIVER RD		NY Spills, NY Hist Spills
BRONX	S103484538	GUNN HILL ROAD AND	BRONX RIVER PKWY N		NY Spills, NY Hist Spills

Count: 507 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	S105055600		BRONX RIVER AVE & E233 ST		NY Spills, NY Hist Spills
BRONX	S107658758	NY CITY PARKS	1 BRONX RIVER PKWY		LTANKS
BRONX	S108933596	HESS SERVICE STATION/ISLAND TRANSP	BRONX RIVER RD		MANIFEST
BRONX	S110750373	219881; BRONX PARK EAST	BRONX PARK E		NY Spills
BRONX	S108057723	NEW YORK CITY PARK	1 BRONX RIVER PKWY		NY Spills
BRONX	S109373302	BRONX RIVER	BRONX RIVER BY EDGE WATER ST		NY Spills
BRONX	S108650664	CONSOLIDATED EDISON	BRONX RIVER TUNL		MANIFEST
BRONX	S110045016	BRONX RIVER	BRONX RIVER AT BURKE AVE		NY Spills
BRONX	1010326550	CON EDISON	BRONX RIVER AVE E SIDE 718	10451	RCRA-NonGen
BRONX	S110709441	CONSOLIDATED EDISON	BROOK & 140TH ST		MANIFEST
BRONX	S109064807	CONSOLIDATED EDISON	BROWN PL & HARLEM RIVER RAIL	10451	MANIFEST
BRONX	1012184973	CON EDISON	BROWN PL & HARLEM RIVER YARD	10454	RCRA-CESQG
BRONX	1009239952	CONSOLIDATED EDISON	V3161 BURNSIDE & GRAND AVE		MANIFEST
BRONX	S106718813		BURNSIDE AVE & GRAND CONCORS		NY Spills
BRONX	S109787361	CONSOLIDATED EDISON CO OF NEW YORK	NW C 138TH SAINT CANAL PL		MANIFEST
BRONX	S108933261	CONSOLIDATED EDISON	CANAL PL & S 140TH ST MH1033		MANIFEST
BRONX	1010326108	CON EDISON	CANAL PL & E 140TH ST	10451	RCRA-NonGen
BRONX	S109064503	BELL ATLANTIC-NY	CEDAR AVE & HARLEM PARK BRID		MANIFEST
BRONX	S106004777		E CHESTER RD & MORRIS PARK AV		NY Spills
BRONX	1014398506	CON EDISON	MC CLELLAN AVE & WALTON AVE	10451	RCRA-NonGen
BRONX	1014398636	CON EDISON	E COR COR PARK AVE	10451	RCRA-NonGen
BRONX	S109785278	EMPIRE CITY SUBWAY	SE COR 138TH ST & RYDER AVE	10451	MANIFEST
BRONX	1012185009	CON EDISON	NE COR E 167TH ST & GRAND CON-	10451	RCRA-CESQG
BRONX	1012185181	CON EDISON	SW COR E FORDHAM RD & GRAND	10451	RCRA-CESQG
BRONX	S110611522	MANHOLE 9580	NE COR WALTON & MCCLELLAN AVE		NY Spills
BRONX	S106004691	RESIDENTIAL BLDG	1680 CORTONA PARK E		NY Spills
BRONX	S106001465	CROSS BRONX	CROSS BRONX & MAJOR DEEGAN		NY Spills
BRONX	S110823465	CONSOLIDATED EDISON	CROTN AVENUE CROTON AVENUE PAR		MANIFEST
BRONX	S110823468	CONSOLIDATED EDISON	CROTON AVE & CLARMONT PARK		MANIFEST
BRONX	1007207020	CONSOLIDATED EDISON	MH2930 CYPRESS AVE & E 138TH		RCRA-NonGen, MANIFEST
BRONX	1000789927	NYSDOT CONTRACT D254247	CYPRESS AVE & MAJOR DEEGAN	10454	RCRA-NonGen, FINDS, MANIFEST
BRONX	1008195585	CONSOLIDATED EDISON	CYPRESS PL & PARK AVE MH98		RCRA-NonGen, MANIFEST
BRONX	S105054626	BRONX WHITESTONE BRIDGE	DAIRY POINT PARK		LTANKS, HIST LTANKS
BRONX	S106125585	MAN HOLE	DICKISON & VAN CORTLAN PARK		NY Spills
BRONX	S108638848	DRUM RUN	DRAKE PARK S & LONGFE		NY Spills
BRONX	S110491149	CONSOLIDATED EDISON	MH9515 E 151ST ST & WALTON AV		MANIFEST
BRONX	S110491220	CONSOLIDATED EDISON	TM304 E 138TH ST & LOCUST AVE		MANIFEST
BRONX	1009240799	CONSOLIDATED EDISON	MH4935 E 161ST ST & GRAND CON		MANIFEST
BRONX	1009243082	CONSOLIDATED EDISON	MH15141 E 184TH ST & GRAND CO		MANIFEST
BRONX	1009243380	CONSOLIDATED EDISON	M11 E 140TH ST & WALNUT		MANIFEST
BRONX	1009243381	CONSOLIDATED EDISON	MH10 E 140TH ST & WALNUT AVE		MANIFEST
BRONX	1009218131	CONSOLIDATED EDISON	MH23145 E 138TH ST & WALNUT A		RCRA-NonGen, MANIFEST
BRONX	1009240722	CONSOLIDATED EDISON	MH15104 E 181ST ST & GRAND CO		MANIFEST
BRONX	1009239242	CONSOLIDATED EDISON	MH15939 E 138TH ST & 3RD AVE		MANIFEST
BRONX	1009238276	CONSOLIDATED EDISON	MH4513 E 150TH ST & GERARD AV		MANIFEST
BRONX	1007208221	CONSOLIDATED EDISON	MH6699 E 140TH ST & BRUCKNER		RCRA-NonGen, MANIFEST
BRONX	1007207971	CONSOLIDATED EDISON	MH23927 E TREMONT AVE & PARK		RCRA-NonGen, MANIFEST

Count: 507 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	S108650794	CONSOLIDATED EDISON	MH15149 E 187TH ST & GRAND CO		MANIFEST
BRONX	S102147436	CORNER OF E 138TH ST.	OF E 138TH ST		NY Spills, NY Hist Spills
BRONX	1007207285	CONSOLIDATED EDISON	SB8963 E171ST ST & GRAND CONC		RCRA-NonGen, MANIFEST
BRONX	S106007098	FEEDER 38X04	E180TH ST & MORRIS PARK AVE		NY Spills
BRONX	S105235757	MANHOLE #TM1437	E187TH ST & GRAND CONCORS		NY Spills, NY Hist Spills
BRONX	S106006471	MANHOLE #15149	E187TH ST & GRAND CONCOUR		NY Spills
BRONX	S103938077	MANHOLE 15210	E198TH ST & GRAND CONCORSE		NY Spills, NY Hist Spills
BRONX	1010325571	CON EDISON - MANHOLE 11	N/S EAST 140TH STREET AND WALN	10454	RCRA-NonGen
BRONX	1010325499	CON EDISON - MANHOLE 14	N/S EAST 140TH ST 39 W/O E. B	10454	RCRA-NonGen
BRONX	1010325501	CON EDISON - MANHOLE 11	N/S EAST 140TH AND WALNUT	10454	RCRA-NonGen
BRONX	1010325503	CON EDISON - MANHOLE 13	N/S EAST 140TH STREET 233 E/O	10454	RCRA-NonGen
BRONX	S106008979	MANHOLE 183	EASTSIDE OF PARK AVE		NY Spills
BRONX	S106007367	POLE 18898	EDGEWATER PARK+ADEE		NY Spills
BRONX	S106007361	POLE #18898	EDGEWATER PARK		NY Spills
BRONX	S110139277	DRUM RUN	30 EDGEWATER PARK		NY Spills
BRONX	S111158042	CONSOLIDATED EDISON	EDWARD L GRANT HWY & PLIMPTOU	10451	MANIFEST
BRONX	S110750904	OUTSIDE SOIL	1245 EDWARD GRANT HWY		NY Spills
BRONX	S110750767	SOIL	1245 EDWARD GRANT HWY		NY Spills
BRONX	S109059810	GETTY #258	1413 E EL GRANT HWY		NY Spills
BRONX	S110540558	ROADWAY/SOIL	ENTRANCE RAMP GW BRG		NY Spills
BRONX	S103936191	MANHOLE 11401	EST 138TH ST & WILLIS AVE		NY Spills, NY Hist Spills
BRONX	S104788891		SB EXIT 10 & RT 95		NY Spills, NY Hist Spills
BRONX	S104953788	VAULT #5137	EXTERIOR ST & PARK AVE		NY Spills, NY Hist Spills
BRONX	S102180138	EXTERIOR ST - LANDING RD	EXTERIOR ST LANDING RD		NY Spills, NY Hist Spills
BRONX	1010787562	NYSDOT BIN 1076879	EXTERIOR ST OVER METRO NORTH	10451	RCRA-LQG
BRONX	1009241199	CONSOLIDATED EDISON	MH7411 EXTERIOR ST & UNIVERSI		MANIFEST
BRONX	S108933286	CONSOLIDATED EDISON	EXTERIOR ST & LENDING RD		MANIFEST
BRONX	S110490854	BJS WHOLESALE CLUB BJ0176	610 EXTERIOR ST	10451	MANIFEST
BRONX	S109060000	CONSTRUCTION SITE	725 EXTERIOR ST		NY Spills
BRONX	S109062487	TRAFFIC ACCIDENT- 30 GAL DIESEL IN	EXTERIOR ST & MAJOR DEEGAN XW		NY Spills
BRONX	S108650719	CONSOLIDATED EDISON	EXTERIOR ST & LANDING RD		MANIFEST
BRONX	S109414791	PIER 2 BRONX TERMINAL MARKET	725 EXTERIOR ST		NY Spills
BRONX	S109581797	EXTERIOR ST	EXTERIOR ST & E 153RD ST		NY Spills
BRONX	1012186633	BJS WHOLESALE CLUB BJ0176	610 EXTERIOR ST	10451	RCRA-CESQG
BRONX	S109580106	GATEWAY CENTER AT BRONX TERMINAL M	EXTERIOR ST	10451	ENG CONTROLS, INST CONTROL, BROWNFIELDS
BRONX	1009240512	CONSOLIDATED EDISON	SB15081 F & O 1967 GRAND CONC		MANIFEST
BRONX	1007208092	CONSOLIDATED EDISON	MH4579 F & O 1075 GERARD AVE		RCRA-NonGen, MANIFEST
BRONX	S103828484	SERVICE BOX 15164	FORDHAM RD & GRAND CONCOR		NY Spills, NY Hist Spills
BRONX	1009241814	CONSOLIDATED EDISON	MH23026 FORDHAM & MAJOR DEEGA		MANIFEST
BRONX	S106469262	ON THE STREET	FORDHAM RD & GRAND CONCRS		NY Spills
BRONX	1010326936	CON EDISON	FRONT OF 385 GERARD AVE &	10451	RCRA-NonGen
BRONX	1009243505	CONSOLIDATED EDISON	GATEHOUSE EDGEWATER PARK		MANIFEST
BRONX	1009243431	CONSOLIDATED EDISON	GATEHOUSE EDGEWATER PARK		MANIFEST
BRONX	S104283427	IN SEWER OR VAULT	GERARD AVE & E150TH ST		NY Spills, NY Hist Spills
BRONX	1009240674	CONSOLIDATED EDISON	MH4554 GERARD & E 162ND ST		MANIFEST
BRONX	S110750547	221625; GERARD AVENUE	GERARD AVE		NY Spills

Count: 507 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	U003383937	SUN GOLD ASSOCIATES	700 GRAND CONCOURSE 707 CONC V	10451	AST, HIST AST
BRONX	S111157652	CONSOLIDATED EDISON	3050 GRAND CONCOURSE	10451	MANIFEST
BRONX	S111158972	INTERSECTION	GRAND CONCOURSE AND 170TH ST		NY Spills
BRONX	S104195103	FORDHAM RD &	GRAND CRSE		NY Spills, NY Hist Spills
BRONX	S104194836	MANHOLE 15218	GRAND CONCOURSE & MANERVA P		NY Spills, NY Hist Spills
BRONX	S104788436	138TH ST	GRAND CONCOURSE		NY Spills, NY Hist Spills
BRONX	S104952823	MANHOLE #15206	GRAND CONCOURSE & E197TH		NY Spills, NY Hist Spills
BRONX	S104789828	GRAND CONCOURSE	GRAND CONCOURSE		NY Spills, NY Hist Spills
BRONX	S104194977	MANHOLE #15226	GRAND CONCORSE & BEDFORD		NY Spills, NY Hist Spills
BRONX	S110490870	CON EDISON	GRAND CONCOURSE E & FORDHAM R	10455	MANIFEST
BRONX	S105141731	170TH STREET AND	GRAND CONCOURSE		NY Spills, NY Hist Spills
BRONX	S105141684	179 TH STREET AND	GRAND CONCOURSE		NY Spills, NY Hist Spills
BRONX	S104951483		GRAND CONCOURSE & 92ND S		NY Spills, NY Hist Spills
BRONX	1009238005	CONSOLIDATED EDISON	15211 GRAND CONCOURSE		MANIFEST
BRONX	1009243292	CONSOLIDATED EDISON	GRAND CONCOURSE & E196		MANIFEST
BRONX	S105996775	2521	GRAND AVE		LTANKS
BRONX	1014397448	CON EDISON	GRAND CONCOURSE E & FORDHAM R	10455	RCRA-CESQG
BRONX	1014397768	CON EDISON	1398 GRAND CONCOURSE	10451	RCRA-NonGen
BRONX	1014398681	CON EDISON	1398 GRAND CONCOURSE	10451	RCRA-NonGen
BRONX	S107787361	CONSTRUCITON SITE	GRAND CONCOURSE & 155TH ST		NY Spills
BRONX	S106721634	MANHOLE 4942	SE GRAND CRSE		NY Spills
BRONX	S106017937	TREMONT AVE AND	GRAND CONCORD AVE		NY Spills
BRONX	1010566624	NYSDOT BIN 1066780	GRAND CONCOURSE OVER I-87	10451	RCRA-LQG
BRONX	1004762755	NYCDOT BRIDGE BIN 2241409	GRAND CONCOURSE OVER	10451	RCRA-SQG, FINDS
BRONX	S109943115	ROADWAY	GRAND CONCOURSE MOUNT EDEN PKW		NY Spills
BRONX	1010326976	CONSOLIDATED EDISON	MH15098 GRAND CNCRS & E 180TH		RCRA-NonGen, MANIFEST
BRONX	1010327260	CONSOLIDATED EDISON	MH15114 GRAND CONCOURSE & E 1		RCRA-NonGen, MANIFEST
BRONX	S102662982	BEDFORD PARK RD	GRAND CONCOURSE		NY Spills, NY Hist Spills
BRONX	S110540770	TRAFFIC ACCIDENT	GRANT HWY & W 170TH ST		NY Spills
BRONX	S108763648	GETTY #258	1413 EL GRANT HWY		NY Spills
BRONX	S108764305	GETTY#258	1413 EL GRANT HWY		NY Spills
BRONX	S109371796	GETTY #258	1413 EL GRANT HWY		NY Spills
BRONX	S109415486	GETTY 258	1413 L GRANT HWY		NY Spills
BRONX	1010326656	CONSOLIDATED EDISON	GUN HILL RD & BRONX RIVER PKW		RCRA-NonGen, MANIFEST
BRONX	S106470321	MANHOLE # 28995	GUNHILL RD & MOSHULA PARK		NY Spills
BRONX	1004762658	NYSDOT	HENRY HUDSON & 138TH ST		RCRA-NonGen, FINDS, MANIFEST
BRONX	S104651977	VAULT 0119	HOLLAND AVE & MORRIS PARK		NY Spills, NY Hist Spills
BRONX	S104789871	BRUCKNER EXCHANGE	BY HUDSON RIVER PKWY		NY Spills, NY Hist Spills
BRONX	S105235507	CONNER ST	HUTCHINSON RIVER PKWY		NY Spills, NY Hist Spills
BRONX	S111012086	TOLL PLAZA AT WHITESTONE BRIDGE	HUTCHINSON RIVER PKWY AND SANG		NY Spills
BRONX	S109206979	MANHOLE 15002	80 N HUTCHINSON RIVER PKWY		NY Spills
BRONX	S107787118	MORRIS PARK/ WILKINSON	1950 HUTCHISON RIVER PARK		NY Spills
BRONX	S110489691	PUMPING STA COOP SOUTH	HUTCINSON RIVER PKWY E & EINS		NY Spills
BRONX	S107488594	IFO TASK FORCE	95 HWY		NY Spills
BRONX	S106125119	MANHOLE #4492	JERARD AVE & E 140TH ST		NY Spills
BRONX	1010787565	NYSDOT BIN 124009C	JEROME AVE RAMP TO I-87 SB	10451	RCRA-LQG
BRONX	S110750770	JEROME PARK RESERVOIR SHAFT B-21	JEROME PARK		NY Spills

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City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRONX	1000694477	SHELL OIL COMPANY	1263 E L GRANT HWY		RCRA-NonGen, FINDS, MANIFEST
BRONX	S110139022	258 GETTY STATION	1413 E L GRANT HWY		NY Spills
BRONX	S106736410	MANHOLE #17501	LOCUST AVE & S 138TH		NY Spills
BRONX	S110823800	CONSOLIDATED EDISON	MACCRACKEN AVENUE RIVER PARK	10451	MANIFEST
BRONX	S104879847	EXTERIOR ST &	MAJOR DECON EXPY		NY Spills, NY Hist Spills
BRONX	S105140208		MAJOR DEEGAN & CROSS BRON		NY Spills, NY Hist Spills
BRONX	S110491297	CONSOLIDATED EDISON MH156	MH156 MAJOR DEEGAN SERVICE RD		MANIFEST
BRONX	S110491057	CONSOLIDATED EDISON	MAJOR DEEGAN EXPWY SERVICE RD		MANIFEST
BRONX	S105140440		MAJOR DEGAN & CROSS BRONX		NY Spills, NY Hist Spills
BRONX	S105236394	ROADWAY	MAJOR DEEGAN EXPY		NY Spills, NY Hist Spills
BRONX	S111011973	HIGHWAY	MAJOR DEEGAN EXPY		NY Spills
BRONX	S110490626	WIB 66	MAJOR DEAGEN EXPY & FORDHAM R		NY Spills
BRONX	1009244196	NYCDEP	MAJOR DEEGAN & WEST	10451	MANIFEST
BRONX	S106736752	EAST BOUND BRONX EXPRESSW	MAJOR DEGAN		NY Spills
BRONX	S106736417	NEAR W 176 ST	MAJOR DEACON EXPY		NY Spills
BRONX	S106005874		MAJOR DEEGAN & 150TH ST		NY Spills
BRONX	S108295651	EXXON MOBIL 10570	70 MAJOR DEEGAN EXPY		NY Spills
BRONX	S108762740	DRUM RUN	MAJOR DEGAN EXPY		NY Spills
BRONX	S109375391	CONSOLIDATED EDISON	MAJOR DEGAN SERVICE RD N & O		MANIFEST
BRONX	S109584329	CONSOLIDATED EDISON	MAJOR DEEGAN & CEDAR AVE	10451	MANIFEST
BRONX	S109584330	CONSOLIDATED EDISON	MAJOR DEEGAN & E ST MH 29324		MANIFEST
BRONX	S108955722	ON HIGHWAY	MAJOR DEEGAN		NY Spills
BRONX	S109942617	LOT 47,TAXBLOCK 2349	MAJOR DEEGAN EXPY	10451	E DESIGNATION
BRONX	1012184960	CON EDISON	MAJOR DEEGAN & CEDAR AVE	10451	RCRA-CESQG
BRONX	S110307294	217841; MAJOR DEEGAN EXPY AND E 23	MAJOR DEEGAN EXPY & E 233RD S		NY Spills
BRONX	S110307537	219099; MAJOR DEEGAN AND MCLEAN AV	MAJOR DEEGAN & MCLEAN AVE		NY Spills
BRONX	S110139415	DOT CONSTRUCTION SITE	MAJOR DEEGAN EXPY		NY Spills
BRONX	S102239204	WEST 230 TH ST AND	MAJOR DECON EXPY		NY Spills, NY Hist Spills
BRONX	S102619297	MAJOR DEEGAN EXPRESSWAY	MAJOR DEEGAN EXPY		LTANKS, HIST LTANKS, NY Spills
BRONX	1009243396	CONSOLIDATED EDISON	MH9580 MCCLALLAN & WALTON		MANIFEST
BRONX	1009240498	CONSOLIDATED EDISON	E MH15098 & GRAND CONCOURS		MANIFEST
BRONX	S110709302	CONSOLIDATED EDISON	ES MORRIS PARK AVE		MANIFEST
BRONX	S104282747	180TH STREET 2 BLOCKS OF	F MORRIS PARK AVE		NY Spills, NY Hist Spills
BRONX	S103483471	MORRIS PK & E 180TH ST	MORRIS PARK & E 180TH ST		NY Spills, NY Hist Spills
BRONX	1009241850	CONSOLIDATED EDISON	MORRIS PARK AVE & WILL BRDG R		MANIFEST
BRONX	1009242855	CONSOLIDATED EDISON	MH27843 MORRIS PARK AVE & MAT		MANIFEST
BRONX	S106384602	MANHOLE #27843	MORRIS PARK AVE		NY Spills
BRONX	S108130505	ROADWAY	MORRIS PARK AVE & WHITE PA		NY Spills
BRONX	S109207123	POLE #2639	MORRIS PARK AVE		NY Spills
BRONX	S102402102	PELHAM LINE TRAIN STA.	41 MORRIS PARK AVE		NY Spills, NY Hist Spills
BRONX	1010325507	CON EDISON - MANHOLE 15	N/W/C EAST 140TH STREET AND BR	10454	RCRA-NonGen
BRONX	1011490563	NYSDOT BIN 106680B	I-87 NB OFF RAMP TO YANKEE STA	10451	RCRA-LQG
BRONX	1011490564	NYSDOT BIN 106680C	I-87 NB AT YANKEE STADIUM OVER	10451	RCRA-LQG
BRONX	1009242172	CONSOLIDATED EDISON	NBL NEC PARK AVE E		MANIFEST
BRONX	S106868003	MANHOLE# 17514	NORTHEND 140TH & LOCUST AVE		NY Spills
BRONX	1009243383	CONSOLIDATED EDISON	NWC E 140TH ST & WALNUT AVE		MANIFEST
BRONX	1009242304	CONSOLIDATED EDISON	MH1027 NWC 138TH ST & CANAL P		MANIFEST

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BRONX	S106010211	FORDHAM RD	75FT EAST OF GRAND AVE		NY Spills
BRONX	S109414309	MILE MARKER IS POSSIBLY 2.6 THE CA	87 OFF EXIT N		NY Spills
BRONX	S108980625	CONSOLIDATED EDISON	OPPOSITE 3360 PARK AVE BTW E16		MANIFEST
BRONX	1010566613	NYSDOT BIN 106666C	I-278 OVER RAMP AG AT CYPRESSA	10454	RCRA-LQG
BRONX	1010566614	NYSDOT BIN 106666D	I-278 OVER E 140TH ST	10454	RCRA-LQG
BRONX	1010566623	NYSDOT BIN 1066779	I-87 OVER LINCOLN AVE	10454	RCRA-LQG
BRONX	1010566736	NYSDOT BIN 106745C	I-87 OVER RAMP TO MAJOR DEEGAN	10451	RCRA-LQG
BRONX	1010566740	NYSDOT BIN 1067979	I-87 OVER ALEXANDER AVE	10454	RCRA-LQG
BRONX	1011490578	NYSDOT BIN 106680A	I-87 OVER E 149TH ST	10451	RCRA-LQG
BRONX	1011490579	NYSDOT BIN 1066809	I-87 OVER 149TH ST N OF	10451	RCRA-LQG
BRONX	S110709432	CONSOLIDATED EDISON	E PARK AVE N & E 138TH ST		MANIFEST
BRONX	S110709366	CONSOLIDATED EDISON - MH 67	PARK AVE & SAINT PAULS PL	10451	MANIFEST
BRONX	S104511444	MANHOLE #20866	PARK AVE & E179TH ST		NY Spills, NY Hist Spills
BRONX	S110490983	CONSOLIDATED EDISON	DM32883 PARK AVE & E 181ST ST		MANIFEST
BRONX	S105140815	VAULT #5019	PARK TWIN OF 178TH E		NY Spills, NY Hist Spills
BRONX	S100495113	4 PARK HILL AVE	4 PARK HILL AVE		LTANKS, HIST LTANKS
BRONX	S111074858	NYCTA CPM ENVIRO ENG	PARK CHESTER TRAIN ST		MANIFEST
BRONX	1007208522	CONSOLIDATED EDISON	PARK AVE & 181ST ST MH88		RCRA-NonGen, MANIFEST
BRONX	1009242173	CONSOLIDATED EDISON	PARK AVE & ST MH 91		MANIFEST
BRONX	1009242175	CONSOLIDATED EDISON	PARK AVE & 184TH ST MH M94		MANIFEST
BRONX	1009242176	CONSOLIDATED EDISON	MH96 PARK AVE & E 196TH ST		MANIFEST
BRONX	1009242177	CONSOLIDATED EDISON	MH97 PARK AVE & 187TH ST E		MANIFEST
BRONX	S108077996	LOT 2,TAXBLOCK 2418	PARK AVE	10451	E DESIGNATION
BRONX	S106697999	MANHOLE #26532	PARK CHESTER SUBSTATION		NY Spills
BRONX	1014397813	CON EDISON	PARK AVE & E 168TH ST	10451	RCRA-NonGen
BRONX	1014397814	CON EDISON	3338 PARK AVE	10451	RCRA-NonGen
BRONX	1014397815	CON EDISON	3568 PARK AVE	10451	RCRA-NonGen
BRONX	1014397816	CON EDISON	3608 PARK AVE	10451	RCRA-NonGen
BRONX	1014397818	CON EDISON	3660 PARK AVE	10451	RCRA-NonGen
BRONX	1014397819	CON EDISON	3780 PARK AVE	10451	RCRA-NonGen
BRONX	1014397949	CON EDISON	3980 PARK AVENUE OPP	10451	RCRA-NonGen
BRONX	S109205866	XFMR FAILURE IN VAULT #1429 - 15 G	4759 PARK W		NY Spills
BRONX	1008195578	CONSOLIDATED EDISON	PARK AVE & 179TH ST MH83		RCRA-NonGen, MANIFEST
BRONX	1008195580	CONSOLIDATED EDISON	PARK AVE & ST MH 86		RCRA-NonGen, MANIFEST
BRONX	1008195583	CONSOLIDATED EDISON	PARK AVE & ST MH 93		RCRA-NonGen, MANIFEST
BRONX	1008195584	CONSOLIDATED EDISON	PARK AVE & 185TH ST MH M95		RCRA-NonGen, MANIFEST
BRONX	S108650850	CONSOLIDATED EDISON	PARK AVE & E158TH ST		MANIFEST
BRONX	S110823436	CONED	PARK AVE & E 170TH ST	10451	MANIFEST
BRONX	S109787335	CON EDISON CO OF NY	PARK AVENUE 182TH ST E		MANIFEST
BRONX	S109787336	CON EDISON CO OF NY	PARK AVENUE 183RD ST E		MANIFEST
BRONX	S109787340	CON EDISON CO OF NY,INC.	PARK AVE & E		MANIFEST
BRONX	1012185335	CON EDISON	NB PARK AVE N OF E TREMONT AVE	10451	RCRA-CESQG
BRONX	1012185336	CON EDISON	NB PARK AVE N OF E TREMONT AVE	10451	RCRA-CESQG
BRONX	S110242849	LINCOLN HOSPITAL EMERGENCY ENTRANC	PARK AVENUE SIDE		NY Spills
BRONX	S110305687	CONSOLIDATED EDISON	3434 PARK AVENUE MH 60	10451	MANIFEST
BRONX	S110305964	CONSOLIDATED EDISON	PARK AVE & E ST MH 62	10451	MANIFEST
BRONX	S110307527	219050; PARK AVE AND E167 ST	PARK AVE & E167 ST		NY Spills

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BRONX	S102147003	PELHAM PARK NORTH	PELHAM PARK N		NY Spills, NY Hist Spills
BRONX	S106124140	PELHAM BAY LANDFILL	PELHAM BAY PARK		LTANKS
BRONX	S107788065	ROADWAY	PELHAM BAY PARK		NY Spills
BRONX	S107787908	ROADWAY BUS#9936	PELHAM DAY PARK		NY Spills
BRONX	S110043964	STREET	PLIMPTON AVE & GRAND AVE		NY Spills
BRONX	1009240005	CONSOLIDATED EDISON	MH32270 PORTLAND PARK & 242ND		MANIFEST
BRONX	S108763840	DRUM RUN	RAMP TO 87		NY Spills
BRONX	S110823816	CONSOLIDATED EDISON	REISS PL & PARK E	10451	MANIFEST
BRONX	S103560548	EAST RIVER	EAST RIV & 138TH ST		NY Spills, NY Hist Spills
BRONX	S105841692	NYCDOS SOUTH BRONX MARINE TRAN	EAST RIV		SWF/LF
BRONX	S102672306	EAST RIVER WHITE STONE BR	E RIVER WHITE STONE BR		NY Spills, NY Hist Spills
BRONX	S102148299	RIVER AVE	RIVER AVE		NY Spills, NY Hist Spills
BRONX	S104654168	167TH STREET AND	RIVER AVE		NY Spills, NY Hist Spills
BRONX	S102238491	BRONX RIVER AV/WESTCHESTE	BX RIVER AVE & WESTCHESTER		NY Spills, NY Hist Spills
BRONX	S108762626	END OF WHITE PLAINS ROAD	RIVER AVE		NY Spills
BRONX	S103827469	MANHOLE 29004	ROBERTO CLEMENTE ST PARK		NY Spills, NY Hist Spills
BRONX	1009239189	CONSOLIDATED EDISON	29102 ROBERTO CLEMENTE PARK		MANIFEST
BRONX	1009236318	CONSOLIDATED EDISON	ROBERTO CLEMENTE PARK		MANIFEST
BRONX	S102150444	ROBERTO CLEMENTE STATE PK	ROBERTO CLEMENTE STATE PARK		NY Spills, NY Hist Spills
BRONX	1007207398	CONSOLIDATED EDISON	MH67 SAINT PAULS PL & PARK		RCRA-NonGen, MANIFEST
BRONX	S107408723	MANHOLE #7511	E161 SAINT NEAR RIVER AVE & R		NY Spills
BRONX	1010787563	NYSDOT BIN 124009A	I-87 SB OVER MACOMBS DAM PK	10451	RCRA-LQG
BRONX	1010787564	NYSDOT BIN 124009B	I-87 SB AT MACOMBS DAM PARK	10451	RCRA-LQG
BRONX	1014398415	CON EDISON	SEC E 181ST ST & E PARK AVE	10451	RCRA-NonGen
BRONX	S106384393	MH29084	E SERV ROAD MAJOR DEAGAN EXPY		NY Spills
BRONX	S110307470	218778; SERVICE ROAD MAJOR DEEGAN	SERVICE ROAD MAJOR DEEGAN & E		NY Spills
BRONX	S110044505	MANHOLE 156	SOUTHBOUND MAJOR DEEGAN RDMANH		NY Spills
BRONX	S103827467	MAJOR DEEGAN EXPY	E233 ST & MAJOR DEEGAN EXPY		NY Spills, NY Hist Spills
BRONX	1009240879	CONSOLIDATED EDISON	E180 ST & MORRIS PARK AVE		MANIFEST
BRONX	1009242505	CONSOLIDATED EDISON	E197 ST & GRAND CONCOURSE		MANIFEST
BRONX	S106018514	ELEVATED TRAIN	E161 ST & RIVER AVE		NY Spills
BRONX	S109584272	CONSOLIDATED EDISON	E174 ST & WALTON AVE	10451	MANIFEST
BRONX	S109207991	207264; SWC GERARD AVE & E149 ST	SWC GERARD AVE & E149 ST		NY Spills
BRONX	S106016226	EAST 165 TH ST AND	THE GRAND CONCORSE		NY Spills
BRONX	S102560445	ROADWAY	THE MAJOR DEGAN EXPY		NY Spills, NY Hist Spills
BRONX	1009238283	CONSOLIDATED EDISON	TMH625 150TH ST & GERARD AVE		MANIFEST
BRONX	S104653858	MANHOLE 23890	E TREEMONT & GRAND CONCO		NY Spills, NY Hist Spills
BRONX	S105056492	MANHOLE 23927	E TREEMONT & E PARK AVE		NY Spills, NY Hist Spills
BRONX	1007207928	CONSOLIDATED EDISON	W V5137 & S EXTERIOR 149 ST		RCRA-NonGen, MANIFEST
BRONX	1009241361	CONSOLIDATED EDISON	VAN CORTLANDT PARK E & KATHON		MANIFEST
BRONX	S106469118		98 VAN CORTLAND PARK ST		NY Spills
BRONX	S106002127	MAJOR DEEGAN EXPRESSWAY/	VAN CORTLANDT PARK EXPY		NY Spills
BRONX	S106721899	SHAFT 3B	VAN CORLAND PARK		NY Spills
BRONX	S108129941	IN FRONT OF	VANCORTLAND PARK E		NY Spills
BRONX	S109063639	MANHOLE TM 280 HAS 50 GAL DIELECTR	VANCORTLANDT PARK & MOSHOLU P		NY Spills
BRONX	1011490575	NYSDOT BIN 1066730	I-278 W TO I-87 N INTERCHANGE	10454	RCRA-LQG
BRONX	S110823882	CONSOLIDATED EDISON	WALNUT AVE & E 138TH ST	10451	MANIFEST

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BRONX	S103483890	E 177TH ST AND	WALTON AVE		NY Spills, NY Hist Spills
BRONX	S106971708	HOSTOS COMMUNITY COLLEGE	WALTON AVENUE 144TH ST E		LTANKS
BRONX	1009238150	CONSOLIDATED EDISON	MH9480 WALTON AVE & E 140TH S		MANIFEST
BRONX	S106383100	MANHOLE # 9489	WALTON AVENUE 144TH ST E		NY Spills
BRONX	1010171787	NYC DOT	WALTON AVE		MANIFEST
BRONX	S107787844	MANHOLE 9539	WALTON AVE & E 158TH ST		NY Spills
BRONX	S109208100	208501; WALTON AVE & E150 ST	WALTON AVE & E150 ST		NY Spills
BRONX	1004762754	NYCDOT BRIDGE BIN 2241410	WALTON AVE BRIDGE OVER	10451	RCRA-NonGen, FINDS
BRONX	S109942155	LOT 10,TAXBLOCK 2345	WALTON AVE	10451	E DESIGNATION
BRONX	S109942195	LOT 12,TAXBLOCK 2345	WALTON AVE	10451	E DESIGNATION
BRONX	1012185277	CON EDISON	845 WALTON AVE & 161ST ST FRON	10451	RCRA-CESQG
BRONX	S110750956	OPEN TRENCH	WEBSTER AVE AND BEDFORD PARK B		NY Spills
BRONX	S108763433	NYC TRANSIT BUS	WEBSTER AVE & BEDFORD PARK		NY Spills
BRONX	S109064602	BELL ATLANTIC-NY	WESCHESTER AVE & PARK AVE MH		MANIFEST
BRONX	S106014056	WESTCHESTER AV & RT 95	WESTCHESTER AVE & RT 95		NY Spills
BRONX	1010566622	NYSDOT BIN 1066760	WILLIS AVE OVER I-87	10454	RCRA-LQG
BRONX	S104787471	MANHOLE 11501	WILLOW AVENUE 138TH ST E		NY Spills, NY Hist Spills
BRONX COUNTY	S109207838	204710; EXTERIOR ST	EXTERIOR ST		NY Spills
BRONX COUNTY	S109207853	205006; EXTERIOR ST 140' N/O LANDI	EXTERIOR ST 140' N/O LANDING R		NY Spills
BRONX COUNTY	S109208235	208591; EXTERIOR ST	EXTERIOR ST		NY Spills
BRONX COUNTY	S109208068	208260; E GRAND CONCOURSE; E/S GRA	E GRAND CONCOURSE; E/S GRAND C		NY Spills
BRONX COUNTY	S109208025	207648; N/E/C E 187 ST & GRAND CON	N/E/C E 187 ST / GRAND CONCO		NY Spills
BRONX COUNTY	S109208230	208330; PARK AVE	PARK AVE		NY Spills
MANHATTAN	S109581983	MANHOLE #61770 (ACCESS RD)	W 155TH & HARLEM RIVER DR	10039	NY Spills
MANHATTAN	1009242631	CONSOLIDATED EDISON	HARLEM RIVER DR & W 155TH ST	10039	MANIFEST
MANHATTAN	S108984430	LOT 3,TAXBLOCK 1998	2307 JOE DIMAGGIO HWY	10027	E DESIGNATION
MANHATTAN	S108984449	LOT 61,TAXBLOCK 1997	2293 JOE DIMAGGIO HWY	10027	E DESIGNATION
MANHATTAN	S108466515	CONTRACTOR SPILLED A BIT OF OIL	1901 PARK AVE	10035	NY Spills
NEW YORK	1007207198	CONSOLIDATED EDISON	V5974 & MADISON AVE	10027	RCRA-NonGen, MANIFEST
NEW YORK	1009238063	CONSOLIDATED EDISON	V5974 & MADISON AVE	10027	MANIFEST
NEW YORK	S109583997	CONSOLIDATED EDISON	N & S ST 165 EAST OF PARK	10035	MANIFEST
NEW YORK	1014395985	CON EDISON	10TH E 132ND ST & MADISON AVE	10037	RCRA-CESQG
NEW YORK	S110610999	CONSOLIDATED EDISON	E 112TH ST & O PARK AVE	10035	MANIFEST
NEW YORK	1014396054	CON EDISON	116TH E 123RD ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014396029	CON EDISON	E 118TH ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014396026	CON EDISON	W 120TH ST & PARK W	10027	RCRA-CESQG
NEW YORK	1014396032	CON EDISON	E 120TH ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014396552	CON EDISON	E 120TH ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014396581	CON EDISON	E 121ST ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1007207307	CONSOLIDATED EDISON	MH50789 121ST & MADISON	10027	RCRA-NonGen, MANIFEST
NEW YORK	1014396553	CON EDISON	W 122ND ST & MOUNT MORRIS PAR	10035	RCRA-CESQG
NEW YORK	1012185966	CON EDISON	72 E 123RD ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1012185967	CON EDISON	56 E 123RD ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1009242255	CONSOLIDATED EDISON	MH50810 125TH ST & MADISON AV	10027	MANIFEST
NEW YORK	1006817481	NYC TRANSIT AUTHORITY	125TH SAINT BETWEEN PARK & 2N	10035	RCRA-CESQG, FINDS, MANIFEST, MANIFEST
NEW YORK	S110709571	CONSOLIDATED EDISON - MH 18229	E 126TH ST & PARK AVE	10035	MANIFEST

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NEW YORK	1012185789	CON EDISON	80 E 127TH ST & MADISON AVE	10035	RCRA-CESQG
NEW YORK	1012185792	CON EDISON	66 E 127TH ST & MADISON AVE	10035	RCRA-CESQG
NEW YORK	1012185793	CON EDISON	60 E 127TH ST & MADISON AVE	10035	RCRA-LQG
NEW YORK	1014396844	CON EDISON	E 129TH ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014399123	CON EDISON	112 E 129TH ST OF PARK AVE E	10035	RCRA-NonGen
NEW YORK	1014396520	CON EDISON	E 130TH ST & PARK AVE	10037	RCRA-CESQG
NEW YORK	1012184930	CON EDISON	130TH ST & PARK AVE	10037	RCRA-CESQG
NEW YORK	1014395876	CON EDISON - GAS MAIN EXCAVATION	E 132ND ST & PARK AVE	10037	RCRA-LQG
NEW YORK	1000553750	NYC DEPT OF SANITATION	W 135TH ST & NORTH RIVER	10027	RCRA-NonGen, FINDS
NEW YORK	1014396418	CON EDISON	W 138TH ST & AMSTERDAM AVE	10037	RCRA-CESQG
NEW YORK	1014396420	CON EDISON	W 138TH ST & LENOX AVE	10037	RCRA-CESQG
NEW YORK	S110045586	CONSOLIDATED EDISON	101 W 138TH ST	10030	MANIFEST
NEW YORK	1014398848	CON EDISON	203 W 140TH ST OF 8TH AVE E	10030	RCRA-NonGen
NEW YORK	1014398849	CON EDISON	210 W 140TH ST OF 8TH AVE E	10030	RCRA-NonGen
NEW YORK	1014398850	CON EDISON	216 W 140TH ST OF 8TH AVE E	10030	RCRA-NonGen
NEW YORK	1014398851	CON EDISON	222 W 140TH ST OF 8TH AVE E	10030	RCRA-NonGen
NEW YORK	1014398718	CON EDISON	W 140TH ST & AMSTERDAM NORTHW	10031	RCRA-NonGen
NEW YORK	1014398936	CON EDISON	W 140TH ST & 7TH AVE NW COR O	10030	RCRA-NonGen
NEW YORK	1014396784	CON EDISON	14TH MOUNT MORRIS PARK & W 12	10027	RCRA-CESQG
NEW YORK	S110305646	CONSOLIDATED EDISON	W 155TH ST & HARLEM RIVER DR	10039	MANIFEST
NEW YORK	1014396049	CON EDISON	173RD E 121ST ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014396050	CON EDISON	175TH E 122ND ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1014396002	CON EDISON	1852ND PARK AVE & E 127TH ST	10035	RCRA-CESQG
NEW YORK	1014396000	CON EDISON	1860TH PARK AVE & E 127TH ST	10035	RCRA-CESQG
NEW YORK	1014397080	CON EDISON	1886TH PARK AVE & 129TH ST	10035	RCRA-CESQG
NEW YORK	1014395986	CON EDISON	1957TH E 132ND ST & PARK AVE	10037	RCRA-CESQG
NEW YORK	1014396006	CON EDISON	1988TH MADISON AVE & E 127TH	10035	RCRA-CESQG
NEW YORK	1014396004	CON EDISON	2016TH E 128TH ST & MADISON A	10035	RCRA-CESQG
NEW YORK	S110610811	CONSOLIDATED EDISON	203RD W 140TH ST & 8TH AVE	10030	MANIFEST
NEW YORK	1014395984	CON EDISON	2090TH MADISON AVE & E 132ND	10037	RCRA-CESQG
NEW YORK	1014398305	CON EDISON	214TH W 138TH ST & 7TH AVE	10030	RCRA-NonGen
NEW YORK	S110610813	CONSOLIDATED EDISON	216TH W 140TH ST & 8TH AVE	10030	MANIFEST
NEW YORK	S110610812	CONSOLIDATED EDISON	216TH W 140TH ST & 8TH AVE	10030	MANIFEST
NEW YORK	1014398306	CON EDISON	218TH W 138TH ST & 7TH AVE	10030	RCRA-NonGen
NEW YORK	1014396863	CON EDISON	23RD W MOUNT MORRIS PARK & W	10027	RCRA-CESQG
NEW YORK	1014396047	CON EDISON	23RD MOUNT MORRIS PARK W & W	10027	RCRA-CESQG
NEW YORK	1009241750	CONSOLIDATED EDISON	28TH ST & PARK AVE MH60698	10027	MANIFEST
NEW YORK	1009241916	CON ED	29TH ST & PARK EXCAV	10027	MANIFEST
NEW YORK	1014395968	CON EDISON	30TH W 138TH ST & 5TH AVE	10037	RCRA-CESQG
NEW YORK	1009241915	CON ED	38TH ST & PARK EXCAV	10027	MANIFEST
NEW YORK	1014396046	CON EDISON	3RD W 121ST ST & W MOUNT MORR	10027	RCRA-CESQG
NEW YORK	1014396007	CON EDISON	51ST E 129TH ST & MADISON AVE	10035	RCRA-CESQG
NEW YORK	1014396005	CON EDISON	60TH E 129TH ST & MADISON AVE	10035	RCRA-CESQG
NEW YORK	1009241917	CON ED	E 64TH ST & PARK EXCAV	10027	MANIFEST
NEW YORK	1014396052	CON EDISON	72ND E 123RD ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1012187132	NYSDOT BIN 1077030	RTE 907P OVER IRT TRACKS	10039	RCRA-LQG
NEW YORK	1012187135	NYSDOT BIN 2229339	RTE 907V OVER ST CLAIR PLACE	10027	RCRA-LQG

Count: 507 records. ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
NEW YORK	U004045693	610 RIVERSIDE DRIVE	AKA & 641ST WEST 138TH ST	10031	AST
NEW YORK	1014396571	CON EDISON - SERVICE BOX 12275	66 ST AND MADISON AVE	10035	RCRA-LQG
NEW YORK	1014398706	CON EDISON	2605 AVE 8TH OF 138TH W	10030	RCRA-NonGen
NEW YORK	1009241799	CONSOLIDATED EDISON	BROADWAY & GRAND ST 60450	10027	MANIFEST
NEW YORK	U004062304	CITY COLLEGE OF NEW YORK	CONVENT AVENUE AND 138TH ST	10031	UST
NEW YORK	U001841935	CITY COLLEGE OF NEW YORK - CUNY	CONVENT AVE & 138TH ST	10031	HIST UST
NEW YORK	A100296299	CITY COLLEGE OF NEW YORK	CONVENT AVENUE AND 138TH ST	10031	AST
NEW YORK	1012185715	CON EDISON	NW COR E 126TH ST & PARK AVE	10035	RCRA-CESQG
NEW YORK	1009238039	CONSOLIDATED EDISON	VT5439 E 31ST ST & MADISON AV	10027	MANIFEST
NEW YORK	1009238159	CONSOLIDATED EDISON	MH33 GRAND ST & FDR	10027	MANIFEST
NEW YORK	U004077890	RALPH J. RANGEL HOUSES	15938 HARLEM RIVER DR	10039	UST
NEW YORK	U000410780	RALPH J. RANGEL	15938 HARLEM RIVER DR	10039	HIST UST
NEW YORK	1009238349	CONSOLIDATED EDISON	HARLEM RIVER DR & 155TH ST	10039	MANIFEST
NEW YORK	1014396818	CON EDISON	HARLEM RIVER DR & 165TH ST	10039	RCRA-CESQG
NEW YORK	1014397779	CON EDISON	HARLEM RIVER DR & W 155TH ST	10039	RCRA-NonGen
NEW YORK	1014396525	CON EDISON	HARLEM RIVER DR & W 141TH ST	10037	RCRA-CESQG
NEW YORK	1000790659	NYSDOT CONTRACT D253182	HARLEM RIVER DR SB OVER	10039	RCRA-NonGen, FINDS
NEW YORK	S108980654	CONSOLIDATED EDISON	HARLEM RIVER DR & 155TH ST	10039	MANIFEST
NEW YORK	1001222857	NYCHA - RANGEL HOUSES	15938 HARLEM RIVER DR	10039	RCRA-NonGen, FINDS, MANIFEST
NEW YORK	1007990495	CON EDISON - E 115TH ST FORMER MGP	HARLEM RIVER ADJ TO E 114TH &	10035	RCRA-NonGen
NEW YORK	A100295733	RALPH J. RANGEL HOUSES	159 HARLEM RIVER DR	10039	AST
NEW YORK	U004138389	HARLEM RIVER PARK BIKEWAY	HARLEM RIVER DR	10037	UST
NEW YORK	1007207291	CONSOLIDATED EDISON	MH50208 MADISON AVE & 41ST ST	10027	RCRA-NonGen, MANIFEST
NEW YORK	1009241330	CONSOLIDATED EDISON	MADISON & 72ND	10027	MANIFEST
NEW YORK	1014396647	CON EDISON - SERVICE BOX 59967	MADISON AVE	10035	RCRA-LQG
NEW YORK	1014396522	CON EDISON - SERVICE BOX 55709	MADISON AVE	10037	RCRA-LQG
NEW YORK	1012185781	CON EDISON	1832 MADISON AVE & E 85TH ST	10035	RCRA-CESQG
NEW YORK	1012185782	CON EDISON	1146 MADISON AVE & E 84TH ST	10035	RCRA-CESQG
NEW YORK	1012185784	CON EDISON	2061 MADISON AVE S OF E 131ST	10037	RCRA-CESQG
NEW YORK	1009237540	CONSOLIDATED EDISON	MH312M ESSEX ST & GRAND ST	10027	MANIFEST
NEW YORK	S110491154	CONSOLIDATED EDISON	NEC E 128TH & PARK AVE	10035	MANIFEST
NEW YORK	1014398358	CON EDISON	NEC E 128TH ST & PARK AVE	10035	RCRA-NonGen
NEW YORK	1014398458	CON EDISON	NEC E128TH ST & PARK AVE	10035	RCRA-NonGen
NEW YORK	1004760611	MTA NYCT - ST NICHOLAS AVE C & D L	ST NICHOLAS AVE & HARLEM RIVER	10031	RCRA-NonGen, FINDS
NEW YORK	1000890164	NYCDOT WILLIS AVENUE BRIDGE	OVER HARLEM RIVER	10035	RCRA-LQG, FINDS
NEW YORK	1000833552	AMTRAK HELLGATE BRIDGE	OVER 138TH ST	10037	RCRA-NonGen, FINDS
NEW YORK	1014396496	CON EDISON	PARK AVE & E 124TH ST	10035	RCRA-CESQG
NEW YORK	1014396518	CON EDISON	PARK AVE & E 127TH ST	10035	RCRA-CESQG
NEW YORK	1012185942	CON EDISON	1871 PARK AVE BTWN E 127TH ST	10035	RCRA-CESQG
NEW YORK	1009238166	CONSOLIDATED EDISON	E RIVER RD & GRAND ST	10027	MANIFEST
NEW YORK	S110823944	CONSOLIDATED EDISON	SAW MILL RIVER RD & LAWRENCE	10031	MANIFEST
NEW YORK	1007207196	CONSOLIDATED EDISON	2419 WASHINGTON SQUARE PARK E	10027	RCRA-NonGen, MANIFEST
YONKERS	S111157657	CONSOLIDATED EDISON	SAWMILL RIVER RD & HOMESITE	10451	MANIFEST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 06/30/2011
Date Data Arrived at EDR: 07/12/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 79

Source: EPA
Telephone: N/A
Last EDR Contact: 10/12/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010
Date Data Arrived at EDR: 01/11/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 10/14/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

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

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/09/2011
Date Data Arrived at EDR: 03/15/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 91

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 11/14/2011
Next Scheduled EDR Contact: 02/27/2012
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

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

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

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

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

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

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

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

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/16/2011
Date Data Arrived at EDR: 03/25/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/16/2011
Date Data Arrived at EDR: 03/25/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 10/03/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Inactive Hazardous Waste Disposal Sites in New York State

Referred to as the State Superfund Program, the Inactive Hazardous Waste Disposal Site Remedial Program is the cleanup program for inactive hazardous waste sites and now includes hazardous substance sites

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Annually

VAPOR REOPENED: Vapor Intrustion Legacy Site List

New York is currently re-evaluating previous assumptions and decisions regarding the potential for soil vapor intrusion exposures at sites. As a result, all past, current, and future contaminated sites will be evaluated to determine whether these sites have the potential for exposures related to soil vapor intrusion.

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 21

Source: Department of Environmenal Conservation
Telephone: 518-402-9814
Last EDR Contact: 11/23/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Varies

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: Facility Register

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 10/11/2011
Date Data Arrived at EDR: 10/11/2011
Date Made Active in Reports: 11/15/2011
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-457-2051
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Semi-Annually

State and tribal leaking storage tank lists

LTANKS: Spills Information Database

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

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 11/23/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Varies

HIST LTANKS: Listing of Leaking Storage Tanks

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

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/12/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 32

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 11/01/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 02/16/2011
Date Data Arrived at EDR: 06/02/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 103
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

TANKS: Storage Tank Faciliy Listing
This database contains records of facilities that are or have been regulated under Bulk Storage Program. Tank information for these facilities may not be releasable by the state agency.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/05/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 15
Source: Department of Environmental Conservation
Telephone: 518-402-9543
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

UST: Petroleum Bulk Storage (PBS) Database
Facilities that have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/05/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 19
Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 11/11/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CBS UST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in underground tanks of any size

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 10/24/2005
Next Scheduled EDR Contact: 01/23/2006
Data Release Frequency: No Update Planned

MOSF UST: Major Oil Storage Facilities Database
Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: Varies

AST: Petroleum Bulk Storage
Registered Aboveground Storage Tanks.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/05/2011
Date Made Active in Reports: 10/24/2011
Number of Days to Update: 19

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 11/11/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: No Update Planned

CBS AST: Chemical Bulk Storage Database
Facilities that store regulated hazardous substances in aboveground tanks with capacities of 185 gallons or greater, and/or in underground tanks of any size.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

MOSF AST: Major Oil Storage Facilities Database
Facilities that may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 02/20/2002
Date Made Active in Reports: 03/22/2002
Number of Days to Update: 30

Source: NYSDEC
Telephone: 518-402-9549
Last EDR Contact: 07/25/2005
Next Scheduled EDR Contact: 10/24/2005
Data Release Frequency: No Update Planned

MOSF: Major Oil Storage Facility Site Listing
These facilities may be onshore facilities or vessels, with petroleum storage capacities of 400,000 gallons or greater.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/05/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 11/11/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

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

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/05/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 11/11/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 07/01/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 18

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/12/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 32

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 39

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 25

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/01/2011
Date Data Arrived at EDR: 06/01/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 13

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 11/02/2011
Date Data Arrived at EDR: 11/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 7

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2011
Date Data Arrived at EDR: 11/01/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 10

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Registry of Engineering Controls

Environmental Remediation sites that have engineering controls in place.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Quarterly

INST CONTROL: Registry of Institutional Controls

Environmental Remediation sites that have institutional controls in place.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9553
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Quarterly

RES DECL: Restrictive Declarations Listing

A restrictive declaration is a covenant running with the land which binds the present and future owners of the property. As a condition of certain special permits, the City Planning Commission may require an applicant to sign and record a restrictive declaration that places specified conditions on the future use and development of the property. Certain restrictive declarations are indicated by a D on zoning maps.

Date of Government Version: 11/18/2010
Date Data Arrived at EDR: 12/23/2010
Date Made Active in Reports: 02/11/2011
Number of Days to Update: 50

Source: NYC Department of City Planning
Telephone: 212-720-3401
Last EDR Contact: 09/30/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

State and tribal voluntary cleanup sites

VCP: Voluntary Cleanup Agreements

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. The Voluntary Cleanup Program was developed to enhance private sector cleanup of brownfields by enabling parties to remediate sites using private rather than public funds and to reduce the development pressures on "greenfield" sites.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9711
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Semi-Annually

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 08/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

State and tribal Brownfields sites

ERP: Environmental Restoration Program Listing

In an effort to spur the cleanup and redevelopment of brownfields, New Yorkers approved a $200 million Environmental Restoration or Brownfields Fund as part of the $1.75 billion Clean Water/Clean Air Bond Act of 1996 (1996 Bond Act). Enhancements to the program were enacted on October 7, 2003. Under the Environmental Restoration Program, the State provides grants to municipalities to reimburse up to 90 percent of on-site eligible costs and 100% of off-site eligible costs for site investigation and remediation activities. Once remediated, the property may then be reused for commercial, industrial, residential or public use.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Quarterly

BROWNFIELDS: Brownfields Site List

A Brownfield is any real property where redevelopment or re-use may be complicated by the presence or potential presence of a hazardous waste, petroleum, pollutant, or contaminant.

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9764
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Semi-Annually

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 06/27/2011
Date Data Arrived at EDR: 06/27/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/28/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

SWRCY: Registered Recycling Facility List

A listing of recycling facilities.

Date of Government Version: 10/11/2011
Date Data Arrived at EDR: 10/11/2011
Date Made Active in Reports: 11/15/2011
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-8705
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Semi-Annually

SWTIRE: Registered Waste Tire Storage & Facility List

A listing of facilities registered to accept waste tires.

Date of Government Version: 08/01/2006
Date Data Arrived at EDR: 11/15/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 15

Source: Department of Environmental Conservation
Telephone: 518-402-8694
Last EDR Contact: 10/28/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Annually

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 06/08/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/07/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Quarterly

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

Date of Government Version: 08/23/2011
Date Data Arrived at EDR: 08/25/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 22
Source: Department of Environmental Conservation
Telephone: 518-402-9622
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Annually

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

HIST UST: Historical Petroleum Bulk Storage Database
These facilities have petroleum storage capacities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. It is no longer updated due to the sensitive nature of the information involved. See UST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48
Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: Varies

HIST AST: Historical Petroleum Bulk Storage Database

These facilities have petroleum storage capabilities in excess of 1,100 gallons and less than 400,000 gallons. This database contains detailed information per site. No longer updated due to the sensitive nature of the information involved. See AST for more current data.

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 06/02/2006
Date Made Active in Reports: 07/20/2006
Number of Days to Update: 48

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 10/23/2006
Next Scheduled EDR Contact: 01/22/2007
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 09/09/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 10/04/2011
Date Data Arrived at EDR: 10/04/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 38

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/04/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Annually

SPILLS: Spills Information Database

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

Date of Government Version: 09/27/2011
Date Data Arrived at EDR: 09/28/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 22

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 11/23/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Varies

HIST SPILLS: SPILLS Database

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

Date of Government Version: 01/01/2002
Date Data Arrived at EDR: 07/08/2005
Date Made Active in Reports: 07/14/2005
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-9549
Last EDR Contact: 07/07/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators

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

Date of Government Version: 06/15/2011
Date Data Arrived at EDR: 07/07/2011
Date Made Active in Reports: 08/08/2011
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: (212) 637-3660
Last EDR Contact: 10/05/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/29/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 94

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 08/12/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 112

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 06/01/2011
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 41

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 10/03/2011
Next Scheduled EDR Contact: 01/16/2012
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/31/2011
Date Data Arrived at EDR: 09/14/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 15

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/14/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/31/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Varies

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/18/2011
Date Data Arrived at EDR: 09/08/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 21

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/08/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/27/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

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

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 11/28/2011
Next Scheduled EDR Contact: 03/12/2012
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 11/28/2011
Next Scheduled EDR Contact: 03/12/2012
Data Release Frequency: Quarterly

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

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

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

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77
Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59
Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/19/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 06/21/2011
Date Data Arrived at EDR: 07/15/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 60

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/13/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (212) 637-3000
Last EDR Contact: 09/13/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/01/2011
Next Scheduled EDR Contact: 12/12/2011
Data Release Frequency: Biennially

HSWDS: Hazardous Substance Waste Disposal Site Inventory

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

Date of Government Version: 01/01/2003
Date Data Arrived at EDR: 10/20/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 41

Source: Department of Environmental Conservation
Telephone: 518-402-9564
Last EDR Contact: 05/26/2009
Next Scheduled EDR Contact: 08/24/2009
Data Release Frequency: No Update Planned

UIC: Underground Injection Control Wells

A listing of enhanced oil recovery underground injection wells.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/14/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 36

Source: Department of Environmental Conservation
Telephone: 518-402-8056
Last EDR Contact: 09/14/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

NY MANIFEST: Facility and Manifest Data

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

Date of Government Version: 08/01/2011
Date Data Arrived at EDR: 08/09/2011
Date Made Active in Reports: 09/16/2011
Number of Days to Update: 38

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 11/08/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Annually

DRYCLEANERS: Registered Drycleaners

A listing of all registered drycleaning facilities.

Date of Government Version: 06/28/2011
Date Data Arrived at EDR: 06/29/2011
Date Made Active in Reports: 07/05/2011
Number of Days to Update: 6

Source: Department of Environmental Conservation
Telephone: 518-402-8403
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Varies

SPDES: State Pollutant Discharge Elimination System

New York State has a state program which has been approved by the United States Environmental Protection Agency for the control of wastewater and stormwater discharges in accordance with the Clean Water Act. Under New York State law the program is known as the State Pollutant Discharge Elimination System (SPDES) and is broader in scope than that required by the Clean Water Act in that it controls point source discharges to groundwaters as well as surface waters.

Date of Government Version: 10/18/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 11/15/2011
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8233
Last EDR Contact: 10/17/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AIRS: Air Emissions Data
Point source emissions inventory data.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 08/24/2011
Date Made Active in Reports: 11/03/2011
Number of Days to Update: 71
Source: Department of Environmental Conservation
Telephone: 518-402-8452
Last EDR Contact: 10/31/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Annually

E DESIGNATION: E DESIGNATION SITE LISTING
The (E (Environmental)) designation would ensure that sampling and remediation take place on the subject properties, and would avoid any significant impacts related to hazardous materials at these locations. The (E) designations would require that the fee owner of the sites conduct a testing and sampling protocol, and remediation where appropriate, to the satisfaction of the NYCDEP before the issuance of a building permit by the Department of Buildings pursuant to the provisions of Section 11-15 of the Zoning Resolution (Environmental Requirements). The (E) designations also include a mandatory construction-related health and safety plan which must be approved by NYCDEP.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 10/05/2011
Date Made Active in Reports: 10/20/2011
Number of Days to Update: 15
Source: New York City Department of City Planning
Telephone: 718-595-6658
Last EDR Contact: 09/27/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 2: Financial Assurance Information Listing
A listing of financial assurance information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 10/31/2008
Date Data Arrived at EDR: 11/25/2008
Date Made Active in Reports: 12/11/2008
Number of Days to Update: 16
Source: Department of Environmental Conservation
Telephone: 518-402-8712
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/18/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/16/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/04/2011
Next Scheduled EDR Contact: 02/13/2012
Data Release Frequency: Varies

FINANCIAL ASSURANCE 1: Financial Assurance Information Listing
Financial assurance information.

Date of Government Version: 10/13/2011
Date Data Arrived at EDR: 10/14/2011
Date Made Active in Reports: 11/15/2011
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 518-402-8660
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Quarterly

COAL ASH: Coal Ash Disposal Site Listing
A listing of coal ash disposal site locations.

Date of Government Version: 10/11/2011
Date Data Arrived at EDR: 10/11/2011
Date Made Active in Reports: 11/15/2011
Number of Days to Update: 35

Source: Department of Environmental Conservation
Telephone: 518-402-8660
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/20/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: N/A

EDR PROPRIETARY RECORDS

EDR Proprietary Records

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

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

COUNTY RECORDS

CORTLAND COUNTY:

Cortland County Storage Tank Listing
A listing of aboveground storage tank sites located in Cortland County.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/14/2011
Date Made Active in Reports: 10/21/2011
Number of Days to Update: 37

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

Cortland County Storage Tank Listing
A listing of underground storage tank sites located in Cortland County.

Date of Government Version: 09/13/2011
Date Data Arrived at EDR: 09/14/2011
Date Made Active in Reports: 10/21/2011
Number of Days to Update: 37

Source: Cortland County Health Department
Telephone: 607-753-5035
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Quarterly

NASSAU COUNTY:

Registered Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 05/21/2003
Date Data Arrived at EDR: 05/27/2003
Date Made Active in Reports: 06/09/2003
Number of Days to Update: 13

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of aboveground storage tank sites located in Nassau County.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 03/29/2011
Number of Days to Update: 34

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

Registered Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 05/21/2003
Date Data Arrived at EDR: 05/27/2003
Date Made Active in Reports: 06/09/2003
Number of Days to Update: 13

Source: Nassau County Health Department
Telephone: 516-571-3314
Last EDR Contact: 10/11/2011
Next Scheduled EDR Contact: 01/23/2012
Data Release Frequency: No Update Planned

Storage Tank Database
A listing of underground storage tank sites located in Nassau County.

Date of Government Version: 02/15/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 03/29/2011
Number of Days to Update: 34

Source: Nassau County Office of the Fire Marshal
Telephone: 516-572-1000
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

ROCKLAND COUNTY:

Petroleum Bulk Storage Database
A listing of aboveground storage tank sites located in Rockland County.

Date of Government Version: 09/14/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 10/21/2011
Number of Days to Update: 35

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

Petroleum Bulk Storage Database
A listing of underground storage tank sites located in Rockland County.

Date of Government Version: 09/14/2011
Date Data Arrived at EDR: 09/16/2011
Date Made Active in Reports: 10/21/2011
Number of Days to Update: 35

Source: Rockland County Health Department
Telephone: 914-364-2605
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Quarterly

SUFFOLK COUNTY:

Storage Tank Database
A listing of aboveground storage tank sites located in Suffolk County.

Date of Government Version: 09/13/2006
Date Data Arrived at EDR: 01/11/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 27

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Annually

Storage Tank Database
A listing of underground storage tank sites located in Suffolk County.

Date of Government Version: 09/13/2006
Date Data Arrived at EDR: 01/11/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 27

Source: Suffolk County Department of Health Services
Telephone: 631-854-2521
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Annually

WESTCHESTER COUNTY:

Listing of Storage Tanks
A listing of aboveground storage tank sites located in Westchester County.

Date of Government Version: 08/22/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 27

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

Listing of Storage Tanks

A listing of underground storage tank sites located in Westchester County.

Date of Government Version: 08/22/2011
Date Data Arrived at EDR: 08/23/2011
Date Made Active in Reports: 09/19/2011
Number of Days to Update: 27

Source: Westchester County Department of Health
Telephone: 914-813-5161
Last EDR Contact: 11/07/2011
Next Scheduled EDR Contact: 02/20/2012
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/22/2011
Next Scheduled EDR Contact: 03/05/2012
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 07/20/2011
Date Made Active in Reports: 08/11/2011
Number of Days to Update: 22

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/18/2011
Next Scheduled EDR Contact: 01/30/2012
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/24/2011
Date Made Active in Reports: 06/30/2011
Number of Days to Update: 6

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/28/2011
Next Scheduled EDR Contact: 03/12/2012
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data

Hazardous waste manifest information.

Date of Government Version: 08/11/2011
Date Data Arrived at EDR: 08/26/2011
Date Made Active in Reports: 09/14/2011
Number of Days to Update: 19

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 10/24/2011
Next Scheduled EDR Contact: 02/06/2012
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 08/19/2011
Date Made Active in Reports: 09/15/2011
Number of Days to Update: 27

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Providers
Source: Department of Health
Telephone: 212-676-2444

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

TUCK IT AWAY ASSOCIATES
261 WALTON AVENUE
BRONX, NY 10451

TARGET PROPERTY COORDINATES

Latitude (North):	40.81430 - 40° 48' 51.5''
Longitude (West):	73.9305 - 73° 55' 49.8''
Universal Tranverse Mercator:	Zone 18
UTM X (Meters):	590201.8
UTM Y (Meters):	4518481.5

USGS TOPOGRAPHIC MAP

Target Property Map:	40073-G8 CENTRAL PARK, NY
Most Recent Revision:	1995

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WNW

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
BRONX, NY	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	3604970020B - FEMA Q3 Flood data
Additional Panels in search area:	360497 - FEMA DFIRM Flood data 3604970015B - FEMA Q3 Flood data 3604970021B - FEMA Q3 Flood data 3604970026B - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
CENTRAL PARK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT **GEOLOGIC AGE IDENTIFICATION**

Era:	Paleozoic	Category:	Stratified Sequence
System:	Ordovicias		
Series:	Lower Ordovician and Cambrian carbonate rocks		
Code:	OC *(decoded above as Era, System & Series)*		

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: URBAN LAND

Soil Surface Texture: variable

Hydrologic Group: Not reported

Soil Drainage Class: Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 10 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	variable	Not reported	Not reported	Max: 0.00 Min: 0.00	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
loamy sand
sandy loam
fine sandy loam

Surficial Soil Types: silt loam
loamy sand
sandy loam
fine sandy loam

Shallow Soil Types: sandy loam

Deeper Soil Types: unweathered bedrock
very gravelly - loamy sand
stratified
sandy loam

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS2114644	1/8 - 1/4 Mile SE
2	USGS2114605	1/4 - 1/2 Mile South
3	USGS2114761	1/4 - 1/2 Mile South
4	USGS2114753	1/2 - 1 Mile SSW
5	USGS2114726	1/2 - 1 Mile SSW
6	USGS2114525	1/2 - 1 Mile ENE
7	USGS2114382	1/2 - 1 Mile NW
8	USGS2114310	1/2 - 1 Mile ENE
9	USGS2114494	1/2 - 1 Mile East
10	USGS2114275	1/2 - 1 Mile NNE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

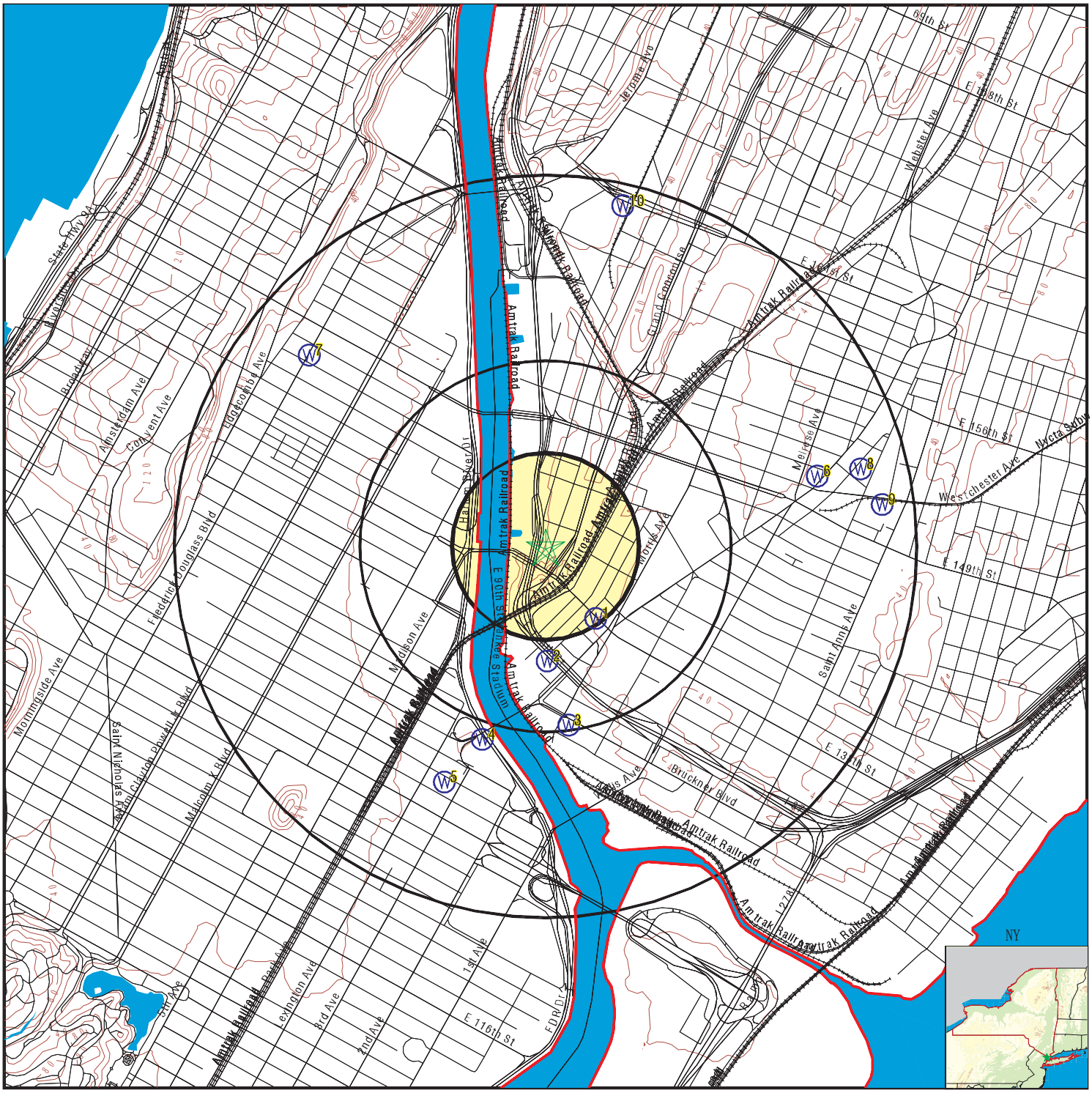
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 3213671.2s


Amtrak Railroad
E 90th St
Stadium
Harlem River Dr
Madison Ave
Park Ave
Lexington Ave
3rd Ave
2nd Ave
1st Ave
E 116th St
FDR Dr
Bruckner Blvd
Amtrak Railroad
Penelec Railroad
Conrail Railroad
Metro North Railroad
Amtrak Railroad
Amtrak Railroad
Amtrak

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SE
1/8 - 1/4 Mile
Lower

FED USGS **USGS2114644**

Agency cd:	USGS	Site no:	404841073554201
Site name:	B 49		
Latitude:	404841	EDR Site id:	USGS2114644
Longitude:	0735542	Dec lat:	40.81148967
Dec lon:	-73.9279149	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	15		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	225	Hole depth:	Not Reported
Source of depth data:	Not Reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

2
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS2114605**

Agency cd:	USGS	Site no:	404835073555101
Site name:	B 65		
Latitude:	404835	EDR Site id:	USGS2114605
Longitude:	0735551	Dec lat:	40.80982303
Dec lon:	-73.93041497	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported

Altitude:	5		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	2		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Test hole, not completed as a well		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	49	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1951-10-22	Ground water data end date:	1951-10-22
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1951-10-22	8	

3
South
1/4 - 1/2 Mile
Lower

FED USGS **USGS2114761**

Agency cd:	USGS	Site no:	404826073554701
Site name:	B 6		
Latitude:	404826	EDR Site id:	USGS2114761
Longitude:	0735547	Dec lat:	40.80732307
Dec lon:	-73.92930384	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	10		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	SAND		
Well depth:	36	Hole depth:	Not Reported
Source of depth data:	reporting agency (generally USGS)		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

4
SSW **FED USGS** **USGS2114753**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	404824073560301
Site name:	NY 150		
Latitude:	404824	EDR Site id:	USGS2114753
Longitude:	0735603	Dec lat:	40.80676752
Dec lon:	-73.93374842	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	061
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	6		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	2		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Test hole, not completed as a well		
Aquifer Type:	Not Reported		
Aquifer:	BEDROCK		
Well depth:	106	Hole depth:	Not Reported
Source of depth data:	other reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

5
SSW **FED USGS** **USGS2114726**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	404818073561001
Site name:	NY 82		
Latitude:	404818	EDR Site id:	USGS2114726
Longitude:	0735610	Dec lat:	40.80510088
Dec lon:	-73.93569292	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	061
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	15		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	5		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	SAND		
Well depth:	30	Hole depth:	Not Reported
Source of depth data:	other reported		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

6
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS2114525**

Agency cd:	USGS	Site no:	404901073550101
Site name:	B 54		
Latitude:	404901	EDR Site id:	USGS2114525
Longitude:	0735501	Dec lat:	40.81704516
Dec lon:	-73.91652566	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	20		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST

Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	133	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

7
NW
1/2 - 1 Mile
Higher

FED USGS **USGS2114382**

Agency cd:	USGS	Site no:	404918073563501
Site name:	NY 162		
Latitude:	404918	EDR Site id:	USGS2114382
Longitude:	0735635	Dec lat:	40.82176725
Dec lon:	-73.9426375	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	061
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	20		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Test hole, not completed as a well		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	112	Hole depth:	Not Reported
Source of depth data:	driller		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

8
ENE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2114310**

Agency cd:	USGS	Site no:	404902073545301
Site name:	B 3		
Latitude:	404902	EDR Site id:	USGS2114310
Longitude:	0735453	Dec lat:	40.81732293
Dec lon:	-73.91430337	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	15		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	55	Hole depth:	Not Reported
Source of depth data:	reporting agency (generally USGS)		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

9
East
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2114494**

Agency cd:	USGS	Site no:	404857073544901
Site name:	B 12		
Latitude:	404857	EDR Site id:	USGS2114494
Longitude:	0735449	Dec lat:	40.81593407
Dec lon:	-73.91319223	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported

Altitude:	15		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	222	Hole depth:	Not Reported
Source of depth data:	reporting agency (generally USGS)		
Project number:	Not Reported		
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

10
NNE **FED USGS** **USGS2114275**
1/2 - 1 Mile
Higher

Agency cd:	USGS	Site no:	404939073553701
Site name:	B 26		
Latitude:	404939	EDR Site id:	USGS2114275
Longitude:	0735537	Dec lat:	40.82760051
Dec lon:	-73.9265259	Coor meth:	M
Coor accr:	R	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	36
State:	36	County:	005
Country:	US	Land net:	Not Reported
Location map:	CENTRAL PARK R-25-4	Map scale:	Not Reported
Altitude:	20		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19500200
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	N		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	SAND		
Well depth:	65	Hole depth:	Not Reported
Source of depth data:	reporting agency (generally USGS)		
Project number:	Not Reported		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Peak flow data count: 0
Water quality data end date: 0000-00-00
Ground water data begin date: 1950-02-00
Ground water data count: 1

Water quality data begin date: 0000-00-00
Water quality data count: 0
Ground water data end date: 1950-02-00

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1950-02	28	

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for BRONX County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for BRONX COUNTY, NY

Number of sites tested: 31

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area	0.670 pCi/L	96%	4%	0%
Basement	1.110 pCi/L	42%	58%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Freshwater Wetlands
Source: Department of Environmental Conservation
Telephone: 518-402-8961

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

New York Public Water Wells
Source: New York Department of Health
Telephone: 518-458-6731

OTHER STATE DATABASE INFORMATION

Oil and Gas Well Database
Department of Environmental Conservation
Telephone: 518-402-8072
These files contain records, in the database, of wells that have been drilled.

RADON

State Database: NY Radon
Source: Department of Health
Telephone: 518-402-7556
Radon Test Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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D-2: The EDR™ City Directory

Tuck It Away Associates
261 Walton Avenue
Bronx, NY 10451

Inquiry Number: 3213671.6
November 28, 2011

The EDR-City Directory Abstract

Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

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Executive Summary

Findings

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1927 through 2005. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 100 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	*Source*	*TP*	*Adjoining*	*Text Abstract*	*Source Image*
2005	Hill-Donnelly Information Services	X	X	X	-
2000	Cole Information Services	-	-	-	-
1993	New York Telephone	X	-	X	-
1983	New York Telephone	X	-	X	-
1976	New York Telephone Company	X	-	X	-
1971	New York Telephone	X	-	X	-
1965	New York Telephone Company	X	X	X	-
1961	New York Telephone	X	X	X	-
1956	New York Telephone	X	X	X	-
1949	New York Telephone	X	X	X	-
1940	New York Telephone	X	X	X	-
1931	Manhattan and Bronx Directory Publishing Company Residential Directory	-	X	X	-
1927	New York Telephone	X	X	X	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

261 Walton Avenue
Bronx, NY 10451

FINDINGS DETAIL

Target Property research detail.

Year	Uses	Source
2005	Tuck It Away	Hill-Donnelly Information Services
	Yonkers Contracting Inc	Hill-Donnelly Information Services
1993	CAMERON JOHN FURN CO	New York Telephone
	FIRST RAPIDS FURN CO INC	New York Telephone
	VERT-BEST FURNITURE CO	New York Telephone
1983	CAMERON JOHN FURN CO	New York Telephone
	FIRST RAPIDS FURN CO INC	New York Telephone
	VERI BEST FURNITURE CO	New York Telephone
1976	CARPET DEPT INC	New York Telephone Company
	FIRST RAPIDS FURN CO INC SWHRM	New York Telephone Company
	VERI BEST FURNITURE CO	New York Telephone Company
1971	CAMERON JOHN FURN CO	New York Telephone
	CARPET DEPT INC	New York Telephone
	FIRST RAPIDS FURN CO INC	New York Telephone
1965	CAMERON JOHN FURN TO	New York Telephone Company
	CARPET DEPT INC	New York Telephone Company
	FIRST RAPIDS FURN CO INC SHWRM	New York Telephone Company
1961	CAMERON JOHN FURN CO	New York Telephone
	FIRST RAPIDS FURN CO INC	New York Telephone
1956	REINHOLD-GOULD INC EXEC OFCS	New York Telephone
1949	REINHOLD-GOULD INC EXEC OFCS	New York Telephone
1940	Reinhold Card & Papr Co	New York Telephone
	Reinhold Max papr	New York Telephone
1927	Factory K	New York Telephone
	Steck Geo & Co	New York Telephone

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

S WALTON AVE

244 S WALTON AVE

Year	Uses	Source
1965	KLIMERMAN SOL B	New York Telephone Company

WALTON AVE

239 WALTON AVE

Year	Uses	Source
1949	SAEMAN LUDWIG	New York Telephone

240 WALTON AVE

Year	Uses	Source
1965	SCHWARTZMAN RUTH R	New York Telephone Company
1949	ORLEANS REUBEN	New York Telephone

245 WALTON AVE

Year	Uses	Source
1961	MOLLO S NATURAL FOOD SHOPPE	New York Telephone

246 WALTON AVE

Year	Uses	Source
1965	WEISS MEYER	New York Telephone Company
1931	Kiriat Mariam	Manhattan and Bronx Directory Publishing Company Residential Directory

24L0 WALTON AVE

Year	Uses	Source
1961	PORIS SAM	New York Telephone
1956	FREEDMAN GEO	New York Telephone

24O1 WALTON AVE

Year	Uses	Source
1949	MERETEY MICHL	New York Telephone

FINDINGS

250 WALTON AVE

Year	Uses	Source
1940	Spangler Marian B	New York Telephone

257 WALTON AVE

Year	Uses	Source
1927	Schwarz Ernest auto parts	New York Telephone
	Chazick Herman auto parts	New York Telephone
	Bronx Gear & Bearing Co	New York Telephone

260 WALTON AVE

Year	Uses	Source
1965	O CONNELL JOHN	New York Telephone Company
	US REPRODUCTION SUPLS CORP	New York Telephone Company
1961	US REPRODUCTION SUPLS CORP	New York Telephone
1956	U S REPRODUCTION SUPLS CORP	New York Telephone

265 WALTON AVE

Year	Uses	Source
2005	NCL	Hill-Donnelly Information Services

269 WALTON AVE

Year	Uses	Source
1956	ACE AUTO PARTS CO	New York Telephone
1949	ACE AUTO PARTS CO	New York Telephone

270 WALTON AVE

Year	Uses	Source
2005	Berk Supply Co LLC	Hill-Donnelly Information Services

279 WALTON AVE

Year	Uses	Source
1940	Winsette H A	New York Telephone

280 WALTON AVE

Year	Uses	Source
1940	Weiss Betty I	New York Telephone

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
261 Walton Avenue	2000, 1931

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
239 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1940, 1931, 1927
240 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1961, 1956, 1940, 1931, 1927
244 S WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1961, 1956, 1949, 1940, 1931, 1927
245 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1956, 1949, 1940, 1931, 1927
246 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1961, 1956, 1949, 1940, 1927
24L0 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1949, 1940, 1931, 1927
24O1 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1940, 1931, 1927
250 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927
257 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
260 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1949, 1940, 1931, 1927
265 WALTON AVE	2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
269 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1940, 1931, 1927
270 WALTON AVE	2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
279 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927
280 WALTON AVE	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927

D-3: General Public Records

dgsdg



Legend

Transit, Roads, Reference Features

Roads, ferries, commuter rail, neighborhood names

- Roads
- Major Roads
- Interstate Highways
- Tunnels
- Neighborhood/Town Labels
- County Boundaries
- Ferry
- Commuter Rail
- NYC subway routes and stations

(Not all items in the legend may be visible on the map.)

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NYC Buildings

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NYC Department of Buildings

Property Profile Overview

261 WALTON AVENUE		**BRONX 10451**		**BIN# 2001024**	
WALTON AVENUE	261 - 281	**Health Area**	: 3800	**Tax Block**	: 2344
MAJ WM DEEGAN BOULEVARD	NO NUMBER	**Census Tract**	: 63	**Tax Lot**	: 60
		Community Board	: 201	**Condo**	: NO
		Buildings on Lot	: 1	**Vacant**	: NO

View DCP Addresses... Browse Block

View Zoning Documents | View Challenge Results | View Certificates of Occupancy

Cross Street(s):	EAST 138 STREET, EAST 140 STREET		
DOB Special Place Name:			
DOB Building Remarks:			
Landmark Status:		**Special Status:**	N/A
Local Law:	YES	**Loft Law:**	NO
SRO Restricted:	NO	**TA Restricted:**	NO
UB Restricted:	NO		
Little 'E' Restricted:	HAZMAT/AIR	**Grandfathered Sign:**	NO
Legal Adult Use:	NO	**City Owned:**	NO
Additional BINs for Building:	NONE		

Special District: MX-13 - MIXED USE-13 (LOWER CONCOURSE, BX)

This property is not located in an area that may be affected by Tidal Wetlands, Freshwater Wetlands, or Coastal Erosion Hazard Area. Click here for more information

Department of Finance Building Classification: E7-WAREHOUSE

Please Note: The Department of Finance's building classification information shows a building's tax status, which may not be the same as the legal use of the structure. To determine the legal use of a structure, research the records of the Department of Buildings.

	Total	Open
Complaints	14	0
Violations-DOB	34	15
Violations-ECB (DOB)	17	9

This property has 2 open ECB "Work Without A Permit" Violations and may be subject to DOB civil penalties upon application for a permit. After obtaining the permit, a certificate of correction must be filed on the ECB violations.

Jobs/Filings	9
ARA / LAA Jobs	0
Total Jobs	9
Actions	35

OR Enter Action Type:

OR Select from List: Select...

AND Show Actions

- Elevator Records
- Electrical Applications
- Permits In-Process / Issued
- Illuminated Signs Annual Permits
- Plumbing Inspections
- Open Plumbing Jobs / Work Types
- Facades
- Marquee Annual Permits
- Boiler Records
- DEP Boiler Information
- Crane Information
- After Hours Variance Permits

If you have any questions please review these Frequently Asked Questions, the Glossary, or call the 311 Citizen Service Center by dialing 311 or (212) NEW YORK outside of New York City.

APPENDIX E: QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR Part 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Mike S. Zouak, CIH, President

Date 12/13/11

Saad Zouak, MS, CIH
President

Airtek Environmental Corporation

Education:

MS, Environmental Engineering New Jersey Institute of Technology, Newark, NJ

BS Chemical Engineering University of Texas, Austin, Texas

Professional Registration/Certifications:

Diplomat, American Board of Industrial Hygiene (ABIH)

Member, American Industrial Hygiene Association (AIHA)

Years with This Firm: 21

Years with Other Firms: 2

Professional Profile

Mr. Zouak founded Airtek in October of 1988. Mr. Zouak, a Certified Industrial Hygienist (CIH), has a 20-year industrial hygiene career that has given him considerable experience in the management of a wide variety of environmental issues. Mr. Zouak has managed all aspects of large-scale environmental remediation projects from the bidding stage through implementation and project documentation in North America.

Environmental Site Assessments

Mr. Zouak oversees Airtek's Environmental Site Assessment Program. He has personally conducted and reviewed hundreds of Environmental Site Assessments (ESA) throughout the past twenty years. Mr. Zouak has developed an in depth expertise in environmental issues that arise in virtually all types of properties, including hotels, apartment buildings, commercial buildings, and development sites. Airtek's ESA clients include lending institutions, NYC agencies, real estate developers and attorneys.

Subsurface Investigation and Remediation

Airtek's Subsurface Investigation and Remediation services, managed by Mr. Zouak, covers a variety of projects, including subsurface investigations, groundwater remediation and testing, sampling and analysis, and remediation system maintenance at contaminated project sites. Mr. Zouak is also experienced in permitting and implementation, site management assistance; enforcement and technical oversight support to agencies and third-party environmental investigations and remediation efforts. Airtek's clients include real estate developers, construction management firms, general contractors, government agencies, and law firms.

Soil and Groundwater Testing

Soil and groundwater testing are a critical component of subsurface investigations and remediation oversight. Mr. Zouak has managed a gamut of environmental projects that involve soil and groundwater testing for volatile and semi-volatile organic compounds as well as Resource Conservation and Recovery Act **(**RCRA**)** metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) in accordance with United States Environmental Protection Agency (USEPA) guidelines. He is experienced in identifying and testing potential hazardous materials in soil and groundwater.

Indoor Air Quality Investigations

Mr. Zouak has personally reviewed hundreds of indoor air quality (IAQ) investigations. His experience covers IAQ testing for mold, gases (carbon monoxide, oxygen, hydrogen sulfide, methane, etc), hazardous particles (asbestos, lead, man-made vitreous fibers, silica etc), volatile organic compounds, and particulate matter. He is well versed in testing protocols and industry standards relevant to indoor air detection levels and acceptable thresholds. Airtek's IAQ practice also includes indoor air quality investigations in conformance with the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) guidelines.

Waste Characterization and Hazardous Material Management

Mr. Zouak has managed several high profile large scale projects, such as World Trade Center area buildings deconstruction and demolition. The World Trade Center projects involved the demolition of several buildings requiring extensive dust investigations and waste characterization. Mr. Zouak is experienced in managing physical and chemical waste characterization and in providing plans for the storage, transportation, and disposal of waste.

Environmental Training
Airtek Environmental is an accredited New York State Department of Health (NYS DOH) and the US Environmental Protection Agency (US EPA) environmental training center. Mr. Zouak is a New York State Department of Labor (NYS DOL) and US EPA approved Training Director who supervises all training activities, including over twenty asbestos, lead, construction safety, supported scaffold, and PCB training courses. Airtek has trained thousands of contractors, environmental consultants/engineers, and prominent public agencies such as the New York City Housing Authority (NYCHA) and the New York School Construction Authority (NYSCA).

Experience:

Airtek Environmental Corp., New York, New York
President - Guided growth, development, and quality control of industrial hygiene consultancy and environmental laboratory. Extensive track record in successful completion of large-scale IH contracts for New York City Agencies, including asbestos and lead consulting services. Conducted and reviewed hundreds of Environmental Site Assessments (ESAs). Director of Airtek's Environmental Training Institute, certifying hundreds of students. Supervisor of all mold and Indoor Air Quality (IAQ) testing projects.

Major NYC Lending Institutions – Principal-in-Charge responsible for the inspection and reporting associated with hundreds of Phase I and Phase II Environmental Site Assessments (ESAs). Reviewed hundreds of ESA reports for multiple major lending institutions throughout New York City.

NYC Housing Authority – Principal-in-Charge – responsible for the various asbestos and lead in paint inspections, project monitoring, project design, air monitoring and contractor compliance with regulatory requirements for asbestos and lead abatement projects for Housing Developments.

NYC Board of Education - Principal-in-Charge of AHERA Survey and Management Plan contracts. Guided $1.5 Million protocol for intensive asbestos inspection program. Developed internal computerized reporting system to meet requirements.

NYC School Construction Authority - Principal-in-Charge responsible for the various asbestos and lead in paint inspections, project monitoring, project design, air monitoring and contractor compliance with regulatory requirements for asbestos and lead abatement projects for Housing Developments.

NYC Department of Design & Construction Schools Task Force - Principal-in-Charge of Asbestos and Lead Paint Management operations for Airtek's sub-consultant contracts with URS Grenier; Lehrer McGovern Bovis; Hill International; and TDX Construction. All CM's have sought to repeat contracts with Airtek.

NYC Human Resources Administration - Principal-in-Charge for extensive program of asbestos inspection in 172 NYC HRA Facilities, including: Day Care Centers; Customer Service Centers; and Administrative Facilities.

Consolidated Edison - Principal-in-Charge– responsible for asbestos inspections, project monitoring, project design and air monitoring for the various facilities in the city of New York.

Professional Training/Continuing Education

- Investigating, Sampling, Identifying and Assessing Biological and Microbiological Contamination in the Indoor Environment, MidAtlantic Environmental Hygiene Resource Center, Philadelphia, PA
- Developing Remediation Strategy and Writing Specifications for a Building Mold Remediation Project, MidAtlantic Environmental Hygiene Resource Center, Philadelphia, PA
- The Groundwater Pollution and Hydrology Course, Princeton Groundwater, Inc., San Francisco, CA
- The complete Groundwater Monitoring Field Course, The Nielson Environmental Field School, Inc., Orlando, FL
- Environmental Risk: Identification and Management, University of Finlay, Ohio
- ECRA: Environmental Clean-up Response Act, NJ Hazardous Waste Regulations
- Microscopical Identification of Asbestos, McCrone Research Institute, Chicago, Illinois
- Sampling and Evaluating Airborne Asbestos Dust- NIOSH 582, Universities Occupational Safety and Health Educational Resource Center, NJ
- Written Safety Plans, J.J. Keller & Associates, Inc., NJ
- EPA Accredited Lead Course: 24 Hour Inspector, Allstate Services Environmental, Inc., New York, NY



LIMITED PHASE II
ENVIRONMENTAL SITE ASSESSMENT

Tuck It Away Self-Storage
261 Walton Avenue
Bronx, New York

IVI Project Number: E12014016

Prepared for:

Tuck It Away Self-Storage
New York, New York

Prepared By:

IVI Environmental, Inc.
White Plains, New York 10604

Revised February 16, 2012

ENVIRONMENTAL, INC.
ENVIRONMENTAL CONSULTANTS

55 West Red Oak Lane
White Plains, New York 10604
914.694.9600 (tel)
914.694.2903 (fax)
www.ivi-intl.com

February 16, 2012

Tim Rutledge
Director of Finance and Acquisitions
Tuck It Away Self-Storage
3261 Broadway
New York, NY 10027
(p) (212)368-1717
trutledge@tuckitaway.com

Re: Limited Phase II Environmental Site Assessment
Tuck It Away Self-Storage
261 Walton Avenue
Bronx, New York
IVI Project No.: E12014016

Dear Mr. Rutledge:

IVI Environmental, Inc. (IVI) is pleased to submit this Limited Phase II Environmental Site Assessment (Assessment) for the Tuck It Away Self-Storage property located at 261 Walton Avenue, Bronx, New York (the "Subject"). A Site Location Map is provided as Figure 1 and a USGS topographic map is provided as Figure 2, in Appendix A.

The purpose of this Assessment was to investigate subsurface conditions as identified in a Request for Proposal (RFP), prepared by Lender Consulting Services (LCS), Inc., dated January 5, 2012. According to the RFP, the following potential issues were identified in a Phase I Environmental Site Assessment Report, prepared by Airtek Environmental Corporation, dated December 13, 2011;

- An automotive wrecking yard was located on-site from 1909 through 1965 and automotive repair took place in the wrecking yard portion of the property in 1951.
- The gasoline station located to the southwest of the subject property has a reported leaking underground storage tank (LUST) case, which has reportedly impacted the subject property.
- It was reported that the property located to the northeast is an abandoned gasoline station with documented contamination.

Scope of Work

The scope of this Assessment included the following activities:

1. Underground utilities mark out;
2. Advancement of 10 soil borings;
3. Collection and field screening of soil samples for volatile organic compound (VOC) contamination with a photoionization detector (PID) using the head space analysis; and,
4. Laboratory analysis of eight (8) soil samples.

Field Activities

On January 24, 2012, Naeva Geophysics, Inc. (Naeva) conducted a geophysical survey at the Subject, as directed by IVI. The purpose of the geophysical survey was to clear IVI's proposed borings for subsurface utilities. The mark out for the boring locations was conducted using ground penetrating radar (GPR) and pipe locating equipment. On the same day, IVI directed the advancement of 10 soil borings, denoted as B-1 through B-10. The borings were advanced using a track mounted Geoprobe® model 7720DT, operated by Zebra Environmental, Inc. (Zebra). Prior to the advancement of each boring, all down-hole drilling equipment was decontaminated by Zebra in accordance with U.S. EPA protocols and good commercial and customary practice. The borings were advanced throughout the Subject property. Boring locations are shown on the Boring Location Plan provided as Figure 3 in Appendix A.

During advancement of the borings, IVI collected continuous soil samples at 5' intervals using macro-core samplers. Probe refusal was encountered on presumed bedrock in each boring at depths ranging from approximately 10" below ground surface (bgs) in boring B-1, to 9'bgs in boring B-4. Observed soil conditions encountered in the borings consisted of fill material and brown silty sands and clay. Groundwater was not encountered in any boring. IVI inspected each soil sample for evidence of contamination and field screened the samples for VOC contamination using a PID. No elevated PID readings were identified in any boring. The instrument calibration log is provided in Appendix B. Detailed soil descriptions and PID readings are provided on the boring logs presented in Appendix C.

Eight (8) soil samples were retained for analysis. Specifically, soil samples were collected from borings B-3 through B-10 at the bottom of each boring. Due to the presence of shallow bedrock at a depth of approximately 10" to 1' bgs in borings B-1 and B-2; respectively, no soil samples were collected in these borings. IVI transferred the collected soil samples to appropriate sample containers, packed them on ice in a cooler, and transferred them to Phoenix Environmental Laboratories (Phoenix) for laboratory analysis. The soil samples collected from borings B-3 through B-8 were analyzed for Target Compound List (TCL) volatile and semi-volatile organic compounds (VOCs and SVOCs), and Resource Conservation and Recovery Act (RCRA) metals via EPA Methods 5035/8260B, 8270C, 6010/7470, respectively. In addition, since groundwater was not encountered, IVI analyzed the soil samples collected from borings B-9 and B-10 for Spill Technology and Remediation Series (STARS) list VOCs and

SVOCs via EPA Methods 8260 and 8270, respectively, in lieu of the proposed groundwater samples.

Analytical Results

Analytical results of soil samples identified numerous metals in the soil samples collected from borings B-3 through B-8. Five (5) metals were identified to exceed their respective New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER-10) Soil Cleanup Objectives (SCOs). Analytical results of soil samples collected from boring B-5 identified three VOCs, ethylbenzene, isopropylbenzene, and xylenes, at concentrations below their respective SCOs. Analytical results of soil samples collected from borings B-3, and B-5 through B-8, identified several SVOCs in soil samples. SVOCs were found to exceed their respective SCOs in the soil samples collected from borings B-3, B-7, and B-8. Specifically, benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were identified to exceed their respective SCOs. The soil analytical data is summarized on Table 1 in Appendix D. The laboratory analytical report is provided in Appendix E.

Conclusions and Recommendations

Soil analytical results identified concentrations of metals and SVOCs which exceed their respective SCOs in the soil samples collected from borings B-3, B-7, and B-8. In addition, metals were identified to exceed their SCOs in the soil sample collected from boring B-5. IVI observed evidence of urban fill in the soil borings which consisted of asphalt, cinders, and brick fragments. Moreover, the elevated metal and SVOCs identified in the soil samples are typical of urban fill found throughout New York City. Historical site usage of the Subject for auto wrecking and repair may also have contributed to the contamination identified. However, the contaminants identified cannot be directly attributed to a release, and IVI did not identify evidence of a release in the form of elevated field readings with the PID, or visual or olfactory evidence. As such, the results of this Assessment are not required to be reported at this time. Furthermore, the Subject property is “capped” with asphalt and the building itself, which prevents direct exposure to the soil, and as such, any remediation to the soil would be un-necessary and not required at this time.

Based on the results of this Assessment, IVI has no further recommendations regarding the subsurface soils at this time. In the event of future site redevelopment, IVI recommends that any excavated materials be managed in accordance with applicable federal, state, and local regulations.

Please do not hesitate to call if you have any comments or questions regarding this Assessment. Thank you for letting us be of assistance.

Sincerely,

IVI ENVIRONMENTAL, INC.



Paul Stellato
Project Manager

cc: David R. Lent; IVI

enc.: Appendix A: Figures
Appendix B: Boring Logs
Appendix C: Tables
Appendix D: Laboratory Report

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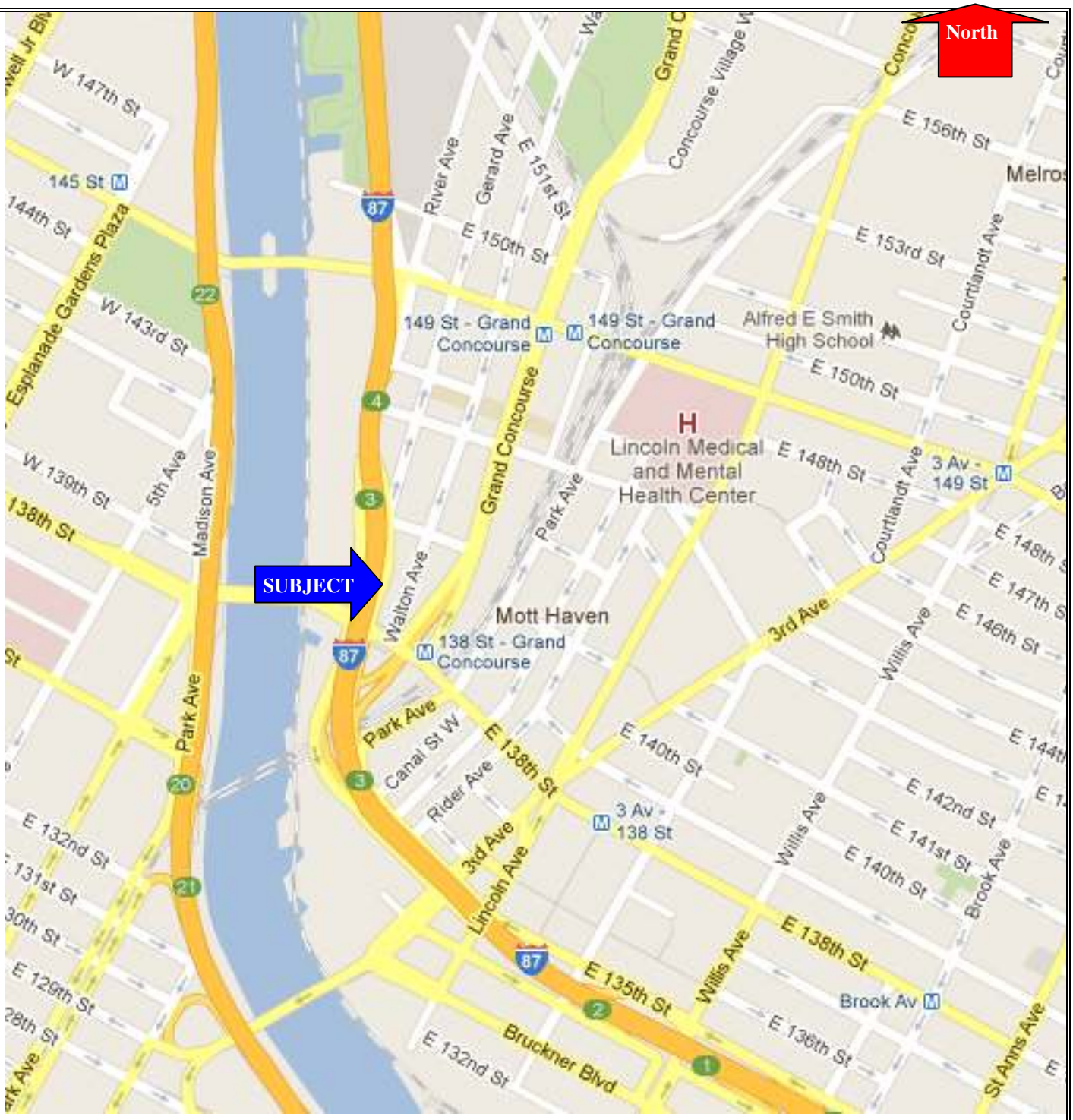


Figure 1 - Site Location Map

Project Site: Tuck It Away Self-Storage
261 Walton Avenue
Bronx, New York

IVI Project No: E12014016

IVI Environmental Inc.
55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

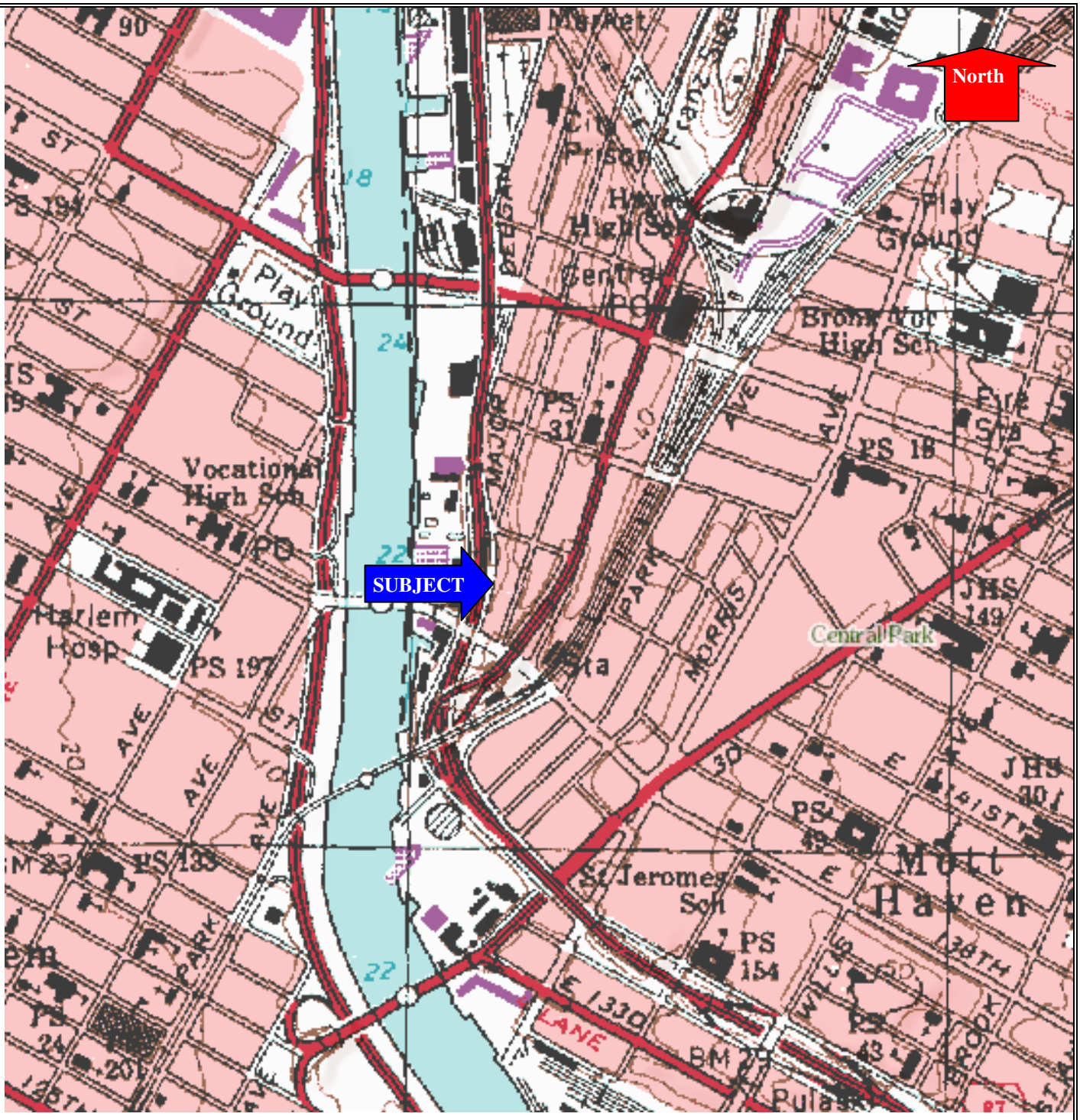


Figure 2 – USGS Topographic Map

Project Site: Tuck It Away Self-Storage
261 Walton Avenue
Bronx, New York

IVI Project No: E12014016

IVI Environmental Inc.
55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

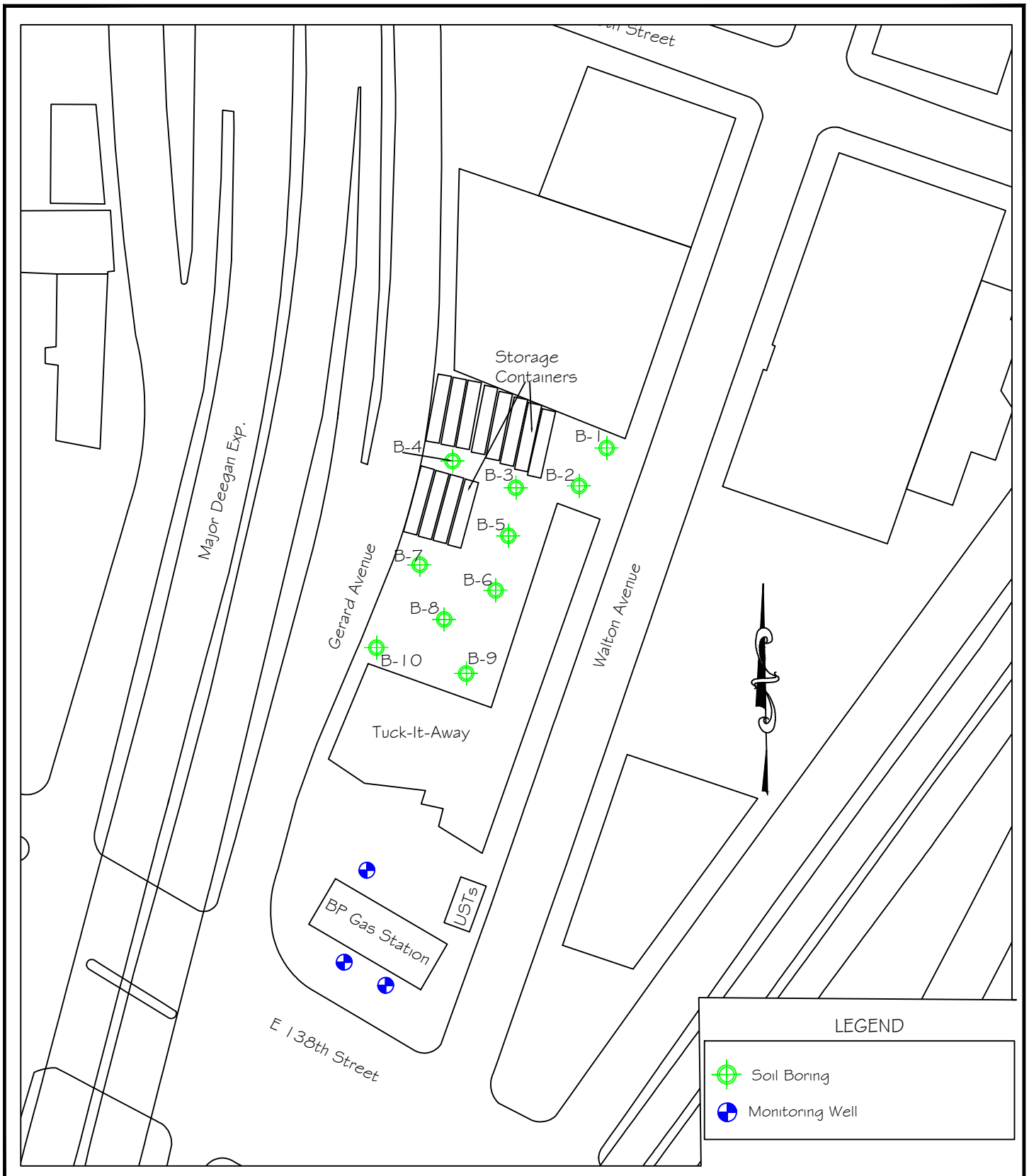


FIGURE 3 - BORING LOCATION PLAN

Project Name: 261 Walton Avenue Bronx, New York	IVI Environmental Inc. 55 West Red Oak Lane White Plains, NY 10604 (914) 694-9600 (tel) (914) 694-2903 (fax)	Scale: 1" = 80'

Equipment Calibration Log

Tuck It Away Self-Storage
Bronx, New York

Instrument: MiniRAE 2000							
Date	Time	Calibrated By	Calibration Standard	Calibration Reading	Calibration Type	Battery Checked	Maintenance and Repairs
1/24/2012	7:45	Paul Stellato	100ppm	100ppm	Isobutylene Gas	Yes	No

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 10”
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-1

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
10”		0-5	60/8	0	Fill material – Asphalt gravel, brick, and silty sand and clay
					End of Boring at ± 10”bgs – probe refusal. Presumed Bedrock
					No Sample Collected

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 1'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-2

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
1'		0-5	60/10	0	Fill material – Asphalt gravel, brick, and silty sand and clay
					End of Boring at ± 10"bgs – probe refusal. Presumed Bedrock
					No Sample Collected

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 18"
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-3

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
18"	B-3 @ 18"bgs	0-5	60/12	0	Fill material – Asphalt gravel, brick, and silty sand and clay
					End of Boring at ± 18" bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 9'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-4

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5		0-5	60/36	0	Asphalt and gravel. Moist f-med silty sandy CLAY and fill material
9	B-4 @ 9'bgs	5-9	60/40	0	Moist brn f-med SAND.
					End of Boring at ± 9' bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 3.5'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-5

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
3.5'	B-5 @ 3.5'bgs	0-5	60/12	0	Asphalt and gravel. Moist f-med silty sandy CLAY and fill material
					End of Boring at ± 3.5' bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 4'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-6

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
4	B-6 @ 4'bgs	0-5	60/30	0	Asphalt and gravel. F-med silty sandy CLAY and fill material – weathered rock.
					End of Boring at ± 4' bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 4'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-7

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
4	B-7 @ 4'bgs	0-5	60/24	0	Asphalt and gravel. F-med silty sandy CLAY and fill material.
					End of Boring at ± 4' bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 3.5'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-8

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
3.5	B-8 @ 3.5'bgs	0-5	60/24	0	Asphalt and gravel. F-med silty sandy CLAY and fill material.
					End of Boring at ± 3.5' bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 6'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-9

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
5		0-5	60/40	0	Asphalt and gravel. F-med silty sandy CLAY and fill material – crushed rock
6	B-9 @ 6'bgs	5-6	60/24	0	Weathered rock and silty Sand.
					End of Boring at ± 6' bgs – probe refusal. Presumed Bedrock.

IVI Environmental, Inc.

55 West Red Oak Lane
White Plains, New York 10604
(914) 694-9600 (tel)
(914) 694-2903 (fax)

Boring Log

Project No.: E12014016
Project Name: Tuck It Away Self-Storage
Project Manager: Paul Stellato
Total depth: 4'
Water Table Depth: NA

Date: January 24, 2012
Location: 261 Walton Ave, Bronx, NY
Drilling Company: Zebra Environmental
Method Used: Track Mounted Geoprobe 7720DT
Boring No.: B-10

Depth (feet)	Sample No.	Sample Interval (feet)	Penetration /Recovery (inches)	Field Screening Result (ppm)	Soil Identification and Remarks (include color, composition, moisture, and visual and olfactory observations of contamination)
4	B-10 @ 4'bgs	0-5	60/30	0	Asphalt and gravel. F-med silty sandy CLAY and fill material.
					End of Boring at ± 4' bgs – probe refusal. Presumed Bedrock.

Table 1
Summary of Soil Sampling Analytical Results
Tuck It Away Self-Storage
261 Walton Avenue
Bronx, New York

Analytical Parameter/Constituent	NYSDEC DER-10 SCOs - Unrestricted Use (mg/kg)	Sample Locations and Concentrations (mg/kg)							
		B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10
VOCs									
Ethylbenzene	1	ND	ND	**0.014**	ND	ND	ND	ND	ND
Isopropylbenzene	2.3	ND	ND	**0.027**	ND	ND	ND	ND	ND
Xylenes	0.26	ND	ND	**0.088**	ND	ND	ND	ND	ND
Metals									
Arsenic	13	**2.41**	**0.93**	ND	ND	**11.7**	**11.2**	NA	NA
Barium	350	**155**	**48**	**386**	**157**	**139**	**310**	NA	NA
Cadmium	2.5	**0.69**	ND	**4.9**	**0.93**	**1.46**	**6.9**	NA	NA
Chromium	NS	**32.3**	**10.3**	**48.7**	**36.7**	**24.9**	**43.6**	NA	NA
Lead	63	**106**	**4.1**	**311**	**38.7**	**494**	**8440**	NA	NA
Mercury	0.18	**0.4**	ND	**0.29**	**0.12**	**0.3**	**0.56**	NA	NA
Silver	2	ND	ND	ND	ND	**1.67**	**3.69**	NA	NA
SVOCs									
2-Methylnaphthalene	NS	ND	ND	**1.2**	ND	ND	ND	NA	NA
Acenaphthylene	20	**3.1**	ND	ND	ND	ND	ND	ND	ND
Anthracene	100	**1**	ND	ND	ND	ND	ND	ND	ND
Benz(a)anthracene	1	**8.3**	ND	ND	**0.28**	**1.1**	**1.9**	ND	ND
Benzo(a)pyrene	1	**10**	ND	ND	ND	**0.84**	**1.8**	ND	ND
Benzo(b)fluoranthene	1	**13**	ND	**0.96**	**0.27**	**1.1**	**2.6**	ND	ND
Benzo(ghi)perylene	100	**3.7**	ND	ND	ND	**0.37**	**0.53**	ND	ND
Benzo(k)fluoranthene	0.8	**6.3**	ND	ND	ND	**0.39**	**0.87**	ND	ND
Chrysene	1	**7.9**	ND	ND	**0.27**	**1.1**	**2.2**	ND	ND
Dibenz(a,h)anthracene	0.33	**1.2**	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100	**7.3**	ND	**1.7**	**0.36**	**1.8**	**1.8**	ND	ND
Indeno(1,2,3-cd)pyrene	0.5	**3.7**	ND	ND	ND	**0.32**	**0.47**	ND	ND
Naphthalene	12	ND	ND	**1.1**	ND	ND	ND	ND	ND
Phenanthrene	100	**0.62**	ND	**1.3**	**0.34**	**1.2**	**0.86**	ND	ND
Pyrene	100	**6.6**	ND	**1.6**	**0.36**	**1.9**	**2.7**	ND	ND

Notes:

SCOs = NYCRR Part 375 Soil Cleanup Objectives for Unrestricted Use.

Shaded cells indicate NYSDEC Rec. Soil Cleanup Objective Criteria

All concentrations reported in mg/kg

ND = Compund not identified above laboratory detection limits

NS = No Standard Currently Exists for this Compound

NA = Compound not analyzed

PHOENIX
Environmental Laboratories, Inc.

Friday, February 03, 2012

Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Project ID: TUCK IT AWAY SELF STORAGE
Sample ID#s: BB37060 - BB37067

This laboratory is in compliance with the QA/QC procedures outlined in EPA 600/4-79-019, Handbook for Analytical Quality in Water and Waste Water, March 1979, SW846 QA/QC and NELAC requirements of procedures used.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext. 200.

Sincerely yours,

Phyllis Shiller

Laboratory Director

NELAC - #NY11301
CT Lab Registration #PH-0618
MA Lab Registration #MA-CT-007
ME Lab Registration #CT-007
NH Lab Registration #213693-A,B
NJ Lab Registration #CT-003
NY Lab Registration #11301
PA Lab Registration #68-03530
RI Lab Registration #63
VT Lab Registration #VT11301

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	10:45
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37060

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-3

Parameter	Result	RL	Units	Date	Time	By	Reference	
Arsenic	2.41	0.76	mg/Kg	01/26/12		LK	6010/200.7	
Barium	155	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Cadmium	0.69	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Chromium	32.3	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Lead	106	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Mercury	0.40	0.08	mg/Kg	01/26/12		RS	SW-7471	
Selenium	< 1.5	1.5	mg/Kg	01/26/12		LK	6010/200.7	
Silver	< 0.38	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Total Metals Digest	Completed			01/25/12		AG	SW846 - 3050	
Percent Solid	90		%	01/25/12		JL	E160.3	
Soil Extraction for SVOA	Completed			01/25/12		BB/R	SW3545	
Mercury Digestion	Completed			01/26/12			SW7471	
Volatile Library Search Top 10	Completed			01/26/12		H/J		1
Volatiles								
1,1,1-Trichloroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,1,2,2-Tetrachloroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,1,2-Trichloroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethene	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,2,3-Trichlorobenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,2,4-Trichlorobenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,2-Dibromo-3-chloropropane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichlorobenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloropropane	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,3-Dichlorobenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260	
1,4-Dichlorobenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260	

Parameter	Result	RL	Units	Date	Time	By	Reference
2-Hexanone	ND	43	ug/kg	01/26/12		H/J	SW8260
4-Methyl-2-pentanone	ND	43	ug/kg	01/26/12		H/J	SW8260
Acetone	ND	87	ug/kg	01/26/12		H/J	SW8260
Benzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Bromochloromethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Bromodichloromethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Bromoform	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Bromomethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Carbon Disulfide	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Carbon tetrachloride	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Chlorobenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Chloroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Chloroform	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Chloromethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
cis-1,2-Dichloroethene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
cis-1,3-Dichloropropene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Cyclohexane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Dibromochloromethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Dibromoethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Dichlorodifluoromethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Ethylbenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Isopropylbenzene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
m&p-Xylene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Methyl ethyl ketone	ND	52	ug/kg	01/26/12		H/J	SW8260
Methyl t-butyl ether (MTBE)	ND	17	ug/kg	01/26/12		H/J	SW8260
Methylacetate	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Methylcyclohexane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Methylene chloride	ND	8.7	ug/kg	01/26/12		H/J	SW8260
o-Xylene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Styrene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Tetrachloroethene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Toluene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Total Xylenes	ND	8.7	ug/kg	01/26/12		H/J	SW8260
trans-1,2-Dichloroethene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
trans-1,3-Dichloropropene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Trichloroethene	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Trichlorofluoromethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Trichlorotrifluoroethane	ND	8.7	ug/kg	01/26/12		H/J	SW8260
Vinyl chloride	ND	8.7	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	110		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	86		%	01/26/12		H/J	70 - 130 %
% Dibromofluoromethane	102		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	95		%	01/26/12		H/J	70 - 130 %
1,4-dioxane							
1,4-dioxane	ND	160	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	110		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	94		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	99		%	01/26/12		H/J	70 - 130 %

Parameter	Result	RL	Units	Date	Time	By	Reference	
Library Search Top 15	Completed			01/31/12		KCA		
Semivolatiles								
1,1-Biphenyl	ND	520	ug/Kg	01/27/12		DD	SW 8270	1
1,2,4,5-Tetrachlorobenzene	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,3,4,6-tetrachlorophenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,4,5-Trichlorophenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,4,6-Trichlorophenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,4-Dichlorophenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,4-Dimethylphenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,4-Dinitrophenol	ND	1200	ug/Kg	01/27/12		DD	SW 8270	
2,4-Dinitrotoluene	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2,6-Dinitrotoluene	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2-Chloronaphthalene	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2-Chlorophenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2-Methylnaphthalene	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2-Methylphenol (o-cresol)	ND	520	ug/Kg	01/27/12		DD	SW 8270	
2-Nitroaniline	ND	1200	ug/Kg	01/27/12		DD	SW 8270	
2-Nitrophenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
3&4-Methylphenol (m&p-cresol)	ND	740	ug/Kg	01/27/12		DD	SW 8270	
3,3'-Dichlorobenzidine	ND	890	ug/Kg	01/27/12		DD	SW 8270	
3-Nitroaniline	ND	1200	ug/Kg	01/27/12		DD	SW 8270	
4,6-Dinitro-2-methylphenol	ND	2100	ug/Kg	01/27/12		DD	SW 8270	
4-Bromophenyl phenyl ether	ND	740	ug/Kg	01/27/12		DD	SW 8270	
4-Chloro-3-methylphenol	ND	520	ug/Kg	01/27/12		DD	SW 8270	
4-Chloroaniline	ND	520	ug/Kg	01/27/12		DD	SW 8270	
4-Chlorophenyl phenyl ether	ND	520	ug/Kg	01/27/12		DD	SW 8270	
4-Nitroaniline	ND	1200	ug/Kg	01/27/12		DD	SW 8270	
4-Nitrophenol	ND	2100	ug/Kg	01/27/12		DD	SW 8270	
Acenaphthene	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Acenaphthylene	3100	520	ug/Kg	01/27/12		DD	SW 8270	
Acetophenone	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Anthracene	1000	520	ug/Kg	01/27/12		DD	SW 8270	
Atrazine	ND	520	ug/Kg	01/27/12		DD	SW 8270	1
Benz(a)anthracene	8300	520	ug/Kg	01/27/12		DD	SW 8270	
Benzaldehyde	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Benzo(a)pyrene	10000	520	ug/Kg	01/27/12		DD	SW 8270	
Benzo(b)fluoranthene	13000	520	ug/Kg	01/27/12		DD	SW 8270	
Benzo(ghi)perylene	3700	520	ug/Kg	01/27/12		DD	SW 8270	
Benzo(k)fluoranthene	6300	520	ug/Kg	01/27/12		DD	SW 8270	
Benzyl butyl phthalate	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Bis(2-chloroethoxy)methane	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Bis(2-chloroethyl)ether	ND	740	ug/Kg	01/27/12		DD	SW 8270	
Bis(2-chloroisopropyl)ether	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Bis(2-ethylhexyl)phthalate	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Caprolactam	ND	520	ug/Kg	01/27/12		DD	SW 8270	1
Carbazole	ND	2100	ug/Kg	01/27/12		DD	SW 8270	
Chrysene	7900	520	ug/Kg	01/27/12		DD	SW 8270	
Dibenz(a,h)anthracene	1200	520	ug/Kg	01/27/12		DD	SW 8270	
Dibenzofuran	ND	520	ug/Kg	01/27/12		DD	SW 8270	
Diethyl phthalate	ND	520	ug/Kg	01/27/12		DD	SW 8270	

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-3

Phoenix I.D.: BB37060

Parameter	Result	RL	Units	Date	Time	By	Reference
Dimethylphthalate	ND	520	ug/Kg	01/27/12		DD	SW 8270
Di-n-butylphthalate	ND	520	ug/Kg	01/27/12		DD	SW 8270
Di-n-octylphthalate	ND	520	ug/Kg	01/27/12		DD	SW 8270
Fluoranthene	7300	520	ug/Kg	01/27/12		DD	SW 8270
Fluorene	ND	520	ug/Kg	01/27/12		DD	SW 8270
Hexachlorobenzene	ND	520	ug/Kg	01/27/12		DD	SW 8270
Hexachlorobutadiene	ND	520	ug/Kg	01/27/12		DD	SW 8270
Hexachlorocyclopentadiene	ND	520	ug/Kg	01/27/12		DD	SW 8270
Hexachloroethane	ND	520	ug/Kg	01/27/12		DD	SW 8270
Indeno(1,2,3-cd)pyrene	3700	520	ug/Kg	01/27/12		DD	SW 8270
Isophorone	ND	520	ug/Kg	01/27/12		DD	SW 8270
Naphthalene	ND	520	ug/Kg	01/27/12		DD	SW 8270
Nitrobenzene	ND	520	ug/Kg	01/27/12		DD	SW 8270
N-Nitrosodimethylamine	ND	740	ug/Kg	01/27/12		DD	SW 8270
N-Nitrosodi-n-propylamine	ND	520	ug/Kg	01/27/12		DD	SW 8270
N-Nitrosodiphenylamine	ND	740	ug/Kg	01/27/12		DD	SW 8270
Pentachlorophenol	ND	740	ug/Kg	01/27/12		DD	SW 8270
Phenanthrene	620	520	ug/Kg	01/27/12		DD	SW 8270
Phenol	ND	520	ug/Kg	01/27/12		DD	SW 8270
Pyrene	6600	520	ug/Kg	01/27/12		DD	SW 8270
QA/QC Surrogates							
% 2,4,6-Tribromophenol	115		%	01/27/12		DD	15 - 130 %
% 2-Fluorobiphenyl	92		%	01/27/12		DD	15 - 130 %
% 2-Fluorophenol	87		%	01/27/12		DD	15 - 130 %
% Nitrobenzene-d5	82		%	01/27/12		DD	15 - 130 %
% Phenol-d5	85		%	01/27/12		DD	15 - 130 %
% Terphenyl-d14	75		%	01/27/12		DD	15 - 130 %

1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

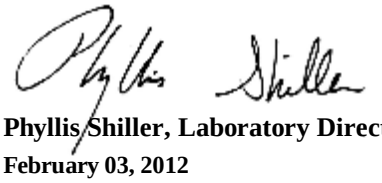
Comments:

* Due to a matrix interference and/or the presence of a large amount of non-target material in the sample, an elevated RL was reported for the semivolatile analysis.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:00
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37061

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-4

Parameter	Result	RL	Units	Date	Time	By	Reference	
Arsenic	0.93	0.72	mg/Kg	01/26/12		LK	6010/200.7	
Barium	47.5	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Cadmium	< 0.36	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Chromium	10.3	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Lead	4.10	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Mercury	< 0.07	0.07	mg/Kg	01/26/12		RS	SW-7471	
Selenium	< 1.4	1.4	mg/Kg	01/26/12		LK	6010/200.7	
Silver	< 0.36	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Total Metals Digest	Completed			01/25/12		AG	SW846 - 3050	
Percent Solid	93		%	01/25/12		JL	E160.3	
Soil Extraction for SVOA	Completed			01/25/12		BB/R	SW3545	
Mercury Digestion	Completed			01/26/12			SW7471	
Volatile Library Search Top 10	Completed			01/22/12		JH		1
Volatiles								
1,1,1-Trichloroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,1,2,2-Tetrachloroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,1,2-Trichloroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethene	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,2,3-Trichlorobenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,2,4-Trichlorobenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,2-Dibromo-3-chloropropane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichlorobenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloropropane	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,3-Dichlorobenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260	
1,4-Dichlorobenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260	

Parameter	Result	RL	Units	Date	Time	By	Reference
2-Hexanone	ND	30	ug/kg	01/26/12		H/J	SW8260
4-Methyl-2-pentanone	ND	30	ug/kg	01/26/12		H/J	SW8260
Acetone	ND	60	ug/kg	01/26/12		H/J	SW8260
Benzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Bromochloromethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Bromodichloromethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Bromoform	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Bromomethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Carbon Disulfide	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Carbon tetrachloride	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Chlorobenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Chloroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Chloroform	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Chloromethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
cis-1,2-Dichloroethene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
cis-1,3-Dichloropropene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Cyclohexane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Dibromochloromethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Dibromoethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Dichlorodifluoromethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Ethylbenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Isopropylbenzene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
m&p-Xylene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Methyl ethyl ketone	ND	36	ug/kg	01/26/12		H/J	SW8260
Methyl t-butyl ether (MTBE)	ND	12	ug/kg	01/26/12		H/J	SW8260
Methylacetate	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Methylcyclohexane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Methylene chloride	ND	6.0	ug/kg	01/26/12		H/J	SW8260
o-Xylene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Styrene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Tetrachloroethene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Toluene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Total Xylenes	ND	6.0	ug/kg	01/26/12		H/J	SW8260
trans-1,2-Dichloroethene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
trans-1,3-Dichloropropene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Trichloroethene	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Trichlorofluoromethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Trichlorotrifluoroethane	ND	6.0	ug/kg	01/26/12		H/J	SW8260
Vinyl chloride	ND	6.0	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	100		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	97		%	01/26/12		H/J	70 - 130 %
% Dibromofluoromethane	84		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	93		%	01/26/12		H/J	70 - 130 %
1,4-dioxane							
1,4-dioxane	ND	110	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	101		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	106		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	97		%	01/26/12		H/J	70 - 130 %

Parameter	Result	RL	Units	Date	Time	By	Reference	
Library Search Top 15	Completed			01/30/12		KCA		
Semivolatiles								
1,1-Biphenyl	ND	250	ug/Kg	01/26/12		KCA	SW 8270	1
1,2,4,5-Tetrachlorobenzene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,3,4,6-tetrachlorophenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,4,5-Trichlorophenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,4,6-Trichlorophenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dichlorophenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dimethylphenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrophenol	ND	560	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrotoluene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2,6-Dinitrotoluene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2-Chloronaphthalene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2-Chlorophenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylnaphthalene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylphenol (o-cresol)	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitroaniline	ND	560	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitrophenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
3&4-Methylphenol (m&p-cresol)	ND	350	ug/Kg	01/26/12		KCA	SW 8270	
3,3'-Dichlorobenzidine	ND	420	ug/Kg	01/26/12		KCA	SW 8270	
3-Nitroaniline	ND	560	ug/Kg	01/26/12		KCA	SW 8270	
4,6-Dinitro-2-methylphenol	ND	1000	ug/Kg	01/26/12		KCA	SW 8270	
4-Bromophenyl phenyl ether	ND	350	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloro-3-methylphenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloroaniline	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
4-Chlorophenyl phenyl ether	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitroaniline	ND	560	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitrophenol	ND	1000	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthylene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Acetophenone	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Anthracene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Atrazine	ND	250	ug/Kg	01/26/12		KCA	SW 8270	1
Benz(a)anthracene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Benzaldehyde	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(a)pyrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(b)fluoranthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(ghi)perylene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(k)fluoranthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Benzyl butyl phthalate	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethoxy)methane	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethyl)ether	ND	350	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroisopropyl)ether	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-ethylhexyl)phthalate	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Caprolactam	ND	250	ug/Kg	01/26/12		KCA	SW 8270	1
Carbazole	ND	1000	ug/Kg	01/26/12		KCA	SW 8270	
Chrysene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Dibenz(a,h)anthracene	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Dibenzofuran	ND	250	ug/Kg	01/26/12		KCA	SW 8270	
Diethyl phthalate	ND	250	ug/Kg	01/26/12		KCA	SW 8270	

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-4

Phoenix I.D.: BB37061

Parameter	Result	RL	Units	Date	Time	By	Reference
Dimethylphthalate	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Di-n-butylphthalate	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Di-n-octylphthalate	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Fluoranthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Fluorene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobenzene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobutadiene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorocyclopentadiene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Hexachloroethane	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Isophorone	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Naphthalene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Nitrobenzene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodimethylamine	ND	350	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodi-n-propylamine	ND	250	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodiphenylamine	ND	350	ug/Kg	01/26/12		KCA	SW 8270
Pentachlorophenol	ND	350	ug/Kg	01/26/12		KCA	SW 8270
Phenanthrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Phenol	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Pyrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
QA/QC Surrogates							
% 2,4,6-Tribromophenol	106		%	01/26/12		KCA	15 - 130 %
% 2-Fluorobiphenyl	84		%	01/26/12		KCA	15 - 130 %
% 2-Fluorophenol	84		%	01/26/12		KCA	15 - 130 %
% Nitrobenzene-d5	76		%	01/26/12		KCA	15 - 130 %
% Phenol-d5	82		%	01/26/12		KCA	15 - 130 %
% Terphenyl-d14	78		%	01/26/12		KCA	15 - 130 %

1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:05
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37062

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-5

Parameter	Result	RL	Units	Date	Time	By	Reference	
Arsenic	< 0.67	0.67	mg/Kg	01/26/12		LK	6010/200.7	
Barium	386	0.34	mg/Kg	01/30/12		EK	6010/200.7	
Cadmium	4.90	0.34	mg/Kg	01/26/12		LK	6010/200.7	
Chromium	48.7	0.34	mg/Kg	01/26/12		LK	6010/200.7	
Lead	311	3.4	mg/Kg	01/30/12		EK	6010/200.7	
Mercury	0.29	0.09	mg/Kg	01/26/12		RS	SW-7471	
Selenium	< 1.3	1.3	mg/Kg	01/26/12		LK	6010/200.7	
Silver	< 0.34	0.34	mg/Kg	01/26/12		LK	6010/200.7	
Total Metals Digest	Completed			01/25/12		AG	SW846 - 3050	
Percent Solid	93		%	01/25/12		JL	E160.3	
Soil Extraction for SVOA	Completed			01/25/12		BB/R	SW3545	
Mercury Digestion	Completed			01/26/12			SW7471	
Volatile Library Search Top 10	Completed			02/01/12		JH		1
Volatiles								
1,1,1-Trichloroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,1,2,2-Tetrachloroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,1,2-Trichloroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,1-Dichloroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,1-Dichloroethene	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,2,3-Trichlorobenzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,2,4-Trichlorobenzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,2-Dibromo-3-chloropropane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,2-Dichlorobenzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,2-Dichloroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,2-Dichloropropane	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,3-Dichlorobenzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260	
1,4-Dichlorobenzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260	

Parameter	Result	RL	Units	Date	Time	By	Reference
2-Hexanone	ND	42	ug/kg	01/27/12		R/J	SW8260
4-Methyl-2-pentanone	ND	42	ug/kg	01/27/12		R/J	SW8260
Acetone	ND	84	ug/kg	01/27/12		R/J	SW8260
Benzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Bromochloromethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Bromodichloromethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Bromoform	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Bromomethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Carbon Disulfide	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Carbon tetrachloride	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Chlorobenzene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Chloroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Chloroform	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Chloromethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
cis-1,2-Dichloroethene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
cis-1,3-Dichloropropene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Cyclohexane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Dibromochloromethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Dibromoethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Dichlorodifluoromethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Ethylbenzene	14	8.4	ug/kg	01/27/12		R/J	SW8260
Isopropylbenzene	27	8.4	ug/kg	01/27/12		R/J	SW8260
m&p-Xylene	28	8.4	ug/kg	01/27/12		R/J	SW8260
Methyl ethyl ketone	ND	50	ug/kg	01/27/12		R/J	SW8260
Methyl t-butyl ether (MTBE)	ND	17	ug/kg	01/27/12		R/J	SW8260
Methylacetate	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Methylcyclohexane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Methylene chloride	ND	8.4	ug/kg	01/27/12		R/J	SW8260
o-Xylene	60	8.4	ug/kg	01/27/12		R/J	SW8260
Styrene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Tetrachloroethene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Toluene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Total Xylenes	88	8.4	ug/kg	01/27/12		R/J	SW8260
trans-1,2-Dichloroethene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
trans-1,3-Dichloropropene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Trichloroethene	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Trichlorofluoromethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Trichlorotrifluoroethane	ND	8.4	ug/kg	01/27/12		R/J	SW8260
Vinyl chloride	ND	8.4	ug/kg	01/27/12		R/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	96		%	01/27/12		R/J	70 - 130 %
% Bromofluorobenzene	80		%	01/27/12		R/J	70 - 130 %
% Dibromofluoromethane	88		%	01/27/12		R/J	70 - 130 %
% Toluene-d8	83		%	01/27/12		R/J	70 - 130 %
1,4-dioxane							
1,4-dioxane	ND	160	ug/kg	01/27/12		R/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	97		%	01/27/12		R/J	70 - 130 %
% Bromofluorobenzene	99		%	01/27/12		R/J	70 - 130 %
% Toluene-d8	87		%	01/27/12		R/J	70 - 130 %

Parameter	Result	RL	Units	Date	Time	By	Reference	
Library Search Top 15	Completed			01/30/12		KCA		
Semivolatiles								
1,1-Biphenyl	ND	500	ug/Kg	01/26/12		KCA	SW 8270	1
1,2,4,5-Tetrachlorobenzene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,3,4,6-tetrachlorophenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,4,5-Trichlorophenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,4,6-Trichlorophenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dichlorophenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dimethylphenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrophenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrotoluene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2,6-Dinitrotoluene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2-Chloronaphthalene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2-Chlorophenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylnaphthalene	1200	500	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylphenol (o-cresol)	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitroaniline	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitrophenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
3&4-Methylphenol (m&p-cresol)	ND	710	ug/Kg	01/26/12		KCA	SW 8270	
3,3'-Dichlorobenzidine	ND	860	ug/Kg	01/26/12		KCA	SW 8270	
3-Nitroaniline	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
4,6-Dinitro-2-methylphenol	ND	2100	ug/Kg	01/26/12		KCA	SW 8270	
4-Bromophenyl phenyl ether	ND	710	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloro-3-methylphenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloroaniline	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
4-Chlorophenyl phenyl ether	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitroaniline	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitrophenol	ND	2100	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthylene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Acetophenone	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Anthracene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Atrazine	ND	500	ug/Kg	01/26/12		KCA	SW 8270	1
Benz(a)anthracene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Benzaldehyde	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(a)pyrene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(b)fluoranthene	960	500	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(ghi)perylene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(k)fluoranthene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Benzyl butyl phthalate	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethoxy)methane	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethyl)ether	ND	710	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroisopropyl)ether	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-ethylhexyl)phthalate	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Caprolactam	ND	500	ug/Kg	01/26/12		KCA	SW 8270	1
Carbazole	ND	2100	ug/Kg	01/26/12		KCA	SW 8270	
Chrysene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Dibenz(a,h)anthracene	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Dibenzofuran	ND	500	ug/Kg	01/26/12		KCA	SW 8270	
Diethyl phthalate	ND	500	ug/Kg	01/26/12		KCA	SW 8270	

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-5

Phoenix I.D.: BB37062

Parameter	Result	RL	Units	Date	Time	By	Reference
Dimethylphthalate	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Di-n-butylphthalate	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Di-n-octylphthalate	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Fluoranthene	1700	500	ug/Kg	01/26/12		KCA	SW 8270
Fluorene	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobenzene	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobutadiene	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorocyclopentadiene	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Hexachloroethane	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Isophorone	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Naphthalene	1100	500	ug/Kg	01/26/12		KCA	SW 8270
Nitrobenzene	ND	500	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodimethylamine	ND	710	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodi-n-propylamine	ND	500	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodiphenylamine	ND	710	ug/Kg	01/26/12		KCA	SW 8270
Pentachlorophenol	ND	710	ug/Kg	01/26/12		KCA	SW 8270
Phenanthrene	1300	500	ug/Kg	01/26/12		KCA	SW 8270
Phenol	ND	500	ug/Kg	01/26/12		KCA	SW 8270
Pyrene	1600	500	ug/Kg	01/26/12		KCA	SW 8270
QA/QC Surrogates							
% 2,4,6-Tribromophenol	101		%	01/26/12		KCA	15 - 130 %
% 2-Fluorobiphenyl	80		%	01/26/12		KCA	15 - 130 %
% 2-Fluorophenol	80		%	01/26/12		KCA	15 - 130 %
% Nitrobenzene-d5	68		%	01/26/12		KCA	15 - 130 %
% Phenol-d5	76		%	01/26/12		KCA	15 - 130 %
% Terphenyl-d14	83		%	01/26/12		KCA	15 - 130 %

1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

Comments:

* Due to a matrix interference and/or the presence of a large amount of non-target material in the sample, an elevated RL was reported for the semivolatile analysis.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:10
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37063

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-6

Parameter	Result	RL	Units	Date	Time	By	Reference	
Arsenic	< 0.77	0.77	mg/Kg	01/26/12		LK	6010/200.7	
Barium	157	0.38	mg/Kg	01/30/12		EK	6010/200.7	
Cadmium	0.93	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Chromium	36.7	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Lead	38.7	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Mercury	0.12	0.08	mg/Kg	01/26/12		RS	SW-7471	
Selenium	< 1.5	1.5	mg/Kg	01/26/12		LK	6010/200.7	
Silver	< 0.38	0.38	mg/Kg	01/26/12		LK	6010/200.7	
Total Metals Digest	Completed			01/25/12		AG	SW846 - 3050	
Percent Solid	89		%	01/25/12		JL	E160.3	
Soil Extraction for SVOA	Completed			01/25/12		BB/R	SW3545	
Mercury Digestion	Completed			01/26/12			SW7471	
Volatile Library Search Top 10	Completed			01/22/12		JH		1
Volatiles								
1,1,1-Trichloroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,1,2,2-Tetrachloroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,1,2-Trichloroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethene	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,2,3-Trichlorobenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,2,4-Trichlorobenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,2-Dibromo-3-chloropropane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichlorobenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloropropane	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,3-Dichlorobenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260	
1,4-Dichlorobenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260	

Parameter	Result	RL	Units	Date	Time	By	Reference
2-Hexanone	ND	28	ug/kg	01/26/12		H/J	SW8260
4-Methyl-2-pentanone	ND	28	ug/kg	01/26/12		H/J	SW8260
Acetone	ND	55	ug/kg	01/26/12		H/J	SW8260
Benzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Bromochloromethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Bromodichloromethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Bromoform	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Bromomethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Carbon Disulfide	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Carbon tetrachloride	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Chlorobenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Chloroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Chloroform	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Chloromethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
cis-1,2-Dichloroethene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
cis-1,3-Dichloropropene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Cyclohexane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Dibromochloromethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Dibromoethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Dichlorodifluoromethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Ethylbenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Isopropylbenzene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
m&p-Xylene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Methyl ethyl ketone	ND	33	ug/kg	01/26/12		H/J	SW8260
Methyl t-butyl ether (MTBE)	ND	11	ug/kg	01/26/12		H/J	SW8260
Methylacetate	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Methylcyclohexane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Methylene chloride	ND	5.5	ug/kg	01/26/12		H/J	SW8260
o-Xylene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Styrene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Tetrachloroethene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Toluene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Total Xylenes	ND	5.5	ug/kg	01/26/12		H/J	SW8260
trans-1,2-Dichloroethene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
trans-1,3-Dichloropropene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Trichloroethene	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Trichlorofluoromethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Trichlorotrifluoroethane	ND	5.5	ug/kg	01/26/12		H/J	SW8260
Vinyl chloride	ND	5.5	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	118		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	88		%	01/26/12		H/J	70 - 130 %
% Dibromofluoromethane	101		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	92		%	01/26/12		H/J	70 - 130 %
1,4-dioxane							
1,4-dioxane	ND	98	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	120		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	95		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	97		%	01/26/12		H/J	70 - 130 %

Parameter	Result	RL	Units	Date	Time	By	Reference	
Library Search Top 15	Completed			01/30/12		KCA		
Semivolatiles								
1,1-Biphenyl	ND	260	ug/Kg	01/26/12		KCA	SW 8270	1
1,2,4,5-Tetrachlorobenzene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,3,4,6-tetrachlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4,5-Trichlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4,6-Trichlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dichlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dimethylphenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrophenol	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrotoluene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,6-Dinitrotoluene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Chloronaphthalene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Chlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylnaphthalene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylphenol (o-cresol)	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitroaniline	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitrophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
3&4-Methylphenol (m&p-cresol)	ND	370	ug/Kg	01/26/12		KCA	SW 8270	
3,3'-Dichlorobenzidine	ND	440	ug/Kg	01/26/12		KCA	SW 8270	
3-Nitroaniline	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
4,6-Dinitro-2-methylphenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
4-Bromophenyl phenyl ether	ND	370	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloro-3-methylphenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloroaniline	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
4-Chlorophenyl phenyl ether	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitroaniline	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitrophenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthylene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Acetophenone	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Anthracene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Atrazine	ND	260	ug/Kg	01/26/12		KCA	SW 8270	1
Benz(a)anthracene	280	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzaldehyde	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(a)pyrene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(b)fluoranthene	270	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(ghi)perylene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(k)fluoranthene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzyl butyl phthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethoxy)methane	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethyl)ether	ND	370	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroisopropyl)ether	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-ethylhexyl)phthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Caprolactam	ND	260	ug/Kg	01/26/12		KCA	SW 8270	1
Carbazole	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
Chrysene	270	260	ug/Kg	01/26/12		KCA	SW 8270	
Dibenz(a,h)anthracene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Dibenzofuran	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Diethyl phthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270	

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-6

Phoenix I.D.: BB37063

Parameter	Result	RL	Units	Date	Time	By	Reference
Dimethylphthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Di-n-butylphthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Di-n-octylphthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Fluoranthene	360	260	ug/Kg	01/26/12		KCA	SW 8270
Fluorene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobenzene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobutadiene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorocyclopentadiene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachloroethane	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Isophorone	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Naphthalene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Nitrobenzene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodimethylamine	ND	370	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodi-n-propylamine	ND	260	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodiphenylamine	ND	370	ug/Kg	01/26/12		KCA	SW 8270
Pentachlorophenol	ND	370	ug/Kg	01/26/12		KCA	SW 8270
Phenanthrene	340	260	ug/Kg	01/26/12		KCA	SW 8270
Phenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Pyrene	360	260	ug/Kg	01/26/12		KCA	SW 8270
QA/QC Surrogates							
% 2,4,6-Tribromophenol	91		%	01/26/12		KCA	15 - 130 %
% 2-Fluorobiphenyl	73		%	01/26/12		KCA	15 - 130 %
% 2-Fluorophenol	79		%	01/26/12		KCA	15 - 130 %
% Nitrobenzene-d5	70		%	01/26/12		KCA	15 - 130 %
% Phenol-d5	75		%	01/26/12		KCA	15 - 130 %
% Terphenyl-d14	47		%	01/26/12		KCA	15 - 130 %

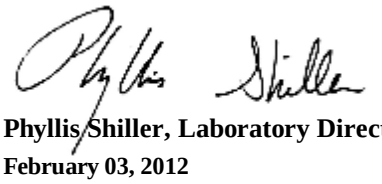
1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:15
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37064

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-7

Parameter	Result	RL	Units	Date	Time	By	Reference	
Arsenic	11.7	0.79	mg/Kg	01/26/12		LK	6010/200.7	
Barium	139	0.40	mg/Kg	01/30/12		EK	6010/200.7	
Cadmium	1.46	0.40	mg/Kg	01/26/12		LK	6010/200.7	
Chromium	24.9	0.40	mg/Kg	01/26/12		LK	6010/200.7	
Lead	494	4.0	mg/Kg	01/30/12		EK	6010/200.7	
Mercury	0.30	0.07	mg/Kg	01/26/12		RS	SW-7471	
Selenium	< 1.6	1.6	mg/Kg	01/26/12		LK	6010/200.7	
Silver	1.67	0.40	mg/Kg	01/26/12		LK	6010/200.7	
Total Metals Digest	Completed			01/25/12		AG	SW846 - 3050	
Percent Solid	85		%	01/25/12		JL	E160.3	
Soil Extraction for SVOA	Completed			01/25/12		BB/R	SW3545	
Mercury Digestion	Completed			01/26/12			SW7471	
Volatile Library Search Top 10	Completed			01/22/12		JH		1
Volatiles								
1,1,1-Trichloroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,1,2,2-Tetrachloroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,1,2-Trichloroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,1-Dichloroethene	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,2,3-Trichlorobenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,2,4-Trichlorobenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,2-Dibromo-3-chloropropane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichlorobenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,2-Dichloropropane	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,3-Dichlorobenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260	
1,4-Dichlorobenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260	

Parameter	Result	RL	Units	Date	Time	By	Reference
2-Hexanone	ND	34	ug/kg	01/26/12		H/J	SW8260
4-Methyl-2-pentanone	ND	34	ug/kg	01/26/12		H/J	SW8260
Acetone	ND	69	ug/kg	01/26/12		H/J	SW8260
Benzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Bromochloromethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Bromodichloromethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Bromoform	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Bromomethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Carbon Disulfide	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Carbon tetrachloride	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Chlorobenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Chloroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Chloroform	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Chloromethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
cis-1,2-Dichloroethene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
cis-1,3-Dichloropropene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Cyclohexane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Dibromochloromethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Dibromoethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Dichlorodifluoromethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Ethylbenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Isopropylbenzene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
m&p-Xylene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Methyl ethyl ketone	ND	41	ug/kg	01/26/12		H/J	SW8260
Methyl t-butyl ether (MTBE)	ND	14	ug/kg	01/26/12		H/J	SW8260
Methylacetate	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Methylcyclohexane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Methylene chloride	ND	6.9	ug/kg	01/26/12		H/J	SW8260
o-Xylene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Styrene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Tetrachloroethene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Toluene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Total Xylenes	ND	6.9	ug/kg	01/26/12		H/J	SW8260
trans-1,2-Dichloroethene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
trans-1,3-Dichloropropene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Trichloroethene	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Trichlorofluoromethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Trichlorotrifluoroethane	ND	6.9	ug/kg	01/26/12		H/J	SW8260
Vinyl chloride	ND	6.9	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	113		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	84		%	01/26/12		H/J	70 - 130 %
% Dibromofluoromethane	100		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	94		%	01/26/12		H/J	70 - 130 %
1,4-dioxane							
1,4-dioxane	ND	120	ug/kg	01/26/12		H/J	SW8260
QA/QC Surrogates							
% 1,2-dichlorobenzene-d4	114		%	01/26/12		H/J	70 - 130 %
% Bromofluorobenzene	92		%	01/26/12		H/J	70 - 130 %
% Toluene-d8	98		%	01/26/12		H/J	70 - 130 %

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-7

Phoenix I.D.: BB37064

Parameter	Result	RL	Units	Date	Time	By	Reference	
Library Search Top 15	Completed			01/30/12		KCA		
Semivolatiles								
1,1-Biphenyl	ND	270	ug/Kg	01/26/12		KCA	SW 8270	1
1,2,4,5-Tetrachlorobenzene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,3,4,6-tetrachlorophenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,4,5-Trichlorophenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,4,6-Trichlorophenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dichlorophenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dimethylphenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrophenol	ND	620	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrotoluene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2,6-Dinitrotoluene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2-Chloronaphthalene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2-Chlorophenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylnaphthalene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylphenol (o-cresol)	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitroaniline	ND	620	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitrophenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
3&4-Methylphenol (m&p-cresol)	ND	390	ug/Kg	01/26/12		KCA	SW 8270	
3,3'-Dichlorobenzidine	ND	470	ug/Kg	01/26/12		KCA	SW 8270	
3-Nitroaniline	ND	620	ug/Kg	01/26/12		KCA	SW 8270	
4,6-Dinitro-2-methylphenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
4-Bromophenyl phenyl ether	ND	390	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloro-3-methylphenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloroaniline	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
4-Chlorophenyl phenyl ether	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitroaniline	ND	620	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitrophenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthylene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Acetophenone	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Anthracene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Atrazine	ND	270	ug/Kg	01/26/12		KCA	SW 8270	1
Benz(a)anthracene	1100	270	ug/Kg	01/26/12		KCA	SW 8270	
Benzaldehyde	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(a)pyrene	840	270	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(b)fluoranthene	1100	270	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(ghi)perylene	370	270	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(k)fluoranthene	390	270	ug/Kg	01/26/12		KCA	SW 8270	
Benzyl butyl phthalate	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethoxy)methane	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethyl)ether	ND	390	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroisopropyl)ether	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-ethylhexyl)phthalate	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Caprolactam	ND	270	ug/Kg	01/26/12		KCA	SW 8270	1
Carbazole	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
Chrysene	1100	270	ug/Kg	01/26/12		KCA	SW 8270	
Dibenz(a,h)anthracene	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Dibenzofuran	ND	270	ug/Kg	01/26/12		KCA	SW 8270	
Diethyl phthalate	ND	270	ug/Kg	01/26/12		KCA	SW 8270	

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-7

Phoenix I.D.: BB37064

Parameter	Result	RL	Units	Date	Time	By	Reference
Dimethylphthalate	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Di-n-butylphthalate	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Di-n-octylphthalate	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Fluoranthene	1800	270	ug/Kg	01/26/12		KCA	SW 8270
Fluorene	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobenzene	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobutadiene	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorocyclopentadiene	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Hexachloroethane	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	320	270	ug/Kg	01/26/12		KCA	SW 8270
Isophorone	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Naphthalene	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Nitrobenzene	ND	270	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodimethylamine	ND	390	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodi-n-propylamine	ND	270	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodiphenylamine	ND	390	ug/Kg	01/26/12		KCA	SW 8270
Pentachlorophenol	ND	390	ug/Kg	01/26/12		KCA	SW 8270
Phenanthrene	1200	270	ug/Kg	01/26/12		KCA	SW 8270
Phenol	ND	270	ug/Kg	01/26/12		KCA	SW 8270
Pyrene	1900	270	ug/Kg	01/26/12		KCA	SW 8270
QA/QC Surrogates							
% 2,4,6-Tribromophenol	87		%	01/26/12		KCA	15 - 130 %
% 2-Fluorobiphenyl	86		%	01/26/12		KCA	15 - 130 %
% 2-Fluorophenol	76		%	01/26/12		KCA	15 - 130 %
% Nitrobenzene-d5	78		%	01/26/12		KCA	15 - 130 %
% Phenol-d5	82		%	01/26/12		KCA	15 - 130 %
% Terphenyl-d14	79		%	01/26/12		KCA	15 - 130 %

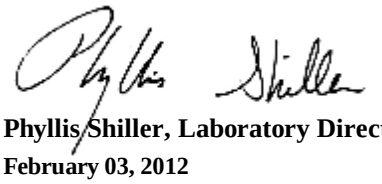
1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

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Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:20
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37065

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-8

Parameter	Result	RL	Units	Date	Time	By	Reference	
Arsenic	11.2	0.71	mg/Kg	01/26/12		LK	6010/200.7	
Barium	310	0.36	mg/Kg	01/30/12		EK	6010/200.7	
Cadmium	6.90	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Chromium	43.6	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Lead	8440	36	mg/Kg	01/30/12		EK	6010/200.7	
Mercury	0.56	0.07	mg/Kg	01/26/12		RS	SW-7471	
Selenium	< 1.4	1.4	mg/Kg	01/26/12		LK	6010/200.7	
Silver	3.69	0.36	mg/Kg	01/26/12		LK	6010/200.7	
Total Metals Digest	Completed			01/25/12		AG	SW846 - 3050	
Percent Solid	88		%	01/25/12		JL	E160.3	
Soil Extraction for SVOA	Completed			01/25/12		BB/R	SW3545	
Mercury Digestion	Completed			01/26/12			SW7471	
Volatile Library Search Top 10	Completed			01/25/12		R/J		1
Volatiles								
1,1,1-Trichloroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,1,2,2-Tetrachloroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,1,2-Trichloroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,1-Dichloroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,1-Dichloroethene	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,2,3-Trichlorobenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,2,4-Trichlorobenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,2-Dibromo-3-chloropropane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,2-Dichlorobenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,2-Dichloroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,2-Dichloropropane	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,3-Dichlorobenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
1,4-Dichlorobenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	

Parameter	Result	RL	Units	Date	Time	By	Reference	
2-Hexanone	ND	55	ug/kg	01/27/12		R/J	SW8260	
4-Methyl-2-pentanone	ND	55	ug/kg	01/27/12		R/J	SW8260	
Acetone	ND	110	ug/kg	01/27/12		R/J	SW8260	
Benzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Bromochloromethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Bromodichloromethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Bromoform	ND	11	ug/kg	01/27/12		R/J	SW8260	
Bromomethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Carbon Disulfide	ND	11	ug/kg	01/27/12		R/J	SW8260	
Carbon tetrachloride	ND	11	ug/kg	01/27/12		R/J	SW8260	
Chlorobenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Chloroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Chloroform	ND	11	ug/kg	01/27/12		R/J	SW8260	
Chloromethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
cis-1,2-Dichloroethene	ND	11	ug/kg	01/27/12		R/J	SW8260	
cis-1,3-Dichloropropene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Cyclohexane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Dibromochloromethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Dibromoethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Dichlorodifluoromethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Ethylbenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Isopropylbenzene	ND	11	ug/kg	01/27/12		R/J	SW8260	
m&p-Xylene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Methyl ethyl ketone	ND	65	ug/kg	01/27/12		R/J	SW8260	
Methyl t-butyl ether (MTBE)	ND	22	ug/kg	01/27/12		R/J	SW8260	
Methylacetate	ND	11	ug/kg	01/27/12		R/J	SW8260	
Methylcyclohexane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Methylene chloride	ND	11	ug/kg	01/27/12		R/J	SW8260	
o-Xylene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Styrene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Tetrachloroethene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Toluene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Total Xylenes	ND	11	ug/kg	01/27/12		R/J	SW8260	
trans-1,2-Dichloroethene	ND	11	ug/kg	01/27/12		R/J	SW8260	
trans-1,3-Dichloropropene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Trichloroethene	ND	11	ug/kg	01/27/12		R/J	SW8260	
Trichlorofluoromethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Trichlorotrifluoroethane	ND	11	ug/kg	01/27/12		R/J	SW8260	
Vinyl chloride	ND	11	ug/kg	01/27/12		R/J	SW8260	
QA/QC Surrogates								
% 1,2-dichlorobenzene-d4	154		%	01/27/12		R/J	70 - 130 %	3
% Bromofluorobenzene	74		%	01/27/12		R/J	70 - 130 %	
% Dibromofluoromethane	96		%	01/27/12		R/J	70 - 130 %	
% Toluene-d8	89		%	01/27/12		R/J	70 - 130 %	
1,4-dioxane								
1,4-dioxane	ND	190	ug/kg	01/27/12		R/J	SW8260	
QA/QC Surrogates								
% 1,2-dichlorobenzene-d4	155		%	01/27/12		R/J	70 - 130 %	3
% Bromofluorobenzene	80		%	01/27/12		R/J	70 - 130 %	
% Toluene-d8	93		%	01/27/12		R/J	70 - 130 %	

Parameter	Result	RL	Units	Date	Time	By	Reference	
Library Search Top 15	Completed			01/30/12		KCA		
Semivolatiles								
1,1-Biphenyl	ND	260	ug/Kg	01/26/12		KCA	SW 8270	1
1,2,4,5-Tetrachlorobenzene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,3,4,6-tetrachlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4,5-Trichlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4,6-Trichlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dichlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dimethylphenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrophenol	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
2,4-Dinitrotoluene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2,6-Dinitrotoluene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Chloronaphthalene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Chlorophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylnaphthalene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Methylphenol (o-cresol)	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitroaniline	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
2-Nitrophenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
3&4-Methylphenol (m&p-cresol)	ND	370	ug/Kg	01/26/12		KCA	SW 8270	
3,3'-Dichlorobenzidine	ND	440	ug/Kg	01/26/12		KCA	SW 8270	
3-Nitroaniline	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
4,6-Dinitro-2-methylphenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
4-Bromophenyl phenyl ether	ND	370	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloro-3-methylphenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
4-Chloroaniline	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
4-Chlorophenyl phenyl ether	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitroaniline	ND	590	ug/Kg	01/26/12		KCA	SW 8270	
4-Nitrophenol	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Acenaphthylene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Acetophenone	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Anthracene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Atrazine	ND	260	ug/Kg	01/26/12		KCA	SW 8270	1
Benz(a)anthracene	1900	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzaldehyde	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(a)pyrene	1800	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(b)fluoranthene	2600	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(ghi)perylene	530	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzo(k)fluoranthene	870	260	ug/Kg	01/26/12		KCA	SW 8270	
Benzyl butyl phthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethoxy)methane	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroethyl)ether	ND	370	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-chloroisopropyl)ether	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Bis(2-ethylhexyl)phthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Caprolactam	ND	260	ug/Kg	01/26/12		KCA	SW 8270	1
Carbazole	ND	1100	ug/Kg	01/26/12		KCA	SW 8270	
Chrysene	2200	260	ug/Kg	01/26/12		KCA	SW 8270	
Dibenz(a,h)anthracene	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Dibenzofuran	ND	260	ug/Kg	01/26/12		KCA	SW 8270	
Diethyl phthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270	

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-8

Phoenix I.D.: BB37065

Parameter	Result	RL	Units	Date	Time	By	Reference
Dimethylphthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Di-n-butylphthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Di-n-octylphthalate	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Fluoranthene	1800	260	ug/Kg	01/26/12		KCA	SW 8270
Fluorene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobenzene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorobutadiene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachlorocyclopentadiene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Hexachloroethane	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	470	260	ug/Kg	01/26/12		KCA	SW 8270
Isophorone	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Naphthalene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Nitrobenzene	ND	260	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodimethylamine	ND	370	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodi-n-propylamine	ND	260	ug/Kg	01/26/12		KCA	SW 8270
N-Nitrosodiphenylamine	ND	370	ug/Kg	01/26/12		KCA	SW 8270
Pentachlorophenol	ND	370	ug/Kg	01/26/12		KCA	SW 8270
Phenanthrene	860	260	ug/Kg	01/26/12		KCA	SW 8270
Phenol	ND	260	ug/Kg	01/26/12		KCA	SW 8270
Pyrene	2700	260	ug/Kg	01/26/12		KCA	SW 8270
QA/QC Surrogates							
% 2,4,6-Tribromophenol	105		%	01/26/12		KCA	15 - 130 %
% 2-Fluorobiphenyl	83		%	01/26/12		KCA	15 - 130 %
% 2-Fluorophenol	81		%	01/26/12		KCA	15 - 130 %
% Nitrobenzene-d5	74		%	01/26/12		KCA	15 - 130 %
% Phenol-d5	80		%	01/26/12		KCA	15 - 130 %
% Terphenyl-d14	72		%	01/26/12		KCA	15 - 130 %

1 = This parameter is not certified by NY NELAC for this matrix. NY NELAC does not offer certification for all parameters.
3 = This parameter exceeds laboratory specified limits.

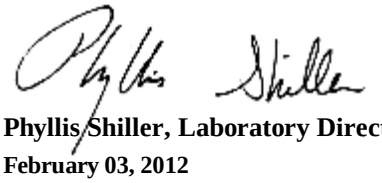
Comments:

**Surrogate recoveries were outside control limits for volatiles due to matrix interference. Sample was analyzed twice with similar results.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

PHOENIX

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:25
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37066

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-9

Parameter	Result	RL	Units	Date	Time	By	Reference
Percent Solid	94		%	01/25/12		JL	E160.3
Soil Extraction SVOA BN	Completed			01/25/12		BB/R	SW3545
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
1,3,5-Trimethylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
Benzene	ND	2.5	ug/Kg	01/26/12		R/J	8021/8260
Ethylbenzene	ND	2.5	ug/Kg	01/26/12		R/J	8021/8260
Isopropylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
m&p-Xylene	ND	2.5	ug/Kg	01/26/12		R/J	8021/8260
Methyl t-Butyl Ether (MTBE)	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
Naphthalene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
n-Butylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
n-Propylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
o-Xylene	ND	2.5	ug/Kg	01/26/12		R/J	8021/8260
p-Isopropyltoluene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
sec-Butylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
tert-Butylbenzene	ND	1.3	ug/Kg	01/26/12		R/J	8021/8260
Toluene	ND	2.5	ug/Kg	01/26/12		R/J	8021/8260
Total Xylenes	ND	2.5	ug/Kg	01/26/12		R/J	8021/8260
QA/QC Surrogates							
% 1,2-Dichlorobenzene-d4	101		%	01/26/12		R/J	70 - 130 %
% Bromofluorobenzene	94		%	01/26/12		R/J	70 - 130 %
% Dibromofluoromethane	106		%	01/26/12		R/J	70 - 130 %
% Toluene-d8	98		%	01/26/12		R/J	70 - 130 %
Semivolatiles							
Acenaphthene	ND	250	ug/Kg	01/25/12		KCA	SW 8270

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-9

Phoenix I.D.: BB37066

Parameter	Result	RL	Units	Date	Time	By	Reference
Acenaphthylene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Anthracene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Benz(a)anthracene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Benzo(a)pyrene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Benzo(b)fluoranthene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Benzo(ghi)perylene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Benzo(k)fluoranthene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Chrysene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Dibenz(a,h)anthracene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Fluoranthene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Fluorene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Naphthalene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Phenanthrene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
Pyrene	ND	250	ug/Kg	01/25/12		KCA	SW 8270
QA/QC Surrogates							
% 2-Fluorobiphenyl	73		%	01/25/12		KCA	30 - 130 %
% Nitrobenzene-d5	81		%	01/25/12		KCA	30 - 130 %
% Terphenyl-d14	72		%	01/25/12		KCA	30 - 130 %

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

PHOENIX

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

Analysis Report

February 03, 2012

FOR: Attn: Mr. Paul Stellato
IVI Environmental
55 West Red Oak Lane
White Plains, NY 10604

Sample Information		Custody Information		Date	Time
Matrix:	SOIL	Collected by:	PS	01/24/12	11:30
Location Code:	IVI-ENV	Received by:	LB	01/25/12	17:32
Rush Request:	Standard	Analyzed by:	see "By" below		
P.O.#:	E12014016				

Laboratory Data

SDG ID: GBB37060
Phoenix ID: BB37067

Project ID: TUCK IT AWAY SELF STORAGE

Client ID: B-10

Parameter	Result	RL	Units	Date	Time	By	Reference
Percent Solid	94		%	01/25/12		JL	E160.3
Soil Extraction SVOA BN	Completed			01/25/12		BB/R	SW3545
Volatile Organic Compounds							
1,2,4-Trimethylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
1,3,5-Trimethylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
Benzene	ND	1.7	ug/Kg	01/26/12		R/J	8021/8260
Ethylbenzene	ND	1.7	ug/Kg	01/26/12		R/J	8021/8260
Isopropylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
m&p-Xylene	ND	1.7	ug/Kg	01/26/12		R/J	8021/8260
Methyl t-Butyl Ether (MTBE)	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
Naphthalene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
n-Butylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
n-Propylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
o-Xylene	ND	1.7	ug/Kg	01/26/12		R/J	8021/8260
p-Isopropyltoluene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
sec-Butylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
tert-Butylbenzene	ND	0.84	ug/Kg	01/26/12		R/J	8021/8260
Toluene	ND	1.7	ug/Kg	01/26/12		R/J	8021/8260
Total Xylenes	ND	1.7	ug/Kg	01/26/12		R/J	8021/8260
QA/QC Surrogates							
% 1,2-Dichlorobenzene-d4	99		%	01/26/12		R/J	70 - 130 %
% Bromofluorobenzene	87		%	01/26/12		R/J	70 - 130 %
% Dibromofluoromethane	101		%	01/26/12		R/J	70 - 130 %
% Toluene-d8	97		%	01/26/12		R/J	70 - 130 %
Semivolatiles							
Acenaphthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270

Project ID: TUCK IT AWAY SELF STORAGE
Client ID: B-10

Phoenix I.D.: BB37067

Parameter	Result	RL	Units	Date	Time	By	Reference
Acenaphthylene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Anthracene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Benz(a)anthracene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Benzo(a)pyrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Benzo(b)fluoranthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Benzo(ghi)perylene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Benzo(k)fluoranthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Chrysene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Dibenz(a,h)anthracene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Fluoranthene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Fluorene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Indeno(1,2,3-cd)pyrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Naphthalene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Phenanthrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
Pyrene	ND	250	ug/Kg	01/26/12		KCA	SW 8270
QA/QC Surrogates							
% 2-Fluorobiphenyl	77		%	01/26/12		KCA	30 - 130 %
% Nitrobenzene-d5	87		%	01/26/12		KCA	30 - 130 %
% Terphenyl-d14	71		%	01/26/12		KCA	30 - 130 %

Comments:

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

ND=Not detected BDL=Below Detection Level RL=Reporting Level

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Phyllis Shiller, Laboratory Director
February 03, 2012

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-3

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water): SOIL Lab Sample ID: BB37060

Sample wt/vol: 3.2 (g/mL) g Lab File ID: 0126M02.D

Level: (low/med): Low Date Received: 01/25/12

% Moisture: not dec. 10 Date Analyzed: 01/26/12

GC Column: rtx-vms ID: 0.18 (mm) Dilution Factor: 1

Soil Extract Volume: 5000 (uL) Soil Aliquot Vol (uL): 5000

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-4

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water): SOIL Lab Sample ID: BB37061

Sample wt/vol: 4.47 (g/mL) g Lab File ID: 0126M03.D

Level: (low/med): Low Date Received: 01/25/12

% Moisture: not dec. 7 Date Analyzed: 01/26/12

GC Column: rtx-vms ID: 0.18 (mm) Dilution Factor: 1

Soil Extract Volume: 5000 (uL) Soil Aliquot Vol (uL): 5000

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-5

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water): SOIL Lab Sample ID: BB37062

Sample wt/vol: 3.2 (g/mL) g Lab File ID: 0127M24.D

Level: (low/med): Low Date Received: 01/25/12

% Moisture: not dec. 7 Date Analyzed: 01/27/12

GC Column: rtx-vms ID: 0.18 (mm) Dilution Factor: 1

Soil Extract Volume: 5000 (uL) Soil Aliquot Vol (uL): 5000

Number TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	unknown	4.710	140	JN
002216-33-3	Octane, 3-methyl-	4.780	120	JN
005911-04-6	Nonane, 3-methyl-	5.380	190	JN
015869-89-3	Octane, 2,5-dimethyl-	5.620	120	JN
000124-18-5	Decane	5.940	120	JN
000611-14-3	Benzene, 1-ethyl-2-methyl-	6.240	100	JN
	unknown	6.780	130	JN
000874-41-9	Benzene, 1-ethyl-2,4-dimethyl-	7.110	110	JN
000527-53-7	Benzene, 1,2,3,5-tetramethyl-	7.440	110	JN
001560-06-1	Benzene, 2-butenyl-	7.720	110	JN

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-6

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water): SOIL Lab Sample ID: BB37063

Sample wt/vol: 5.12 (g/mL) g Lab File ID: 0126M05.D

Level: (low/med): Low Date Received: 01/25/12

% Moisture: not dec. 11 Date Analyzed: 01/26/12

GC Column: rtx-vms ID: 0.18 (mm) Dilution Factor: 1

Soil Extract Volume: 5000 (uL) Soil Aliquot Vol (uL): 5000

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-7

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water): SOIL Lab Sample ID: BB37064

Sample wt/vol: 4.28 (g/mL) g Lab File ID: 0126M06.D

Level: (low/med): Low Date Received: 01/25/12

% Moisture: not dec. 15 Date Analyzed: 01/26/12

GC Column: rtx-vms ID: 0.18 (mm) Dilution Factor: 1

Soil Extract Volume: 5000 (uL) Soil Aliquot Vol (uL): 5000

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-8

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water): SOIL Lab Sample ID: BB37065

Sample wt/vol: 7.72 (g/mL) g Lab File ID: 0127M25.D

Level: (low/med): Meth Date Received: 01/25/12

% Moisture: not dec. 12 Date Analyzed: 01/27/12

GC Column: rtx-vms ID: 0.18 (mm) Dilution Factor: 38.5

Soil Extract Volume: 10000 (uL) Soil Aliquot Vol (uL): 130

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	unknown	7.720	320	JN

FORM I VOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-3

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water) SOIL Lab Sample ID: BB37060

Sample wt/vol: 15.03 (g/mL) g Lab File ID: 0127_19.D

Level: (low/med) Low Date Received: 01/25/12

% Moisture: not dec. 10 decanted:(Y/N) NA Date Extracted: 01/25/12

GPC Cleanup (Y/N): N pH: NA Date Analyzed: 1/27/2012

Conc. Extract Volume: 1000 (uL) Dilution Factor 2

Injection Volume: 2 (uL)

Number TICs found: 7 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
004161-60-8	2-Pentanone, 4-hydroxy-	4.116	640	JN
000123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.315	34000	JNA
	unknown	11.745	980	JN
000243-42-5	Benzo[b]naphtho[2,3-d]furan	11.902	760	JN
000243-17-4	11H-Benzo[b]fluorene	12.447	610	JN
000192-97-2	Benzo[e]pyrene	16.658	3800	JN
000198-55-0	Perylene	16.968	11000	JN

FORM I SEMIVOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-4

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water) SOIL Lab Sample ID: BB37061

Sample wt/vol: 15.3 (g/mL) g Lab File ID: 0125_20.D

Level: (low/med) Low Date Received: 01/25/12

% Moisture: not dec. 7 decanted:(Y/N) NA Date Extracted: 01/25/12

GPC Cleanup (Y/N): N pH: NA Date Analyzed: 1/26/2012

Conc. Extract Volume: 1000 (uL) Dilution Factor 1

Injection Volume: 2 (uL)

Number TICs found: 3 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
004161-60-8	2-Pentanone, 4-hydroxy-	4.253	800	JN
000123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.472	19000	JNA
000113-00-8	Guanidine	4.475	7800	JN

FORM I SEMIVOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-5

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water) SOIL Lab Sample ID: BB37062

Sample wt/vol: 15.08 (g/mL) g Lab File ID: 0125_29.D

Level: (low/med) Low Date Received: 01/25/12

% Moisture: not dec. 7 decanted:(Y/N) NA Date Extracted: 01/25/12

GPC Cleanup (Y/N): N pH: NA Date Analyzed: 1/26/2012

Conc. Extract Volume: 1000 (uL) Dilution Factor 1

Injection Volume: 2 (uL)

Number TICs found: 15 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
000123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.449	12000	JNA
000611-14-3	Benzene, 1-ethyl-2-methyl-	5.583	970	JN
000124-18-5	Decane	5.648	940	JN
000526-73-8	Benzene, 1,2,3-trimethyl-	5.696	930	JN
000496-11-7	Indane	6.046	600	JN
000934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	6.128	1700	JN
002870-04-4	Benzene, 2-ethyl-1,3-dimethyl-	6.131	680	JN
000105-05-5	Benzene, 1,4-diethyl-	6.134	970	JN
001074-55-1	Benzene, 1-methyl-4-propyl-	6.214	700	JN
000934-80-5	Benzene, 4-ethyl-1,2-dimethyl-	6.273	980	JN
000527-84-4	Benzene, 1-methyl-2-(1-methylethyl)-	6.299	440	JN
000095-93-2	Benzene, 1,2,4,5-tetramethyl-	6.569	610	JN
000488-23-3	Benzene, 1,2,3,4-tetramethyl-	6.597	960	JN
003333-13-9	Benzene, 1-methyl-4-(2-propenyl)-	6.830	980	JN
003333-13-9	Benzene, 1-methyl-4-(2-propenyl)-	6.833	1100	JN

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-6

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water) SOIL Lab Sample ID: BB37063

Sample wt/vol: 15.27 (g/mL) g Lab File ID: 0125_44.D

Level: (low/med) Low Date Received: 01/25/12

% Moisture: not dec. 11 decanted:(Y/N) NA Date Extracted: 01/25/12

GPC Cleanup (Y/N): N pH: NA Date Analyzed: 1/26/2012

Conc. Extract Volume: 1000 (uL) Dilution Factor 1

Injection Volume: 2 (uL)

Number TICs found: 2 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
003031-75-2	Hydroperoxide, 1-methylethyl	4.070	1900	JN
000123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.290	46000	JNA

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-7

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water) SOIL Lab Sample ID: BB37064

Sample wt/vol: 15.15 (g/mL) g Lab File ID: 0125_21.D

Level: (low/med) Low Date Received: 01/25/12

% Moisture: not dec. 15 decanted:(Y/N) NA Date Extracted: 01/25/12

GPC Cleanup (Y/N): N pH: NA Date Analyzed: 1/26/2012

Conc. Extract Volume: 1000 (uL) Dilution Factor 1

Injection Volume: 2 (uL)

Number TICs found: 5 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
004161-60-8	2-Pentanone, 4-hydroxy-	4.287	1400	JN
000113-00-8	Guanidine	4.475	8500	JN
000123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.477	6200	JNA
1000306-64-4	2,3-Dimethyloxirane-2-carboxylic acid, methyl este	4.480	3400	JN
002531-84-2	Phenanthrene, 2-methyl-	10.956	340	JN

FORM I SEMIVOA-TIC

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT ID: B-8

Lab Name: Phoenix Environmental Labs Client: IVI-ENV

Lab Code: Phoenix Case No.: SAS No.: SDG No.: GBB37060

Matrix:(soil/water) SOIL Lab Sample ID: BB37065

Sample wt/vol: 15.36 (g/mL) g Lab File ID: 0125_18.D

Level: (low/med) Low Date Received: 01/25/12

% Moisture: not dec. 12 decanted:(Y/N) NA Date Extracted: 01/25/12

GPC Cleanup (Y/N): N pH: NA Date Analyzed: 1/26/2012

Conc. Extract Volume: 1000 (uL) Dilution Factor 1

Injection Volume: 2 (uL)

Number TICs found: 11 CONCENTRATION UNITS: (ug/L or ug/KG) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
000763-93-9	3-Hexen-2-one	4.080	610	JN
004161-60-8	2-Pentanone, 4-hydroxy-	4.253	1100	JNA
000113-00-8	Guanidine	4.466	17000	JN
000123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.475	6900	JN
000057-10-3	n-Hexadecanoic acid	10.842	490	JN
1000130-81-0	11,13-Dimethyl-12-tetradecen-1-ol acetate	14.278	810	JN
301643-32-3	Cyclohexene, 4-(4-ethylcyclohexyl)-1-pentyl-	14.281	2100	JN
055334-01-5	Phenanthrene, 9-dodecyltetradecahydro-	20.083	370	JN
098496-82-3	Antra-9,10-quinone, 1-(3-hydrohy-3-phenyl-1-triaze	20.088	380	JN
	unknown	20.094	1400	JN
	unknown	20.097	560	JN

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

NY # 11301

QA/QC Report

February 03, 2012

QA/QC Data

SDG I.D.: GBB37060

Parameter	Blank	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 193220, QC Sample No: BB36639 (BB37060, BB37061, BB37062, BB37063, BB37064, BB37065)													
Mercury - Soil	BDL	<0.09	<0.10	NC	94.5	97.0	2.6	113	114	0.9	70 - 130	30	
QA/QC Batch 193191, QC Sample No: BB36764 (BB37060, BB37061, BB37062, BB37063, BB37064, BB37065)													
ICP Metals - Soil													
Arsenic	BDL	6.21	6.18	0.50	94.7	99.9	5.3	90.5	88.6	2.1	75 - 125	30	
Barium	BDL	53.3	58.1	8.60	103	105	1.9	>130	>130	NC	75 - 125	30	m
Cadmium	BDL	<0.45	<0.43	NC	105	107	1.9	90.6	90.0	0.7	75 - 125	30	
Chromium	BDL	27.7	25.3	9.10	105	108	2.8	90.3	93.2	3.2	75 - 125	30	
Lead	BDL	25.1	20.2	21.6	95.9	98.3	2.5	97.7	96.9	0.8	75 - 125	30	
Selenium	BDL	<0.45	<1.7	NC	98.8	98.7	0.1	87.8	87.2	0.7	75 - 125	30	
Silver	BDL	<0.45	<0.43	NC	93.5	112	18.0	97.0	95.4	1.7	75 - 125	30	

m = This parameter is outside laboratory ms/msd specified recovery limits.

PHOENIX

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ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

QA/QC Report

February 03, 2012

QA/QC Data

SDG I.D.: GBB37060

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
QA/QC Batch 193372, QC Sample No: BB36492 (BB37060, BB37061, BB37063, BB37064)										
Volatiles - Soil										
1,1,1-Trichloroethane	ND	106	102	3.8	93	104	11.2	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	106	109	2.8	99	95	4.1	70 - 130	30	
1,1,2-Trichloroethane	ND	110	110	0.0	101	99	2.0	70 - 130	30	
1,1-Dichloroethane	ND	111	83	28.9	90	113	22.7	70 - 130	30	
1,1-Dichloroethene	ND	74	71	4.1	95	92	3.2	70 - 130	30	
1,2,3-Trichlorobenzene	ND	108	116	7.1	107	88	19.5	70 - 130	30	
1,2,4-Trichlorobenzene	ND	110	111	0.9	113	91	21.6	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	118	117	0.9	88	84	4.7	70 - 130	30	
1,2-Dichlorobenzene	ND	110	110	0.0	107	96	10.8	70 - 130	30	
1,2-Dichloroethane	ND	103	103	0.0	102	99	3.0	70 - 130	30	
1,2-Dichloropropane	ND	107	105	1.9	100	97	3.0	70 - 130	30	
1,3-Dichlorobenzene	ND	111	112	0.9	110	96	13.6	70 - 130	30	
1,4-Dichlorobenzene	ND	111	110	0.9	111	97	13.5	70 - 130	30	
2-Hexanone	ND	113	102	10.2	85	84	1.2	70 - 130	30	
4-Methyl-2-pentanone	ND	111	105	5.6	91	91	0.0	70 - 130	30	
Acetone	ND	149	114	26.6	46	50	8.3	70 - 130	30	l,m
Benzene	ND	100	98	2.0	103	97	6.0	70 - 130	30	
Bromochloromethane	ND	119	89	28.8	91	116	24.2	70 - 130	30	
Bromodichloromethane	ND	110	110	0.0	103	100	3.0	70 - 130	30	
Bromoform	ND	121	117	3.4	94	96	2.1	70 - 130	30	
Bromomethane	ND	53	53	0.0	68	69	1.5	70 - 130	30	l,m
Carbon Disulfide	ND	74	69	7.0	90	88	2.2	70 - 130	30	l
Carbon tetrachloride	ND	109	102	6.6	92	103	11.3	70 - 130	30	
Chlorobenzene	ND	112	110	1.8	108	102	5.7	70 - 130	30	
Chloroethane	ND	68	62	9.2	<40	<40	NC	70 - 130	30	l,m
Chloroform	ND	110	93	16.7	92	109	16.9	70 - 130	30	
Chloromethane	ND	46	44	4.4	103	98	5.0	70 - 130	30	l
cis-1,2-Dichloroethene	ND	117	87	29.4	88	114	25.7	70 - 130	30	
cis-1,3-Dichloropropene	ND	111	110	0.9	101	96	5.1	70 - 130	30	
Dibromochloromethane	ND	115	120	4.3	105	100	4.9	70 - 130	30	
Dibromoethane	ND	114	113	0.9	97	97	0.0	70 - 130	30	
Dichlorodifluoromethane	ND	<40	<40	NC	111	108	2.7	70 - 130	30	l
Ethylbenzene	ND	110	108	1.8	108	99	8.7	70 - 130	30	
Isopropylbenzene	ND	125	124	0.8	108	94	13.9	70 - 130	30	
m&p-Xylene	ND	111	107	3.7	109	98	10.6	70 - 130	30	
Methyl ethyl ketone	ND	89	85	4.6	54	64	16.9	70 - 130	30	m
Methyl t-butyl ether (MTBE)	ND	100	101	1.0	99	98	1.0	70 - 130	30	
Methylene chloride	ND	84	82	2.4	93	92	1.1	70 - 130	30	
o-Xylene	ND	58	56	3.5	55	51	7.5	70 - 130	30	l,m
Styrene	ND	123	121	1.6	116	109	6.2	70 - 130	30	
Tetrachloroethene	ND	107	105	1.9	108	97	10.7	70 - 130	30	

QA/QC Data

SDG I.D.: GBB37060

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Toluene	ND	108	104	3.8	105	99	5.9	70 - 130	30	
trans-1,2-Dichloroethene	ND	92	87	5.6	101	100	1.0	70 - 130	30	
trans-1,3-Dichloropropene	ND	112	110	1.8	104	97	7.0	70 - 130	30	
Trichloroethene	ND	109	103	5.7	105	97	7.9	70 - 130	30	
Trichlorofluoromethane	ND	77	71	8.1	54	47	13.9	70 - 130	30	m
Trichlorotrifluoroethane	ND	80	75	6.5	101	97	4.0	70 - 130	30	
Vinyl chloride	ND	56	51	9.3	113	112	0.9	70 - 130	30	l
% 1,2-dichlorobenzene-d4	100	97	99	2.0	100	99	1.0	70 - 130	30	
% Bromofluorobenzene	97	101	99	2.0	99	102	3.0	70 - 130	30	
% Dibromofluoromethane	102	111	108	2.7	85	110	25.6	70 - 130	30	
% Toluene-d8	99	99	100	1.0	97	99	2.0	70 - 130	30	
QA/QC Batch 193122, QC Sample No: BB36554 (BB37066, BB37067)										
Polynuclear Aromatic HC - Soil										
Acenaphthene	ND	88	86	2.3	86	87	1.2	30 - 130	30	
Acenaphthylene	ND	86	87	1.2	83	85	2.4	30 - 130	30	
Anthracene	ND	91	89	2.2	88	89	1.1	30 - 130	30	
Benz(a)anthracene	ND	95	94	1.1	95	94	1.1	30 - 130	30	
Benzo(a)pyrene	ND	88	88	0.0	86	87	1.2	30 - 130	30	
Benzo(b)fluoranthene	ND	88	90	2.2	91	93	2.2	30 - 130	30	
Benzo(ghi)perylene	ND	100	99	1.0	94	81	14.9	30 - 130	30	
Benzo(k)fluoranthene	ND	86	87	1.2	81	81	0.0	30 - 130	30	
Chrysene	ND	91	89	2.2	90	90	0.0	30 - 130	30	
Dibenz(a,h)anthracene	ND	107	105	1.9	102	92	10.3	30 - 130	30	
Fluoranthene	ND	95	94	1.1	98	98	0.0	30 - 130	30	
Fluorene	ND	97	96	1.0	94	95	1.1	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	104	103	1.0	99	88	11.8	30 - 130	30	
Naphthalene	ND	85	83	2.4	82	81	1.2	30 - 130	30	
Phenanthrene	ND	96	95	1.0	96	95	1.0	30 - 130	30	
Pyrene	ND	99	97	2.0	102	102	0.0	30 - 130	30	
% 2-Fluorobiphenyl	66	86	86	0.0	87	87	0.0	30 - 130	30	
% Nitrobenzene-d5	66	73	74	1.4	71	71	0.0	30 - 130	30	
% Terphenyl-d14	67	78	77	1.3	78	78	0.0	30 - 130	30	
QA/QC Batch 193363, QC Sample No: BB36636 (BB37066, BB37067)										
Volatiles - Soil										
1,2,4-Trimethylbenzene	ND	99	98	1.0	112	96	15.4	70 - 130	30	
1,3,5-Trimethylbenzene	ND	101	102	1.0	115	98	16.0	70 - 130	30	
Benzene	ND	102	104	1.9	110	110	0.0	70 - 130	30	
Ethylbenzene	ND	105	101	3.9	112	106	5.5	70 - 130	30	
Isopropylbenzene	ND	103	110	6.6	120	104	14.3	70 - 130	30	
m&p-Xylene	ND	104	99	4.9	110	105	4.7	70 - 130	30	
Methyl t-butyl ether (MTBE)	ND	90	86	4.5	75	97	25.6	70 - 130	30	
Naphthalene	ND	103	102	1.0	100	106	5.8	70 - 130	30	
n-Butylbenzene	ND	85	83	2.4	94	78	18.6	70 - 130	30	
n-Propylbenzene	ND	94	96	2.1	116	98	16.8	70 - 130	30	
o-Xylene	ND	105	97	7.9	108	107	0.9	70 - 130	30	
p-Isopropyltoluene	ND	99	94	5.2	112	93	18.5	70 - 130	30	
sec-Butylbenzene	ND	96	86	11.0	112	98	13.3	70 - 130	30	
tert-Butylbenzene	ND	104	102	1.9	121	105	14.2	70 - 130	30	
Toluene	ND	108	103	4.7	111	109	1.8	70 - 130	30	
% 1,2-dichlorobenzene-d4	98	99	101	2.0	100	101	1.0	70 - 130	30	
% Bromofluorobenzene	94	100	96	4.1	96	100	4.1	70 - 130	30	
% Dibromofluoromethane	94	103	92	11.3	100	104	3.9	70 - 130	30	

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
% Toluene-d8	96	99	99	0.0	100	100	0.0	70 - 130	30	

Comment:

A blank MS/MSD was analyzed with this batch.

QA/QC Batch 193194, QC Sample No: BB37017 (BB37060, BB37061, BB37062, BB37063, BB37064, BB37065)

Semivolatiles - Soil

1,1-Biphenyl	ND	78	78	0.0	96	95	1.0	30 - 130	30	
1,2,4,5-Tetrachlorobenzene	ND	67	65	3.0	79	81	2.5	30 - 130	30	
2,3,4,6-tetrachlorophenol	ND	73	73	0.0	103	110	6.6	30 - 130	30	
2,4,5-Trichlorophenol	ND	76	76	0.0	95	96	1.0	30 - 130	30	
2,4,6-Trichlorophenol	ND	81	79	2.5	99	100	1.0	30 - 130	30	
2,4-Dichlorophenol	ND	74	71	4.1	87	89	2.3	30 - 130	30	
2,4-Dimethylphenol	ND	38	39	2.6	45	46	2.2	30 - 130	30	
2,4-Dinitrophenol	ND	20	20	0.0	NC	NC	NC	30 - 130	30	l
2,4-Dinitrotoluene	ND	82	82	0.0	107	111	3.7	30 - 130	30	
2,6-Dinitrotoluene	ND	84	83	1.2	103	104	1.0	30 - 130	30	
2-Chloronaphthalene	ND	78	78	0.0	96	95	1.0	30 - 130	30	
2-Chlorophenol	ND	69	69	0.0	84	84	0.0	30 - 130	30	
2-Methylnaphthalene	ND	74	72	2.7	88	91	3.4	30 - 130	30	
2-Methylphenol (o-cresol)	ND	64	63	1.6	77	77	0.0	30 - 130	30	
2-Nitroaniline	ND	>150	>150	NC	NC	NC	NC	30 - 130	30	l
2-Nitrophenol	ND	76	76	0.0	95	98	3.1	30 - 130	30	
3&4-Methylphenol (m&p-cresol)	ND	66	66	0.0	77	78	1.3	30 - 130	30	
3,3'-Dichlorobenzidine	ND	55	53	3.7	78	80	2.5	30 - 130	30	
3-Nitroaniline	ND	142	139	2.1	NC	NC	NC	30 - 130	30	l
4,6-Dinitro-2-methylphenol	ND	58	57	1.7	84	67	22.5	30 - 130	30	
4-Bromophenyl phenyl ether	ND	76	75	1.3	78	74	5.3	30 - 130	30	
4-Chloro-3-methylphenol	ND	73	70	4.2	84	88	4.7	30 - 130	30	
4-Chloroaniline	ND	40	40	0.0	43	47	8.9	30 - 130	30	
4-Chlorophenyl phenyl ether	ND	76	75	1.3	93	89	4.4	30 - 130	30	
4-Nitroaniline	ND	85	86	1.2	106	105	0.9	30 - 130	30	
4-Nitrophenol	ND	90	91	1.1	143	138	3.6	30 - 130	30	m
Acenaphthene	ND	76	77	1.3	93	92	1.1	30 - 130	30	
Acenaphthylene	ND	75	75	0.0	99	101	2.0	30 - 130	30	
Acetophenone	ND	71	71	0.0	83	84	1.2	30 - 130	30	
Anthracene	ND	79	79	0.0	109	105	3.7	30 - 130	30	
Atrazine	ND	114	117	2.6	145	130	10.9	30 - 130	30	m
Benz(a)anthracene	ND	83	84	1.2	102	103	1.0	30 - 130	30	
Benzaldehyde	ND	88	87	1.1	99	103	4.0	30 - 130	30	
Benzo(a)pyrene	ND	78	79	1.3	95	98	3.1	30 - 130	30	
Benzo(b)fluoranthene	ND	87	87	0.0	95	98	3.1	30 - 130	30	
Benzo(ghi)perylene	ND	79	78	1.3	108	109	0.9	30 - 130	30	
Benzo(k)fluoranthene	ND	84	86	2.4	112	113	0.9	30 - 130	30	
Benzyl butyl phthalate	ND	95	97	2.1	134	129	3.8	30 - 130	30	m
Bis(2-chloroethoxy)methane	ND	77	77	0.0	91	93	2.2	30 - 130	30	
Bis(2-chloroethyl)ether	ND	72	73	1.4	85	87	2.3	30 - 130	30	
Bis(2-chloroisopropyl)ether	ND	79	78	1.3	90	93	3.3	30 - 130	30	
Bis(2-ethylhexyl)phthalate	ND	93	94	1.1	123	121	1.6	30 - 130	30	
Caprolactam	ND	72	71	1.4	84	89	5.8	30 - 130	30	
Carbazole	ND	122	125	2.4	NC	NC	NC	30 - 130	30	
Chrysene	ND	83	82	1.2	98	101	3.0	30 - 130	30	
Dibenz(a,h)anthracene	ND	79	78	1.3	109	108	0.9	30 - 130	30	
Dibenzofuran	ND	76	75	1.3	93	93	0.0	30 - 130	30	

QA/QC Data

SDG I.D.: GBB37060

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Diethyl phthalate	ND	79	78	1.3	95	94	1.1	30 - 130	30	
Dimethylphthalate	ND	79	78	1.3	95	92	3.2	30 - 130	30	
Di-n-butylphthalate	ND	97	98	1.0	130	112	14.9	30 - 130	30	
Di-n-octylphthalate	ND	78	77	1.3	111	113	1.8	30 - 130	30	
Fluoranthene	ND	109	112	2.7	NC	NC	NC	30 - 130	30	
Fluorene	ND	78	78	0.0	102	100	2.0	30 - 130	30	
Hexachlorobenzene	ND	83	82	1.2	90	86	4.5	30 - 130	30	
Hexachlorobutadiene	ND	71	71	0.0	84	87	3.5	30 - 130	30	
Hexachlorocyclopentadiene	ND	40	40	0.0	28	20	33.3	30 - 130	30	m,r
Hexachloroethane	ND	67	68	1.5	79	79	0.0	30 - 130	30	
Indeno(1,2,3-cd)pyrene	ND	80	79	1.3	108	110	1.8	30 - 130	30	
Isophorone	ND	62	62	0.0	74	74	0.0	30 - 130	30	
Naphthalene	ND	72	73	1.4	88	90	2.2	30 - 130	30	
Nitrobenzene	ND	75	75	0.0	88	89	1.1	30 - 130	30	
N-Nitrosodimethylamine	ND	67	58	14.4	76	50	41.3	30 - 130	30	r
N-Nitrosodi-n-propylamine	ND	72	72	0.0	84	85	1.2	30 - 130	30	
N-Nitrosodiphenylamine	ND	82	80	2.5	101	102	1.0	30 - 130	30	
Pentachlorophenol	ND	84	85	1.2	145	129	11.7	30 - 130	30	m
Phenanthrene	ND	82	82	0.0	104	105	1.0	30 - 130	30	
Phenol	ND	74	74	0.0	89	90	1.1	30 - 130	30	
Pyrene	ND	120	126	4.9	NC	126	NC	30 - 130	30	
% 2,4,6-Tribromophenol	80	87	92	5.6	100	96	4.1	15 - 130	30	
% 2-Fluorobiphenyl	68	73	73	0.0	90	88	2.2	30 - 130	30	
% 2-Fluorophenol	68	71	71	0.0	86	86	0.0	15 - 130	30	
% Nitrobenzene-d5	61	72	72	0.0	84	85	1.2	30 - 130	30	
% Phenol-d5	68	69	69	0.0	83	83	0.0	15 - 130	30	
% Terphenyl-d14	64	106	113	6.4	98	76	25.3	30 - 130	30	
QA/QC Batch 193535, QC Sample No: BB37065 (BB37062, BB37065)										
Volatiles - Soil										
1,1,1-Trichloroethane	ND	102	105	2.9	105	97	7.9	70 - 130	30	
1,1,2,2-Tetrachloroethane	ND	96	95	1.0	92	86	6.7	70 - 130	30	
1,1,2-Trichloroethane	ND	102	101	1.0	99	94	5.2	70 - 130	30	
1,1-Dichloroethane	ND	86	109	23.6	91	83	9.2	70 - 130	30	
1,1-Dichloroethene	ND	89	91	2.2	85	65	26.7	70 - 130	30	m
1,2,3-Trichlorobenzene	ND	106	105	0.9	105	104	1.0	70 - 130	30	
1,2,4-Trichlorobenzene	ND	108	111	2.7	117	111	5.3	70 - 130	30	
1,2-Dibromo-3-chloropropane	ND	107	106	0.9	83	83	0.0	70 - 130	30	
1,2-Dichlorobenzene	ND	101	102	1.0	108	97	10.7	70 - 130	30	
1,2-Dichloroethane	ND	99	101	2.0	98	90	8.5	70 - 130	30	
1,2-Dichloropropane	ND	97	98	1.0	98	94	4.2	70 - 130	30	
1,3-Dichlorobenzene	ND	104	107	2.8	111	102	8.5	70 - 130	30	
1,4-Dichlorobenzene	ND	103	106	2.9	110	101	8.5	70 - 130	30	
2-Hexanone	ND	103	97	6.0	84	85	1.2	70 - 130	30	
4-Methyl-2-pentanone	ND	102	104	1.9	94	88	6.6	70 - 130	30	
Acetone	ND	69	76	9.7		41		70 - 130	30	l,m
Benzene	ND	95	97	2.1	100	94	6.2	70 - 130	30	
Bromochloromethane	ND	107	114	6.3	112	105	6.5	70 - 130	30	
Bromodichloromethane	ND	103	107	3.8	99	95	4.1	70 - 130	30	
Bromoform	ND	113	116	2.6	98	91	7.4	70 - 130	30	
Bromomethane	ND	80	82	2.5	65	57	13.1	70 - 130	30	m
Carbon Disulfide	ND	94	99	5.2	82	64	24.7	70 - 130	30	m
Carbon tetrachloride	ND	109	113	3.6	105	98	6.9	70 - 130	30	

QA/QC Data

SDG I.D.: GBB37060

Parameter	Blank	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits	
Chlorobenzene	ND	102	105	2.9	108	98	9.7	70 - 130	30	
Chloroethane	ND	92	95	3.2	<40	<40	NC	70 - 130	30	m
Chloroform	ND	101	106	4.8	106	98	7.8	70 - 130	30	
Chloromethane	ND	77	80	3.8	90	84	6.9	70 - 130	30	
cis-1,2-Dichloroethene	ND	110	113	2.7	113	102	10.2	70 - 130	30	
cis-1,3-Dichloropropene	ND	104	106	1.9	102	98	4.0	70 - 130	30	
Dibromochloromethane	ND	112	110	1.8	101	97	4.0	70 - 130	30	
Dibromoethane	ND	105	107	1.9	98	95	3.1	70 - 130	30	
Dichlorodifluoromethane	ND	64	66	3.1	91	81	11.6	70 - 130	30	l
Ethylbenzene	ND	100	103	3.0	106	98	7.8	70 - 130	30	
Isopropylbenzene	ND	113	114	0.9	105	93	12.1	70 - 130	30	
m&p-Xylene	ND	102	104	1.9	108	101	6.7	70 - 130	30	
Methyl ethyl ketone	ND	74	70	5.6	65	64	1.6	70 - 130	30	m
Methyl t-butyl ether (MTBE)	ND	103	105	1.9	102	95	7.1	70 - 130	30	
Methylene chloride	ND	87	91	4.5	95	80	17.1	70 - 130	30	
o-Xylene	ND	52	53	1.9	55	51	7.5	70 - 130	30	l,m
Styrene	ND	112	106	5.5	116	99	15.8	70 - 130	30	
Tetrachloroethene	ND	106	106	0.0	112	104	7.4	70 - 130	30	
Toluene	ND	100	102	2.0	105	98	6.9	70 - 130	30	
trans-1,2-Dichloroethene	ND	98	100	2.0	101	91	10.4	70 - 130	30	
trans-1,3-Dichloropropene	ND	108	108	0.0	106	100	5.8	70 - 130	30	
Trichloroethene	ND	103	105	1.9	103	99	4.0	70 - 130	30	
Trichlorofluoromethane	ND	96	101	5.1	<40	<40	NC	70 - 130	30	m
Trichlorotrifluoroethane	ND	93	101	8.2	90	68	27.8	70 - 130	30	m
Vinyl chloride	ND	87	93	6.7	107	96	10.8	70 - 130	30	
% 1,2-dichlorobenzene-d4	99	99	101	2.0	100	98	2.0	70 - 130	30	
% Bromofluorobenzene	98	98	103	5.0	101	102	1.0	70 - 130	30	
% Dibromofluoromethane	104	108	115	6.3	106	111	4.6	70 - 130	30	
% Toluene-d8	96	97	100	3.0	100	99	1.0	70 - 130	30	

l = This parameter is outside laboratory lcs/lcsd specified recovery limits.
m = This parameter is outside laboratory ms/msd specified recovery limits.
r = This parameter is outside laboratory rpd specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

RPD - Relative Percent Difference
LCS - Laboratory Control Sample
LCSD - Laboratory Control Sample Duplicate
MS - Matrix Spike
MS Dup - Matrix Spike Duplicate
NC - No Criteria

Phyllis Shiller, Laboratory Director
February 03, 2012

Sample Criteria Exceedences Report

Requested Criteria: 375RS

GBB37060

SampNo	LocCode	Acode	Phoenix Analyte	Criteria Units	ST	State Category	Criteria Name	Result	RL	Factored Criteria	Factored RL Criteria	Analysis Units
BB37060	IVI-ENV	$8270_TCLR	Benz(a)anthracene	mg/kg	NY	375-6.8 Semivolatiles	Residential	8300	520	1000	1000	ug/Kg
BB37060	IVI-ENV	$8270_TCLR	Chrysene	mg/kg	NY	375-6.8 Semivolatiles	Residential	7900	520	1000	1000	ug/Kg
BB37060	IVI-ENV	$8270_TCLR	Benzo(b)fluoranthene	mg/kg	NY	375-6.8 Semivolatiles	Residential	13000	520	1000	1000	ug/Kg
BB37060	IVI-ENV	$8270_TCLR	Benzo(k)fluoranthene	mg/kg	NY	375-6.8 Semivolatiles	Residential	6300	520	1000	1000	ug/Kg
BB37060	IVI-ENV	$8270_TCLR	Benzo(a)pyrene	mg/kg	NY	375-6.8 Semivolatiles	Residential	10000	520	1000	1000	ug/Kg
BB37060	IVI-ENV	$8270_TCLR	Indeno(1,2,3-cd)pyrene	mg/kg	NY	375-6.8 Semivolatiles	Residential	3700	520	500	500	ug/Kg
BB37060	IVI-ENV	$8270_TCLR	Dibenz(a,h)anthracene	mg/kg	NY	375-6.8 Semivolatiles	Residential	1200	520	330	330	ug/Kg
BB37062	IVI-ENV	$8270_TCLR	Dibenz(a,h)anthracene	mg/kg	NY	375-6.8 Semivolatiles	Residential	ND	500	330	330	ug/Kg
BB37062	IVI-ENV	BA-SM	Barium	mg/kg	NY	375-6.8 Metals	Residential	386	0.34	350	350	mg/Kg
BB37062	IVI-ENV	CD-SM	Cadmium	mg/kg	NY	375-6.8 Metals	Residential	4.90	0.34	2.5	2.5	mg/Kg
BB37064	IVI-ENV	$8270_TCLR	Benz(a)anthracene	mg/kg	NY	375-6.8 Semivolatiles	Residential	1100	270	1000	1000	ug/Kg
BB37064	IVI-ENV	$8270_TCLR	Chrysene	mg/kg	NY	375-6.8 Semivolatiles	Residential	1100	270	1000	1000	ug/Kg
BB37064	IVI-ENV	$8270_TCLR	Benzo(b)fluoranthene	mg/kg	NY	375-6.8 Semivolatiles	Residential	1100	270	1000	1000	ug/Kg
BB37064	IVI-ENV	PB-SM	Lead	mg/kg	NY	375-6.8 Metals	Residential	494	4.0	400	400	mg/Kg
BB37065	IVI-ENV	$8270_TCLR	Benz(a)anthracene	mg/kg	NY	375-6.8 Semivolatiles	Residential	1900	260	1000	1000	ug/Kg
BB37065	IVI-ENV	$8270_TCLR	Chrysene	mg/kg	NY	375-6.8 Semivolatiles	Residential	2200	260	1000	1000	ug/Kg
BB37065	IVI-ENV	$8270_TCLR	Benzo(b)fluoranthene	mg/kg	NY	375-6.8 Semivolatiles	Residential	2600	260	1000	1000	ug/Kg
BB37065	IVI-ENV	$8270_TCLR	Benzo(a)pyrene	mg/kg	NY	375-6.8 Semivolatiles	Residential	1800	260	1000	1000	ug/Kg
BB37065	IVI-ENV	CD-SM	Cadmium	mg/kg	NY	375-6.8 Metals	Residential	6.90	0.36	2.5	2.5	mg/Kg
BB37065	IVI-ENV	PB-SM	Lead	mg/kg	NY	375-6.8 Metals	Residential	8440	36	400	400	mg/Kg

Phoenix Laboratories does not assume responsibility for the data contained in this report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.

Environmental Laboratories, Inc.
587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045
Tel. (860) 645-1102 Fax (860) 645-0823

ACCREDITED IN ACCORDANCE WITH nelac NY # 11301

NY Temperature Narration

February 03, 2012

SDG I.D.: GBB37060

The samples in this delivery group were received at 4C.
(Note acceptance criteria is above freezing up to 6C)

PHOENIX
Environmental Laboratories, Inc.

NY/NJ CHAIN OF CUSTODY RECORD

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: linda@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Temp 4°C Pg 1 of 1

Data Delivery:
☐ Fax #:
☒ Email: Paul.Stellato@ivi-inc.com

Customer: IVI Environmental
Address: ~~185 Corporate Park Drive, Suite 417~~ 55 W Red Oak Ln
White Plains, NY 10604

Project: Tuck It Away Self-Storage
Report to: Paul Stellato
Invoice to: "

Project P.O: E12014016
Phone #: 914-694-9600
Fax #:

Client Sample - Information - Identification

Sampler's Signature: Paul Stellato Date: 1/24/12

Matrix Code:
DW=drinking water WW=wastewater S=soil/solid O=oil
GW=groundwater SL=sludge A=air X=other

Analysis Request

Phoenix Sample #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled	TCL VOCs 8260B/5035	TCL SVOCs Acid+Bn 8270C	STARS VOCs 8260B/5035	STARS SVOCs 8270C	RCRA metals 6010/7470	Soil VOA 5g Methanol [ ] S. Bisulfate 5g H2O	GL Soil container (8) oz	GL Soil container (4) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 1250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL HNO3 250ml	PL NaOH 250ml	Bacteria Bottle
37060	B-3	S	1/24	10:45	X	X			X	3	1								
37061	B-4			11:00	X	X			X										
37062	B-5			11:05	X	X			X										
37063	B-6			11:10	X	X			X										
37064	B-7			11:15	X	X			X										
37065	B-8			11:20	X	X			X										
37066	B-9			11:25			X	X				#1							
37067	B-10			11:30			^	X				1							

Relinquished by:	Accepted by:	Date:	Time:
		11/25/12	11:15
		11-25	17:32

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☒ Standard
☐ Other
* SURCHARGE APPLIES

NJ
☐ Res. Criteria
☐ Non-Res. Criteria
☐ Impact to GW Soil Cleanup Criteria
☐ GW Criteria

NY
☐ TAGM 4046 GW
☐ TAGM 4046 SOIL
☐ NY375 Unrestricted Soil
☒ NY375 Residential Soil
☐ NY375 Restricted Non-Residential Soil

Data Format
☒ Phoenix Std Report
☐ Excel
☐ PDF
☐ GIS/Key
☐ EQuIS
☐ NJ Hazsite EDD
☐ NY EZ EDD (ASP)
☐ Other

Data Package
☐ NJ Reduced Deliv. *
☐ NY Enhanced (ASP B) *
☐ Other

Comments, Special Requirements or Regulations:

State where samples were collected: NY

LCS INC.
Environmental and Real Estate Consultants

ASTM E1528-14 Transaction Screen Environmental Site Assessment Report For The Property Identified as:

Tuck It Away Self Storage (Tuck it Away Associates Deegan LLC)
261 Walton Avenue
Bronx, New York 10451

LCS PROJECT NO. 15N2212.24

PREPARED FOR:

MS. CLAIRE TOLMIE
M & T BANK
350 PARK AVENUE, 6TH FLOOR
NEW YORK, NEW YORK 10022

PREPARED BY:

LCS, INC.
40 LA RIVIERE DRIVE, SUITE 120
BUFFALO, NEW YORK 14202
(716) 845-6145, (800) 474-6802

JUNE 8, 2015

1.0 EXECUTIVE SUMMARY

The following details specific findings presented in LCS' assessment. This section is provided for convenience to the reader. The reader is encouraged to read the entire report.

1.1 CONCLUSIONS/RECOMMENDATIONS:

LCS did not discover environmental issues that would prevent M & T Bank from accepting the subject property identified in the report as collateral subject to the following:

Based on the information contained in this report, LCS reports the following about the subject property:

1) The following items that would represent potential environmental concerns were identified:

- The subject property has historically been utilized as an auto wrecking yard and auto repair facility. Such historic operations of potential concern have been adequately investigated through subsurface investigation completed in 2012. Some elevated metal and semi-volatile organic compounds were identified on-site through that investigation; such were attributed to typical urban fill found throughout New York City and could not be directly attributed to a release associated with the historic operations of potential concern.
- The subject property was identified as a NY E-Designation site associated with Hazardous Materials program due to Phase I and Phase II studies conducted, Air Quality due to #2 or #4 fuel oil or natural gas for HVAC systems, and exhaust stack location limitations. The subject property's "E" designation indicates that the New York City Department of Environmental Protection (NYCDEP) would have to be contacted prior to any site re-development. Specifically, a building permit would not be provided unless and until the NYCDEP is satisfied with the study and remedial work completed on-site. In LCS' experience, that agency may be stricter than the NYSDEC on such matters.
- Adjacent properties of potential environmental concern were identified, including a south adjacent gasoline station. It should be noted LCS did not identify any visual evidence or records suggesting an on-site concern relative the noted adjacent listings/uses of potential concern. Additionally, LCS experience suggests the property owner would not be liable for onsite impact resulting from such off site sources.

Based upon the above, further investigation that would discover or characterize contamination of the subject property by hazardous or toxic substances is not warranted. However, should future site development/excavation work encounter any impacted soils and/or materials, such should be properly addressed at that time.

2) A full asbestos inspection was not completed. Based on LCS' limited observations, as suspected ACMs were not friable or greatly damaged, the materials can remain in-place. However, should significant renovations or demolition be anticipated, state and federal regulations require an asbestos survey and proper handling and disposal of ACMs. If such renovations or demolition is anticipated, costs for addressing ACMs should be provided in any project estimates. Any damaged materials encountered in the future should be properly addressed as a best management practice.

3) A full lead-based paint inspection was not completed. Based on LCS' limited observations, suspect lead-based paint surfaces were not considered to be peeling or chipping at the time of the site investigation. However, caution is recommended if renovations and/or remodeling of this facility are to take place. Although the on-site operations are not residential in nature, worker safety should be considered during any future site renovations or demolition. Any damaged materials encountered in the future should be properly addressed as a best management practice.

1.1 CONCLUSIONS/RECOMMENDATIONS (continued):

4) A cursory visual assessment for suspect mold was undertaken as a part of this environmental screen. A full mold inspection was not requested nor completed as part of this assessment. Based on LCS' limited observations, there was no visible evidence of mold and mold related odors at the time of the site inspection. It should be noted that molds can grow in hidden areas not observed during LCS' site reconnaissance. Of particular concern would be areas that experience water damage and areas of high humidity. Caution should be taken following any future water releases within the subject structure. Such water releases should be addressed immediately to help prevent the formation of the mold spores. Visual evidence of mold should be addressed immediately. It is recommended that professional remediation contractors be hired to properly address such issues.

1.2 LIMITATIONS

Due to stored materials on-site at the time of the site reconnaissance, observations on the subject property were limited. Additionally, the roof of the subject structure was not inspected as it was not readily accessible. Furthermore, review of historical operations was limited to the historical use sources identified within this report. Moreover, LCS has yet to receive all responses from regulatory information requests. Lastly, the owner/operator questionnaire was returned with some "unknown" responses. **LCS cannot be liable for information known only to the site owner or operator and not shared with LCS.**

To the best of LCS' knowledge, the information contained in this report is true and accurate. LCS personnel have exercised due diligence in the compilation of the information contained herein appropriate to environmental professionals engaged in investigations of this sort. LCS makes no guarantees regarding the accuracy of information gained from other sources.

The subject property location and boundaries as understood by LCS are depicted in the maps appended to this report. It is the responsibility of the reader to verify that the location and boundaries depicted herein are correct.

Refer to the appendices for additional limitations.

1.3 RELIANCE/SIGNATURES

LCS authorizes M & T Bank and/or M & T Real Estate Trust to use the above-referenced LCS report in order to determine its interest in the said subject property.

We appreciate the opportunity to be of service to you and look forward to servicing your environmental needs in the future. **Should you have any questions relative to this report, please contact Ms. Julie Daly, the LCS Senior Vice President associated with this project at (845) 406-0434**. We will make ourselves available at your convenience.

This report constitutes the findings and recommendations of LCS' investigation conducted for the referenced subject property as written and reviewed by the following:

Shannon Penton
Environmental Analyst

David Crandall
Vice President, Due Diligence Services

2.0 PURPOSE

The primary purpose of this Transaction Screen was to identify potential environmental concerns (PECs) on the subject property. A *potential environmental concern* is defined by the ASTM standard as "the possible presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a future release of any hazardous substance or petroleum products into structures or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. (Note that "threat of release" is generally understood to be present when hazardous substances or petroleum products are poorly managed (for example in corroded tanks or damaged containers) but the release of the contaminants has not yet occurred, and there is an opportunity to take response action to prevent a release of the contaminants.)"

ASTM states that this practice is intended to provide the user with a limited level of environmental due diligence and evaluation of business environmental risk associated with the subject property. This study should not be considered a Phase I environmental site assessment and should not be misconstrued as being completed to meet either the USEPA AAI or the ASTM 1527-13 Standard. If the user of this report desires to qualify for one of the CERCLA Landowner Liability Protections, this practice should not be applied. Rather, the ASTM E 1527-13 (Phase I Environmental Site Assessment Process) should be used.

3.0 SCOPE OF WORK

The scope of this Limited Environmental Due Diligence: Transaction Screen Process included the following sources of information. (For a list of references see the appendix.)

A) Historical fire insurance maps, historic topographic maps, city directories, limited local municipal information, and/or aerial photographs to assess historic site uses.

B) Reasonably ascertainable federal and state Standard Environmental Record Sources to approximate minimum search distances as defined by ASTM 1528-14 as provided by EDR and purchased by LCS.

C) Interviews with the site owner/representative (see enclosed Questionnaire) and local regulators.

D) A visual site reconnaissance of the subject property and facilities and improvements on the subject property, including: review of on-site topography; assessment of chemical use, hazardous waste handling/disposal practices on the subject property; assessment of the presence or likely presence of a release or threatened release of hazardous substances and/or non-hazardous waste; review of suspect PCBs; review of bulk storage tanks including ASTs and USTs; and a visual review of immediately adjacent properties from the subject property. See enclosed Questionnaire.

E) While not included in the ASTM standard, LCS' site reconnaissance also included a cursory visual inspection of the subject property, facilities and improvements for suspect mold, ACMs and lead-based painted surfaces. Such should not be considered a complete inspection for these items.

4.0 SITE RECONNAISSANCE

The subject property, identified as Tuck It Away Self Storage, located at 261 Walton Avenue, Bronx Borough, Bronx County, New York, is approximately 0.6 acres in size and is developed with a six-story 43,820 square foot structure that was constructed by 1908 with subsequent additions. The subject structure is utilized as a self-storage facility. Exterior portions of the property included various storage containers, asphalt-paved parking areas, and concrete sidewalks.

The site investigation was conducted on May 27, 2015 by Mr. Manny Nazario, Environmental Analyst for LCS. LCS was accompanied by Mr. Josh Guzman (employee associated with site for two years), who identified property boundaries and provided access to the subject property. A copy of our Site Condition Report is attached.

The following summarizes LCS' observations.

Item	Identified on-site	Comments
HS/PP[1] with Identified Uses	**Y**	General cleaning supplies were noted in several containers of one-gallon or less and paint was noted in several containers of five-gallons or less throughout the subject structure.
Storage Tanks	N	None
Odors	N	None
Pools of Liquid	N	None
Drums	N	None
HS/PP without Identified Uses	N	None
Unidentified Substance Containers	N	None
Suspect PCBs	**Y**	Limited to an elevator and fluorescent lights within the subject structure.
Heating/Cooling	**Y**	Natural gas; one electric heater was noted in the lobby.
Interior Stains/Corrosion	N	None
Drains and Sumps	**Y**	A sump pump noted in the basement of the subject structure reportedly discharges to the municipal sewer system.
Pits, Ponds and Lagoons	N	None
Stained Soil or Pavement	N	None
Stressed Vegetation	N	None
Solid Waste	**Y**	General refuse and recyclables generated on-site are stored in a dumpster and transported off site by Action Carting Waste.
Hazardous/Regulated Waste	N	None
Waste Water (not sanitary)	N	None
Wells	N	None
Septic Systems	N	None
Suspect ACMs	**Y**	No friable or significant damage noted.
Suspect Lead-based Paint	**Y**	No significant damage noted.
Suspect Mold	N	None
Other Issues	**Y**	A gas station was noted on a south adjacent property.

[1] HS/PP – Hazardous substances/petroleum products

4.0 SITE RECONNAISSANCE (continued)

Photographs of the subject property were taken by LCS with the objective of documenting the physical condition of the subject property and any improvements thereon. Photographs are included in the appendix of this report.

5.0 OWNER/OPERATOR INTERVIEW

LCS provided the ASTM Transaction Screen Questionnaire to Mr. Tim Rutledge (Director of Tuck It Away and associated with the subject property for 20 years), representing the owner/operator of the subject property. This document requests information regarding historic and current site and adjacent site uses. It also requests information on environmental liens, litigation and other issues that may pose a concern to the subject property.

According to Mr. Rutledge,

- The subject property is currently used for an industrial use.
- The subject property has historically been utilized as a motor repair facility; as such a Phase II Subsurface Investigation has been performed on the subject property.
- An adjoining property is currently and has historically been utilized as a gas station.

It should be noted that some of the questions were answered with "unknown" responses. The ASTM standard warrants additional research relative to such "unknown" responses. **LCS cannot be liable for information known only to the owner or occupant and not provided to LCS.** A copy of the questionnaire is attached.

6.0 SUBJECT PROPERTY HISTORY AND USE

The historical use of the subject property has been researched through review of historic maps, city directories, historic topographic maps, and/or other reasonably obtainable municipal information. The following summarizes LCS' historical research.

Sanborn Maps

EDR provided, and LCS reviewed, historical maps (see attached). Based on those maps, the subject property has been identified as being developed as follows:

- 1891 and 1903: undeveloped
- 1908: Appears to be developed with a portion of the existing subject structure (utilized by Electrical Specialties) north portion utilized for lumber storage
- 1922 and 1928: appears to be undeveloped (it is unknown why the area of the subject property is not identified as being developed on these maps)
- 1935: Developed with portions of the existing subject structure (vacant); central portion of the property utilized as an auto wrecking yard
- 1944 and 1946: Developed with portions of the existing subject structure utilized by Reinhold-Gould Card and Paper Company (warehouse) and auto wrecking yard including various outbuildings
- 1947: Developed with portions of the existing subject structure utilized by a paper warehouse, and auto wrecking yard including several various outbuildings
- 1951: Developed with portions of the existing subject structure utilized by a paper warehouse, an additional structure (currently northern portion of subject structure) used for auto parts and repair, and including an auto wrecking yard with various outbuildings.

Sanborn Maps (continued)

- 1977, 1978, 1980, 1981, 1984, 1986, 1989, 1991-1996, 1998, and 2001-2007: Developed with the existing subject structure in its current configuration, utilized by 1st Rapids Furniture Company Inc. including show room and warehouse areas.

Adjacent property uses of potential concern included:

- A south adjacent filing station was identified in 1980, 1981, 1984, 1986, 1989, 1991-1996, 1998, and 2001-2007.
- A west adjacent property was identified as an Auto Service facility in 1977, 1978, 1980, 1981, 1984, 1986, 1989, 1991-1996, 1998, and 2001-2007.

City Directories

LCS reviewed a City Directory Abstract Report provided by EDR, which researches former on-site occupants through available street directories. Based on EDR's research, the following past occupants have been identified:

- 1927: Steck Geo and Co and Factory K
- 1940: Reinhold Card and Paper Company and Reinhold Max Paper
- 1929 and 1956: Reinhold-Gould Inc. Executive Offices
- 1961: Camero John Furn Company
- 1965 and 1971: Cameron John Furn To, Carpet Dept Inc., and First Rapids Furn Co.
- 1976, 1983, and 1993: Capet Dept Inc., First Rapids Furn Inc. Showroom and Veri Best Furniture Inc.
- 2005: Tuck it Away and Yonkers Contracting Inc.
- 2008: Tuck it Away
- 2013: Tuck it Away Associates LP

Municipal Information

According to information obtained through www.oasisnyc.net and www.nyc.gov, the subject property, BL No. 2344-60, measures approximately 0.6 acres. The subject property is currently owned by Tuck-it-Away Associates. No past owners were identified in these records. Records also indicate that the subject property is developed with a 43,820 square foot structure that was constructed in 1931 (estimated year – Sanborn maps suggest that portions of the existing structure were constructed by 1908). Certificates of Occupancy were on-file for in 1948 for an auto repair shop and 1962 for a furniture showroom.

Other Sources

No additional information was provided.

Historic Topographic Maps

The subject property is included on the Central Park Quadrangle Topographic Map dated 1995. Due to the extensive development in the area of the subject property, individual structures are not indicated on this map.

Previous Study

LCS previously completed a review of the following:

Title: Phase I Environmental Site Assessment
261 Walton Avenue, Block 2344, Lot 60, Bronx, NY
Consultant: Airtek Environmental Corporation (Airtek)
Date: December 13, 2011

Based on the report provided, the subject property is comprised of a 27,454 square foot (ft2) lot of land developed with a six-story building, two-story addition, and one-story addition of unknown ages and size. It is currently owned by Tuck-it-Away Associates and is utilized as a rental storage facility, commercial tenant space in use as a sign making facility, and a paved yard.

Historical research consisted of historic topographic maps, city directories, aerial photographs, and fire insurance maps and established the use of the subject property since 1891. An 1891 fire insurance map depicted the subject property as undeveloped; in 1908 the subject property was developed with an "electrical specialties" facility and a lumber storage facility; in 1935 the subject property contained an automotive wrecking yard; in 1944 the southern half of the subject property is developed with a card and paper warehouse and the northern half as an automotive wrecking yard. A 1951 fire insurance map indicated that one of the structures on the automotive wrecking yard portion of the property was in use for automotive repairs and the fire insurance maps dating from 1977 through 2007 depicted the subject property as developed with a furniture warehouse. [Based on review of the maps, it appears that the furniture warehouse is a redeveloped area of the subject property; the date of actual construction was not provided.]

The subject property was identified within the regulatory database review under Lot 60, Block 2344 as an E Designation site. Several other sites were identified within the database search radii; however, Airtek did not expect them to pose a concern to the subject property except for the adjacent gas stations.

The property was designated as e-designation E-227, referring to properties which fall under the CEQR Hazardous Materials Phase I and II Testing Protocol, air quality concerns, and exhaust stack location limitations. According to records maintained by the New York City Department of Buildings (NYCDOB), the land comprising the subject property was zoned for manufacturing and residential use. No further information was provided by Airtek.

During the site inspection, Airtek noted oil staining at the base of the elevator in the basement, a defunct combination natural gas/fuel oil boiler and metal plate with suspect AST vent and fill pipes

Airtek identified the following Recognized Environmental Conditions (REC):

- The E Designation and the auto wrecking operations on-site from potentially from 1909 through 1965. Airtek recommended further analytical investigation to determine if any onsite contamination may exist due to these operations.
- Adjacent BP gas station with an open LUST case that has impacted the subject property. Airtek recommended additional analytical investigation to determine on-site impacts.
- Northeast adjacent property with abandoned gas station with documented contamination. Airtek recommended further analytical investigation to determine on-site impacts.

Previous Study (continued)

Airtek noted the additional following issues:

- Oil staining noted at elevator equipment in basement; violations were issued due to excessive oil being added to elevator drum. Airtek recommended conducting regular monitoring and maintenance of the elevator machinery and pit. The elevator pit should be cleaned and inspected for any cracks or fissures through which petroleum products or other contaminants could infiltrate the subsurface of the subject property.
- Visible mold growth in the basement of the two-story addition. Airtek recommends abating visible mold growth and identifying the sources of any onsite water intrusion which may have cause onsite mold growth and sealing them in such a way as to prevent future intrusion.
- Suspect ACM on-site. Airtek recommends that, prior to any planned demolition or disturbance of suspect onsite materials an ACM study should be conducted by licensed professionals to determine whether and where ACM is present onsite.
- LBP may exist on subject property surfaces. Airtek recommends that, prior to any planned demolition or disturbance of painted materials, an LBP study should be conducted by licensed professionals to determine whether and where LBP is present onsite. Any renovation, repair, or painting of surfaces containing LBP must be conducted by firms certified under the EPA's Lead-Safe Renovation, Repairs, and Painting (RRP) program. In addition, Airtek recommends that painted surfaces on the subject property be maintained in good condition.

Subsequently, LCS was provided with and reviewed:

Title: Review of Limited Phase II Environmental Site Assessment
Tuck It Away Self-Storage, 261 Walton Avenue, Bronx, New York
Consultant: IVI Environmental, Inc. (IVI)
Date: February 16, 2012

IVI conducted a geophysical survey to locate subsurface utilities in proposed boring areas on January 24, 2012. IVI then advanced ten soil borings (B-1 through B-10) at the subject property located at 261 Walton Avenue. Due to the presence of shallow bedrock, the ten soil borings were advanced to depths between 10 inch below ground surface and 9 feet below ground surface (ft. bgs). Groundwater was not encountered in the soil borings that were completed on-site. During the advancement of the soil borings, IVI screened the soil with a photoionization detector (PID). No elevated PID readings were identified in the soil samples collected from the soil borings. Additionally, no staining was noted and no suspect odors were detected in the soil samples collected. IVI noted that during the advancement of the soil borings they observed evidence of urban fill in the soil borings which consisted of asphalt, cinders, and brick fragments.

Eight soil samples were collected for analysis from boring B-3 through B-10 and submitted for laboratory analysis for Target Compound List (TLC) volatile and semi-volatile organic compounds (VOCs and SVOCs), and Resource Conservation and Recovery Act (RCRA) metals via EPA Methods 5035/8260B, 8270C, 6010/7470, respectively. In addition soil samples from borings B-9 and B-10 were analyzed for Spill Technology and Remediation Series (STARS) list VOCs and SVOCs via EPA Methods 8260 and 8270, respectively. The soil laboratory results indicate that five metals were identified to exceed their respective New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER-10) Soil Cleanup Objectives (SCOs) in borings B-3 through B-8. SVOCs were found to exceed their respective SCOs in soil samples from borings B-3, B-7 and B-8.

Previous Study (continued)

IVI concluded that, the elevated metal and SVOCs identified in the soil samples are typical of urban fill found throughout New York City. Historical site usage of the subject property for auto wrecking and repair may also have contributed to the contamination identified. However, the contaminants identified cannot be directly attributed to a release, and IVI did not identify evidence of a release in the form of elevated field readings with the PID, or visual or olfactory evidence. As such, the results of this Assessment were not required to be reported at that time. Furthermore, the subject property is "capped" with asphalt and the building itself, which prevents direct exposure to the soil, and as such, any remediation to the soil would be unnecessary and not required at this time.

As such, IVI had no further recommendations regarding the subsurface soils. However, in the event of future site redevelopment, IVI recommended that any excavated materials be managed in accordance with applicable federal, state, and local regulations.

7.0 PHYSICAL AND HYDROGEOLOGIC SETTING

The subject property is included on the Central Park Quadrangle Topographic Map dated 1995. This map indicates that the elevation of the subject property is approximately 20 feet above mean sea level.

The subject property does not have any open water bodies or surficial water bodies located on-site. Surface drainage appears to flow in a direction toward the lowest elevated points on-site and/or toward the closest storm drains on-site. Groundwater flow direction would be presumed to flow down the local topographic gradient.

8.0 REGULATORY DATABASE INFORMATION

Regulatory information involving the subject property was obtained through a commercial database search company. The following summarizes LCS' regulatory research.

Federal and state environmental regulatory information was provided by EDR and is attached. [While ASTM-defined radii were used where appropriate, the radii may have been modified due to the size of the site or the nature of the area, as permitted under the ASTM standard. Databases not included in the ASTM standard required databases were searched to radii based on LCS' experience.]

Any sites unplottable by EDR were also reviewed, to the extent practical based on site name and address, to assess whether they are also present within their appropriate radii. Any listings for the subject property or any adjacent sites are included in the details below.

To augment the information provided by EDR, a FOIA request was forwarded to the NYSDEC for information concerning the subject property. To date, a complete response has not been received by this agency.

No sites were identified within the appropriate radii, except for the following:

SUBJECT PROPERTY:

According to the EDR report, the subject property was identified as a NY E-Designation site associated with Hazardous Materials program due to Phase I and Phase II studies conducted, Air Quality due to #2 or #4 fuel oil or natural gas for HVAC systems, and exhaust stack location limitations.

ADJACENT SITES:

The following adjacent properties were also identified in the EDR report:

- A southeast adjacent property identified as Apartment Building and addressed 250 Walton Avenue was identified as NY Spills site. Spill No. 9802251 and involved the release of unknown petroleum; such is classified as "inactive." [A status of "inactive" indicates the contamination may remain but no further remediation is required.]
- A suspect adjacent property listed Metropolitan Roofing Supplies Co and addressed at 355 Major Deegan Boulevard was identified as an UST/AST/Historic AST facility.
- A north adjacent property listed as 287 Walton Avenue was identified as an AST/Historic AST facility.
- A south adjacent property listed as 138 Petroleum, LLC/ BP Products/ Gasteteria North and addressed 115 East 138th Street was identified as the following:
    - UST facility
    - RCRA-Small Quantity Generator with no violations found and on the Manifest database in association with the RCRA listing.
    - LTANKS/NY Spills site with the following releases:
        - Spill No. 0207682 involving petroleum impact due to the failure of two USTs; such is classified as "closed." [A status of "closed" indicates the spill was remediated and the NYSDEC file closed with no further remediation required.]
        - Spill No. 9408104 involved the impact of 52 gallons of petroleum to soil and is classified as "inactive."

OTHER LISTINGS:

The following sites were also identified in the EDR report:

There are five NYSDEC listed hazardous waste sites (equivalent to NPL sites), including one vapor reopened site, located within a one-mile radius of the subject property. The closest such site (2568 Park at 2568 Park Avenue) is located over 500 feet from the subject property. Site investigation has yet to be completed at this site and no other environmental information is available. This information is not considered a potential environmental concern at the subject property based on the listed sites due to the distance to the subject property and status of the listed sites.

There are four NYSDEC listed solid waste facilities located within a one-half mile radius of the subject property. The closest such site (Con-Ed-Exterior Street at 281 Exterior Street) is located over 200 feet from the subject property and is listed as an inactive construction and debris processing facility. This information is not a potential environmental concern at the subject property based on the listed sites due to the lack of reasonably ascertainable or practically reviewable records indicating a significant release at the listed facilities and/or the distance to the subject property.

OTHER LISTINGS (continued):

In addition to the above noted adjacent sites, there are 12 NYSDEC listed spill sites attributed to LTANKs and 71 NY Spill sites located within a one-quarter mile radius of the subject property. Of these spill sites, six are still considered "active" by the NYSDEC, while the remaining sites are classified as either "inactive" or "closed." [A status of "closed" indicates the spill was remediated and the NYSDEC file closed with no further remediation required. A status of "inactive" indicates the contamination may remain but no further remediation is required. A status of "active" indicates further remediation or investigation is necessary.] The closest "active" site (Lot 27, Block 2344 at 215 Grand Concourse) is located over 300 feet from the subject property and involved petroleum contaminated soil found during excavation of an abandoned UST. Based on this limited information, this spill is not likely to pose a significant concern to the subject property. In addition, LCS' experience suggests the property owner would not be liable for on-site contamination that resulted from such an off-site release. This information is not a potential environmental concern at the subject property based on the listed spill sites due to the "closed" or "inactive" status of many of the listed spills and/or the distance to the subject property.

There is one NYSDEC listed Voluntary Cleanup Program site located within a one-half mile radius of the subject property. This site is located over one-quarter mile from the subject property. This information is not considered a potential environmental concern at the subject property based on the listed site due to the distance to the subject property and/or status of the listed site.

There are four NYSDEC listed NY Brownfield sites located within a one-half mile radius of the subject property. The closest such site (Former G and C Service at 255 East 138th Street) is located over one-eighth mile from the subject property. This site has been utilized as a former gas station and machine shop from 1935 through 1969 and included several spills associated with the excavation of USTs; such have been properly remediated, however soil vapor intrusion is still a concern. This site is not listed as a significant threat to human health or environment due to the vacant status of the site. This information is not considered a potential environmental concern at the subject property based on the listed sites due to the distance to the subject property and/or status of the listed sites.

The discussion included above regarding adjacent and/or nearby properties is based on information supplied to LCS as well as LCS' observations of nearby properties at the time of the site reconnaissance. It should be noted that any property can be affected by various sources of point and non-point source pollution. The number of reported spills and complaints in the vicinity of the subject property may be an indicator of point source pollution in the area of the subject property. Non-point sources are common in rural areas (e.g., runoff from agricultural fields). Further study would be required to positively confirm whether the subject property has been impacted by nearby properties.

9.0 RADON

Radon is a radioactive gas that occurs naturally from the breakdown of uranium in rock. Radon can be found in high concentrations in soils and rock containing uranium, shale, granite, phosphate and pitchblende. Radon may also be found in soils contaminated with certain types of industrial wastes such as the byproducts from uranium or phosphate mining. Radon gas can move through small fractures in soil and rock and can seep into a structure through dirt floors, cracks in the floors and walls, drains, sumps pipes and pores. Radon has been associated with increased risks of developing lung cancer.

The subject building is constructed with a full basement. The NYSDOH Radon Detector Distribution Program report for September 2014 suggests an average basement radon reading of 1.58 pCi/L for the Borough of Bronx. The NYSDOH recommends taking measures to reduce basement radon concentration to below 4.0 pCi/L. Based on the low average radon concentration for the area of the subject property, radon does not appear to pose a concern to the subject property.

APPENDIX

We have prepared this report for the exclusive use of M & T Bank and/or M & T Real Estate Trust. LCS' liability is limited to use by this client for a period of five years. Use by any other party is strictly prohibited except by authorization in writing from this consultant. LCS accepts no liability for others' use of this report. A copy of this report is given to the borrower as a courtesy only; use or reliance upon this report by the borrower in making a decision to purchase this property is not permitted.

This limited study is not to be considered as an environmental audit of the subject property, a Phase I Environmental Site Assessment as defined by ASTM E1527, or a complete environmental investigation of the subject site. This report is subject to the limitations identified by that standard. The scope of work completed was beyond that required of the Transaction Screen (ASTM 1528-14) standard and/or as modified by the client.

The client requested and ordered this study based on their knowledge of the site. Therefore, LCS assumes no liability in the selection of the appropriate level of due diligence for this property.

This study is intended to identify PECs in connection with the subject property and to reduce, but not eliminate, uncertainty regarding the potential for PECs in connection with a subject property. It should not be used by the parties hereto as a decision tool in purchasing the property or to seek shelter under the innocent landowner defense of CERCLA. Under CERCLA and Brownfield amendments promulgated in January 2002, an ASTM Phase I Environmental Site Assessment, ASTM E1527-13, is the only acceptable standard for the practice of environmental due diligence in seeking protection under the innocent landowners defense.

A *potential environmental concern* (PEC) is defined by the ASTM standard as "the possible presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a future release of any hazardous substance or petroleum products into structures or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. (Note that "threat of release" is generally understood to be present when hazardous substances or petroleum products are poorly managed (for example in corroded tanks or damaged containers) but the release of the contaminants has not yet occurred, and there is an opportunity to take response action to prevent a release of the contaminants.)"

No sampling or analyses of materials, including soil, water, air, building materials, etc., were obtained as part of this assessment unless otherwise noted. LCS neither accepts, assumes nor warrants responsibility for the nature or toxicity of such substances.

LCS neither implies, warrants, guarantees nor accepts liability relative to the environmental conditions at the site regarding:

1) Site specific practices and/or disposal methods of the past or future owners.

2) The presence of asbestos, lead containing materials, or radon and/or the environmental impact of such substances on the subject site or building(s) and structure(s) on the subject site other than those observed during the site reconnaissance and documented within the report.

3) Adjacent property owners, their environmental practices, and/or impact of such properties and practices on the subject site other than those identified within the database reports and/or observed by those performing the site inspection of the subject property.

APPENDIX (continued)

4) Unreported spills.

5) Practices, waste disposal, environmental concerns, and/or modifications to waste site indexes after the date of this report.

6) Site groundwater or soil quality.

This report was prepared using data, information, and references available from federal, state, and local governmental agencies and information supplied by knowledgeable parties, relying in large part on owner or occupant interviews. LCS neither assumes nor accepts any liability for the completeness or accuracy of information gained from these sources or for any misstatements or misrepresentation of facts from parties interviewed during this process.

Observations made at the time of the site reconnaissance are contained herein. LCS cannot be held responsible for omissions as a result of any changes made to the subject property after the date of the site investigation.

Areas of the site where access was limited, obstructed, or denied are mentioned herein and LCS renders no opinion as to the presence or absence of potential environmental concerns, hazardous materials, or potential environmental liability associated with such. According to ASTM, asphalt pavement is considered a limitation.

LCS site personnel and the owner/borrower answered the ASTM Questionnaire. LCS neither accepts, assumes, implies nor warrants any liability for the accuracy, truthfulness, and completeness of the answers contained therein except as observed by LCS personnel during its site reconnaissance.

ACRONYMS/ABBREVIATIONS

ACM	Asbestos-Containing Materials
AIRS	Aerometric Information Retrieval System
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
CBS	Chemical Bulk Storage
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
CORRACTS	Corrective Action
EDR	Environmental Data Resources
ERNS	Emergency Response and Notification System
FINDS	Facility Index System
FOIA	Freedom of Information Act
FOIL	Freedom of Information Law
FWM	Freshwater Wetlands Map
LCS	Lender Consulting Services, Inc.
LQG	Large Quantity Generator
LTANK	Leaking Tank
LUST	Leaking Underground Storage Tank
MOSF	Major Oil Storage Facility
MSDS	Material Data Safety Sheets
mVOC	Microbial Volatile Organic Compound
N/A	Not Available, Not Applicable
NFRAP	No Further Remedial Action Planned
NPDES	National Pollution Discharge Elimination System
NPL	National Priorities List (“Superfund”)
NRCS	Natural Resource Conservation Service (by County)
NWI	National Wetlands Inventory
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PBS	Petroleum Bulk Storage
PCB	Polychlorinated Biphenyl
PCi/L	Pico Curies per Liter
PEC	Potential Environmental Concern
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
REC	Recognized Environmental Condition
SPDES	State Pollution Discharge Elimination System
SQG	Small Quantity Generator
TSDF	Treatment, Storage and Disposal Facility
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United State Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tanks

LANGAN

Memorandum

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To: Matthew Sprayregen / Tuck-It-Away

From: Keith Herman
Satyajit Vaidya, P.E.

Info: Tim Rutledge / Tuck-It-Away
Steve LaRocco / Frank G. Relf Architect
Brad Kiefer / GACE Consulting Engineers
Rudolph Frizzi / Langan

Date: 10 October 2017

Re: Initial Geotechnical Investigation
Proposed 261 Walton Avenue Development (the Project)
Bronx, New York
Langan Project No.: 100677101

As requested and in accordance with our 19 September 2017 proposal and authorization, we completed an initial geotechnical investigation for the 261 Walton Avenue development site (the Site). The initial investigation consisted of an initial available information review, and performing three (3) drilled borings and installing one (1) temporary groundwater level observation well. We have prepared this memorandum report to present our understanding of the site conditions and the currently proposed development scheme, summarize our initial investigation work and findings, and provide our initial geotechnical recommendations for the Project.

SITE CONDITONS AND PROPOSED DEVELOPMENT

Site Conditions

We understand the Site is an about 27,500-square-foot parcel (Tax Block 2344, Tax Lot 60) located in Bronx, NY. The southern and eastern portions of the Site are currently occupied by a 1-to-6-story building that was damaged by fire in April 2017; the remaining Site area is generally asphalt-paved and partially occupied by several storage trailers. The Site is bordered by Walton Avenue to the east, an asphalt-paved lot associated with a gas station to the south, Gerard Avenue to the west, and a 1-to-3-story building to the north. Refer to attached Figure 1 for a Site location map.

Proposed Development

Based on the undated concept plan provided to our office on 6 September 2017 by Frank G. Relf Architect (the Project Architect), we understand the currently proposed development scheme calls for demolishing the existing on-site building to facilitate construction of a 4-story self-storage facility building, with one basement level, having a footprint area of about 13,860 square feet. The concept plan indicates the basement slab will be about 10.5 feet below grade. No structural loading or Project schedule information has been provided to us to date.

INITIAL GEOTECHNICAL INVESTIGATION AND FINDINGS

Available Information Review

We reviewed available information regarding the Site on the New York City (NYC) Open Accessible Space Information System (OASIS) website. We also reviewed regional topographic and flood mapping. We also made an attempt to contact the NYCDOB Records Room in the Bronx to request available foundation-related information for the on-site and neighboring / bordering buildings. We were able to compile the following information regarding the Site based on available information review performed to date:

- Historic maps from the Bronx Borough Office of the President Topographical Bureau indicate the street grades adjacent to the Site generally vary between about el 18.5 and el 28; all elevations given in this memorandum are in reference to the North American Vertical Datum of 1988 (NAVD88), unless otherwise noted. The actual Site and surrounding property elevations should be confirmed by means of a survey as soon as possible.
- The New York City Transit (NYCT) subway tunnel structure associated with the 4 and 5 lines appears to be located east of the Site just beyond 200 feet (the NYCT influence limit). No other NYCT structures appear to be in close proximity to the Site.
- The Site appears to be located just beyond 100 feet (NYCDOT Bridge Hold limit) from the Madison Avenue Bridge approach to the southwest and the Grand Concourse Bridge to the east. However, an elevated ramp associated with the Major Deegan Expressway overpass at East 138th Street is located adjacent to the Site along Gerard Avenue.
- No NYC Landmarked buildings or Historic Districts appear to be located within 90 feet of the Site.
- The FEMA Preliminary Flood Insurance Rate Map, Community Panel Number 3604970083G (preliminary as of 5 December 2013) indicates that the Site is located within Zone X: "Areas determined to be outside the 0.2% annual chance floodplain". See attached Figure 2 for the FEMA Preliminary Flood Insurance Rate Map.
- No foundation-related information regarding the on-site or neighboring / bordering buildings has been made available to us by the NYCDOB to date.

Initial Subsurface Investigation

Our initial geotechnical subsurface investigation was performed on 25 and 26 September 2017 and generally consisted of performing three (3) drilled borings, identified as B-1 through B-3, and installing one (1) temporary groundwater level observation well, identified as OW-1, in completed boring B-1. The borings were performed by Craig Geotechnical Drilling Co., Inc. (Craig) using a truck-mounted drill rig under the full-time special inspection of our field engineer,

who performed the inspection work under the direct supervision of our NY-State-licensed Professional Engineer per the 2014 New York City Building Code (NYCBC) requirements. A boring location plan showing approximate locations of the borings and groundwater level observation well is attached as Figure 3.

Prior to performing the borings, the investigation locations were confirmed as being clear of potential subsurface utilities and structures by an on-site building representative. In each boring, conventional mud-rotary soil drilling techniques were used and soil sampling was performed until refusal to mud-rotary drilling was encountered. The soil samples were obtained using Standard Penetration Test (SPT) procedures in general accordance with the provisions of ASTM D1586; all SPTs were performed using a safety hammer. Once rock was encountered, each boring was advanced into rock using conventional rock coring techniques with a 5-foot-long, NX-size, double-tube core barrel fitted with a diamond bit. Core runs were retrieved in 5-foot lengths in each boring until continuous presence of at least 10 feet of NYCBC Class 1c or better rock was observed below the currently proposed new building foundation bearing level. After completion of boring B-1, a temporary groundwater level observation well was installed in the boring. The well consisted of a 10-foot-long, 2-inch-diameter screened PVC pipe installed within a sand pack and a 17-foot-long PVC riser pipe above. The space around the rise pipe was filled with drill cuttings. A flush-mount well cover was installed at the top. After completion of the other two borings, the drill holes were completely filled with drill cuttings and patched on top with asphalt.

Soil and Groundwater Conditions

The subsurface conditions encountered in the borings generally consisted of an about 0.5-to-2-foot-thick layer of surficial fill overlying gneiss bedrock. The upper about 2 to 10 feet of rock was observed to be in a decomposed or highly fractured condition in all the borings. Most of this material is classified as NYCBC Class 1d rock, except for an about 2-foot-thick layer of loose sand-like decomposed rock encountered in boring B-1, which is classified as NYCBC Class 6 material. NYCBC Class 1c or better rock was encountered below the Class 1d rock to boring termination depths in all the borings.

Temporary groundwater level observation well, OW-1, installed in completed boring B-1 was flushed with clean water immediately upon installation and sufficiently bailed out to develop the well. Our field engineer was able to manually lower the groundwater level in the well to a depth of about 20 feet below grade (i.e., about el 6) using a bailer. Upon completion of bailing, the groundwater level in the well was observed to recharge to a depth of about 8 feet below grade (i.e., about el 18) within about 45 to 60 minutes. Our field engineer observed the groundwater level in the well to be at the same depth after about 12 hours. The well was subsequently bailed again and similar groundwater level observations were made. Based on these observations, the groundwater level observed in the well appears to represent a perched groundwater condition near top of rock.

INITIAL GEOTECHNICAL RECOMMENDATIONS

Foundation Design

Based on the soil, rock, and groundwater conditions observed in the initial borings and our understanding of the currently proposed development scheme, at this time we have developed the following initial foundation design recommendations for the Project:

- We understand the proposed building will have one basement level extending about 10.5 feet below existing grade. We therefore anticipate the proposed building foundations will extend about 13 to 14 feet below grade, and can be designed to bear on NYCBC Class 1c or better rock. The 2014 NYCBC would permit column and wall foundations bearing on NYCBC Class 1c rock to be designed using an allowable bearing pressure of 20 tons/ft^2. Regardless of the bearing pressure and structural loading, we recommend column footings should be at least 3 feet by 3 feet in plan dimensions and wall footings should have a minimum width of 18 inches.

  A coefficient of static friction of 0.5 can be preliminarily used for design of footings bearing on rock and subject to lateral loading. If supplemental lateral resistance is desired, properly reinforced shear pins or keys can be designed into rock. If footings are subject to uplift loads, they can be tied down using 1-$^3/_8$-inch-diameter, 97-ksi-steel, double-corrosion-protected rock anchors; these anchors can be designed for an individual maximum design uplift capacity of 100 kips. The minimum anchor drill-hole diameter should be 4 inches. The minimum anchor bond length should be 10 feet into NYCBC Class 1c or better rock. The minimum anchor free length should be 15 feet; actual free length requirements would need to be finalized based on final anchor layout and group uplift requirements. The above recommendations are based on each anchor being tested to 133% of its design load and locked off at or above the design load. If a higher individual anchor capacity is desired, it can be achieved by using a larger threadbar and extending the anchor bond zone diameter and length.

- We reviewed the 2014 NYCBC seismic design requirements with respect to the initial investigation boring data and the proposed depth of basement excavation. Assuming similar subsurface conditions would be encountered in the currently uninvestigated portions of the Site, our review indicates the NYCBC would allow the use of the following seismic design parameters for the proposed development:

Seismic Parameter	Value
Seismic Site Class	Class B
Mapped Maximum Considered Earthquake Spectral Response Accelerations	S_s = 0.281 (short periods) S_1 = 0.073 (1-second period)
Site Coefficients as a function of Site Class and Mapped Spectral Response Acceleration	F_a = 1.00 (short periods) F_v = 1.00 (1 second period)

- The below-grade walls should be assumed to be fixed against rotation and designed to sustain soil, rock, hydrostatic, and surcharge loading. Groundwater was observed to

accumulate in the on-site observation well to about 8 feet below grade (i.e., about el 18 based on inferred Site elevations); this water level represents a perched water condition near the top of rock. Considering the potential for perched groundwater to accumulate behind the foundation walls up to this level, we recommend the perimeter foundation walls be designed to resist a hydrostatic pressure arising from a water level at el 18; this design elevation should be confirmed after a topographic survey is performed for the Site. The foundation walls along streets should be checked against a temporary water level near street grade due to the potential for a water main break along these streets. Surcharge loading along streets and the associated sidewalks should also be considered in foundation wall design. Portions of the below-grade walls along the north side of the Site should be designed to withstand lateral loading from adjacent building foundations, calculated as a surcharge, where the adjacent building foundations are located above a 1H:1V theoretical influence line drawn upward from the bottom of the new building foundation wall. A schematic diagram showing how to apply the above-described loads is attached as Figure 4.

- The foundation walls should be socketed a minimum of 2 feet into NYCBC Class 1c or better rock below the new building basement slab subgrade. Rock excavation should be carefully performed such that no over-break or shattering of the rock to remain occurs. Once the walls are properly constructed and socketed as indicated above, we anticipate lateral groundwater flow beneath the proposed lowest basement slab from behind the foundation walls would be minimal. It is our understanding that NYCDEP regulations require the volume of groundwater to be discharged into the City sewers to be limited to 10,000 gallons/day for the entire Site; we recommend this be confirmed by the Project Mechanical Engineer. As the excavation progresses, we would need to observe groundwater conditions at the Site more closely to determine if upward flow at the bottom of excavation would approach, or potentially exceed, the above-described NYCDEP discharge limitations. At this time however, we anticipate such upward flow to be relatively low, and that the basement slab can be designed as a slab-on-grade bearing on a layer of crushed drainage stone placed over the excavation subgrade. We recommend the slab-on-grade constructed as described above should be designed using a modulus of subgrade reaction of 150 pounds/inch^3. A pressure slab option can be priced as an add-alternate, in case groundwater conditions in the mass excavation preclude the use of a slab-on-grade; the likelihood of encountering such a condition is considered relatively low.

  The foundation wall drainage system should consist of a Hydroduct 220 or similar drainage board installed behind the below-grade foundation walls from 1 foot below the site grade extending to at least el 18. The under-slab drainage system should consist of a minimum 9-inch-thick layer of ¾-inch free-draining crushed stone placed over Mirafi 140N filter fabric installed directly over properly compacted crushed rock subgrade. A network of 6-inch-diameter perforated Schedule 40 drainage pipes should be placed within the stone to collect any groundwater that may accumulate within the stone and discharge it into sump pits for pumping and subsequent disposal. At this time, we recommend new below-grade walls and the lowest level slab be fully waterproofed

using a membrane type waterproofing system, and water-stops be placed at all below-grade joints.

Other Geotechnical Aspects of Construction

- Based on the proposed development scheme, we anticipate mass foundation excavation would be required to about 12 feet below grade, and isolated deeper excavations to about 14 to 15 feet below grade would be necessary for footings and pits. We recommend the pits be located as far as away from the basement perimeter as possible to minimize the depth of excavation along the perimeter and its impacts on the support of excavation system design. We anticipate mass and foundation excavation can be performed without the need for significant dewatering, except for rainwater and perched water pumping and discharge.

  We anticipate rock excavation can be accomplished using hydraulic hoe rams, splitters, and excavators fitted with special ripping teeth. Blasting is not deemed to be necessary at this time. Rock excavation should be controlled to prevent excessive rock over-break and vibrations that may adversely affect the existing neighboring / bordering structures.

- We anticipate a properly designed and laterally braced conventional drilled solider pile and lagging temporary excavation support system can be used above top of rock along the eastern, western, and southern portions of the proposed excavation. The foundation extents and conditions of the adjacent building to the north will need to be investigated to determine if a similar excavation support system can be used along the north side of the proposed development, or if a more rigid system would be necessary. We anticipate excavation sidewalls in NYCBC Class 1c or better rock can be supported using conventional tie-back anchors, rock bolts, shotcrete / concrete facing, and wire mesh. Permission from neighboring property owners will be required before installing tie-back anchors, rock bolts, or other support of excavation / underpinning system components beyond the Site limits. Locations and depths of surrounding utilities and adjacent building basements and foundations should be confirmed prior to designing support of excavation system tie-back anchors and rock bolts.

- Neighboring / bordering structures, including buildings, bridges, utilities, sidewalks, and streets surrounding the Site should be protected against adverse impacts during on-site demolition, excavation, and subsequent construction. Special care should be taken during demolition, soil and rock excavation and removal, and excavation support construction work to ensure adverse impacts, such as development of cracks, ground loss, instability, and/or loss of support, do not result at the neighboring / bordering structures. Existing conditions of these structures should be properly documented prior to start of construction work, and their conditions should be monitored throughout the duration of excavation and foundation construction using crack gauges, seismograph vibration monitors, and survey control points.

Supplemental Subsurface Investigation

- For a shallow-foundation-supported building having a footprint area of about 13,860 square feet, the NYCBC would require that a total of six (6) drilled borings be performed to meet the minimum subsurface investigation requirements in the Code. Once the development plans are finalized, the remaining three (3) Code-required borings should be completed at the Site, so that the required special inspection TR forms can be submitted to the NYCDOB and final foundation design recommendations can be developed for the proposed development. We also recommend test pits be excavated along the north side property line to investigate the depth and details of the adjacent building foundations.

NYCDOT Interaction

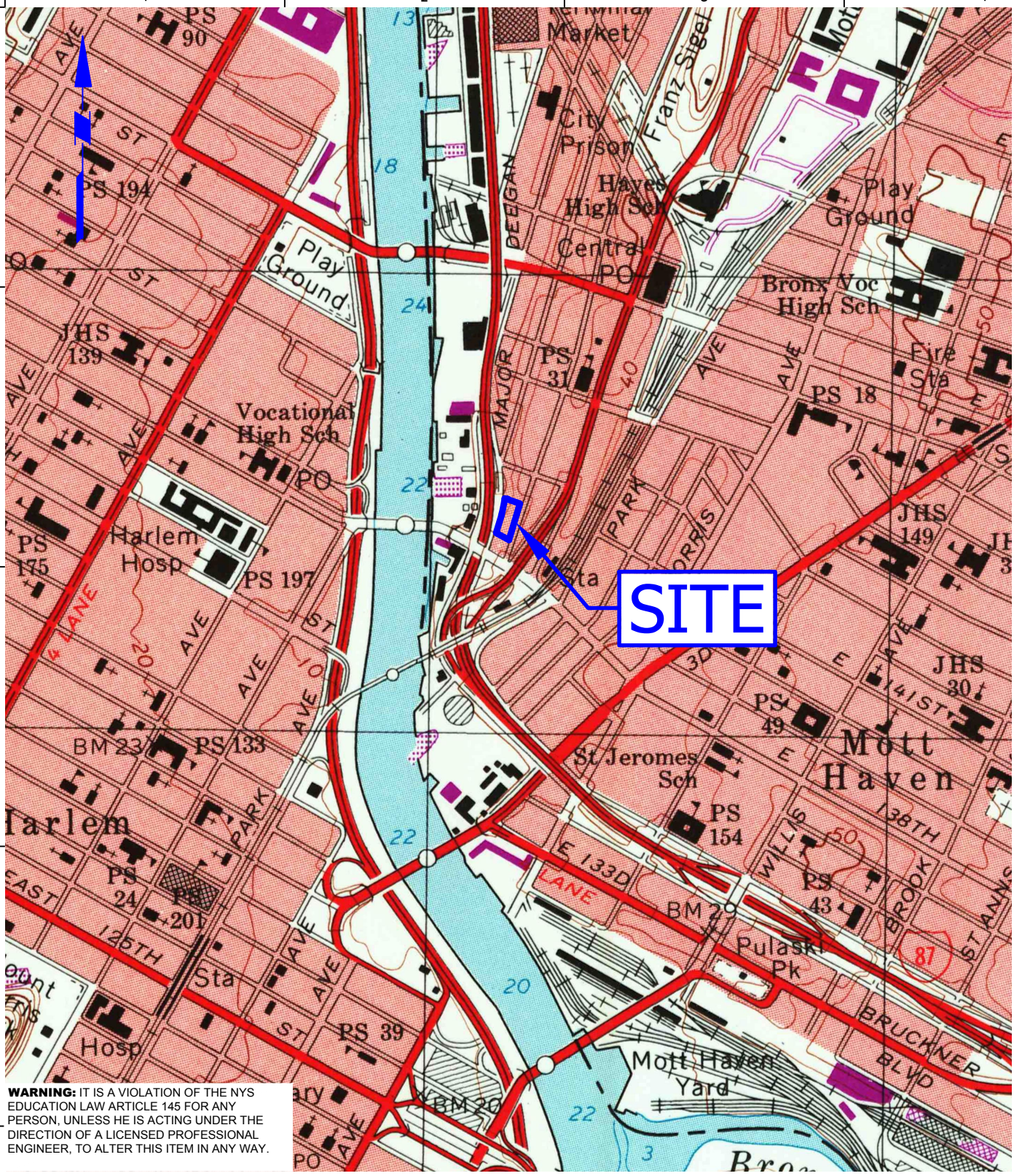
- Although the Site appears to be located more than 100 feet away from the Madison Avenue and Grand Concourse bridges that are designated NYCDOT structures with a Bridge Hold, the elevated ramp along Gerard Avenue is located in close proximity to the Site. We recommend the proposed development plans be preliminarily discussed with the NYCDOT Bridge Division to determine if the adjacent ramp structure is within their jurisdiction and if NYCDOT has any project-specific plan review, coordination, or permitting requirements, as such requirements can have a significant schedule impact on the proposed development.

CLOSURE

This memorandum report has been prepared to assist the Owner's Architect and Structural Engineer with their initial design. The report summarizes our initial geotechnical investigation work and our initial recommendations regarding foundation design for the currently proposed development scheme. Our findings and initial recommendations presented in this report are based on limited subsurface investigation work performed at the Site to date. We will need to review these recommendations and revise them, if necessary, after a supplemental Code-required investigation is completed at the Site. Recommendations given are contingent upon one another and no recommendation should be followed independently of the others. Any changes in the location, elevation, and / or loading of the proposed structure(s) and any proposed grade changes should be brought to our attention. We should be provided with the building drawings once they are finalized so we can review, confirm, or modify (if necessary) the recommendations provided herein. Langan cannot assume responsibility for use of this report for any areas beyond the limits of this study or for any projects not specifically discussed herein. Environmental considerations and construction aspects are outside the scope of this document; these aspects should be separately addressed.

We thank you for allowing us the opportunity to assist you on this project. If you have any questions regarding this memorandum, please call.

FIGURES



WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

MAP REFERENCE: USGS MAP OF CENTRAL PARK NY-NJ (1995)

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Project

PROPOSED 261 WALTON AVENUE DEVELOPMENT

BRONX NEW YORK

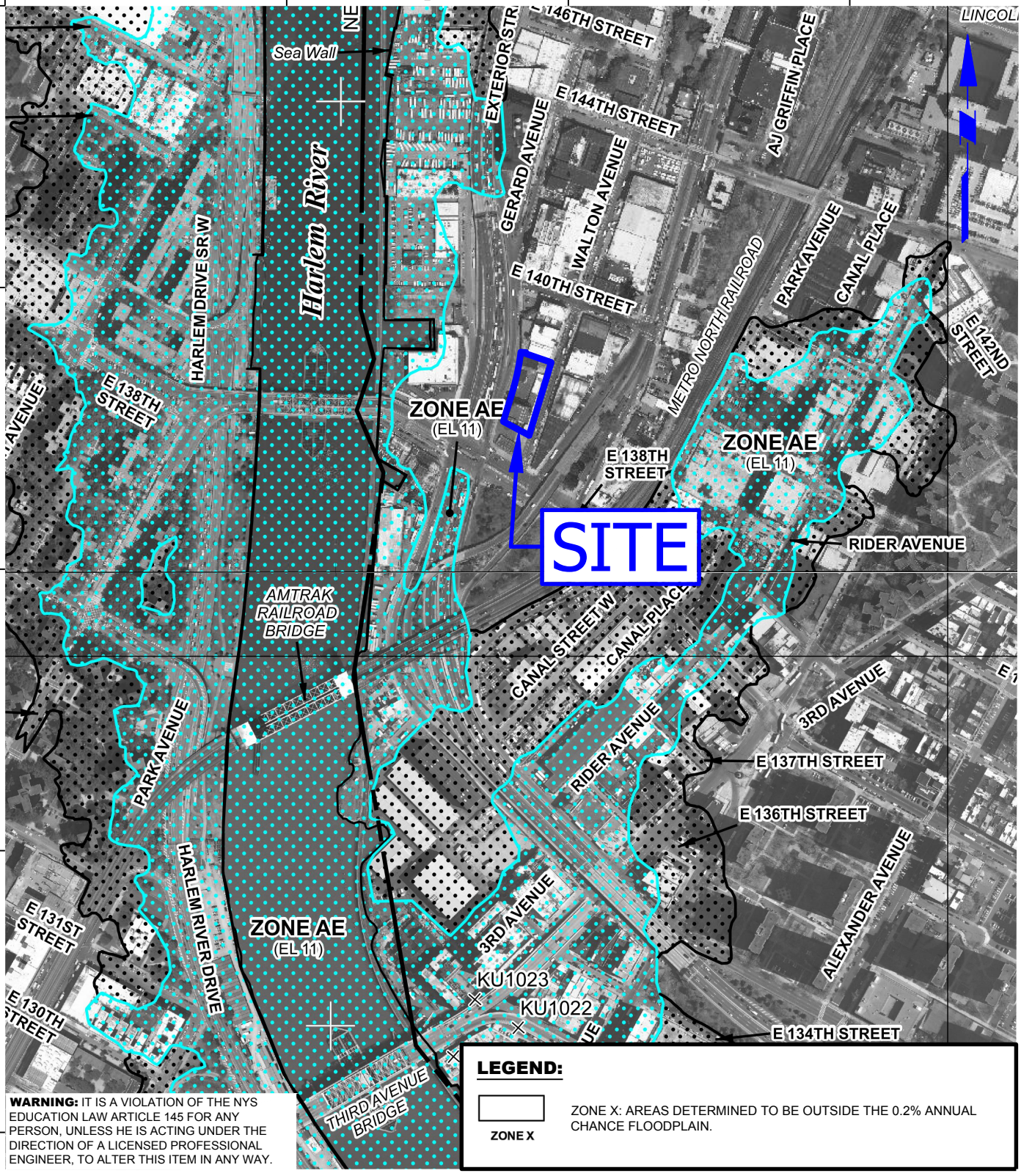
Drawing Title

SITE LOCATION MAP

Project No. 100677101	Figure No. 1
Date 10/10/2017	
Scale 1" = 1000'	
Drawn By KH	
Checked By SAV	Sheet 1 of 4

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Filename: \\langan.com\data\PAR\data1\100677101\Project Data\CAD\01\SheetFiles\Figures\FG01-100677101-BL101-0101.dwg Date: 10/10/2017 Time: 11:02 User: kherman Style Table: Langan.stb Layout: ANSIA-BP



LEGEND:

ZONE X: AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONE X

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MAP REFERENCE: FEMA PRELIMINARY FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBERS 3604970083G AND 3604970091G, PRELIMINARY DATES 5 DECEMBER 2013 AND 30 JANUARY 2015, RESPECTIVELY.

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Project

PROPOSED 261 WALTON AVENUE DEVELOPMENT

BRONX NEW YORK

Drawing Title

FEMA PRELIMINARY FLOOD INSURANCE RATE MAP

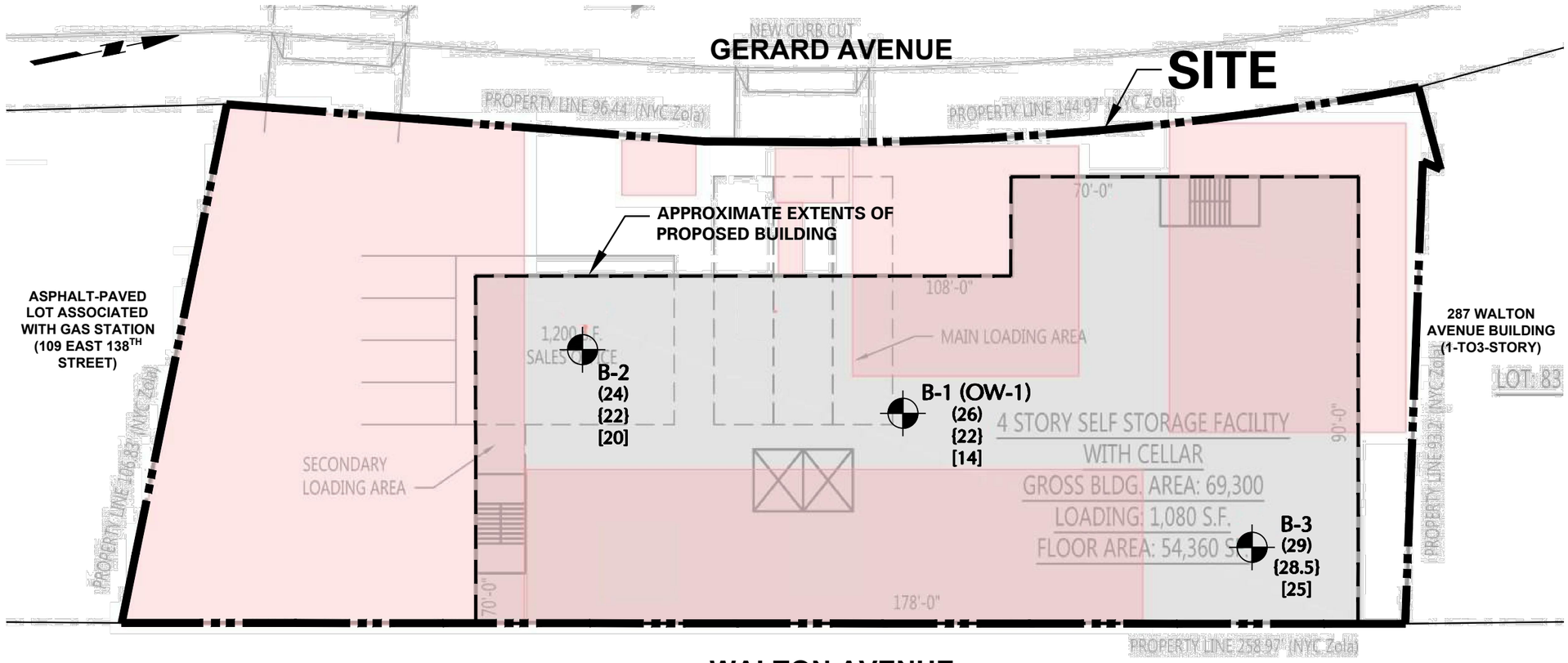
Project No.	100677101
Date	10/10/2017
Scale	1" = 500'
Drawn By	KH
Checked By	SV

Figure No. **2**

Sheet 2 of 4

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LEGEND

⊕	APPROXIMATE LOCATION OF DRILLED BORING
B-2	IDENTIFICATION NUMBER OF DRILLED BORING
OW-1	IDENTIFICATION NUMBER OF TEMPORARY GROUNDWATER LEVEL OBSERVATION WELL
(XX)	APPROXIMATE GROUND SURFACE ELEVATION AT BORING LOCATION
{XX}	APPROXIMATE ELEVATION OF TOP OF NYCBC CLASS 1d ROCK FIRST ENCOUNTERED IN THE BORING
[XX]	APPROXIMATE ELEVATION OF TOP OF NYCBC CLASS 1c OR BETTER ROCK FIRST ENCOUNTERED IN THE BORING
▭	EXISTING ON-SITE BUILDING AND STORAGE TRAILERS

NOTES

1. ALL BORING LOCATIONS AND ELEVATIONS ARE APPROXIMATE. ELEVATIONS ARE INFERRED FROM A HISTORIC BRONX BOROUGH TOPOGRAPHIC SECTIONAL MAP, INDEX PANEL NO. 7, LAST REVISED 12 DECEMBER 1998.
2. BASE FIGURE REPRODUCED FROM AN UNDATED CONCEPT PLAN PROVIDED TO OUR OFFICE ON 6 SEPTEMBER 2017 BY FRANK G. RELF ARCHITECT, PC.
3. BORINGS B-1 THROUGH B-3 WERE PERFORMED AND TEMPORARY GROUNDWATER LEVEL OBSERVATION WELL OW-1 INSTALLED ON 25 AND 26 SEPTEMBER 2017 BY CRAIG GEOTECHNICAL DRILLING CO., INC. UNDER THE FULL-TIME SPECIAL INSPECTION OF LANGAN.
4. ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH IS 1.1 FEET ABOVE THE NATIONAL GEODETIC SURVEY VERTICAL DATUM OF 1929, NGVD29 (MEAN SEA LEVEL AT SANDY HOOK, NJ).
5. NEIGHBORING BUILDING AND STREET OUTLINES ARE APPROXIMATE AND SHOWN FOR SCHEMATIC REPRESENTATION ONLY.

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Project	PROPOSED 261 WALTON AVENUE DEVELOPMENT BRONX NEW YORK
Drawing Title	BORING LOCATION PLAN
Project No.	100677101
Date	10/10/2017
Scale	1" = 25'
Drawn By	KH
Checked By	SAV
Figure No.	3
Sheet	3 of 4

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NOTES:

1. Diagrams shown are a simplified representation of various lateral loads for use in design of the perimeter below-grade foundation walls.
2. Lateral pressure diagrams for soil are based on a soil total unit weight of 125 pcf and a lateral earth pressure coefficient (Ko) of 0.5.
3. Lateral pressure diagrams for rock are based on a rock total unit weight of 165 pcf and a conservatively estimated mobilized friction angle of 30° along rock joints.
4. Based on on-site groundwater observation well data, perched groundwater is expected to accumulate behind the foundation walls to about el 18. Therefore, the foundation walls should be designed to resist hydrostatic pressure from groundwater at this level. However, below grade walls along Walton and Gerard Avenues should be checked against a temporary water level at street grade due to the potential for a water main break.

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Project
PROPOSED 261 WALTON AVENUE DEVELOPMENT
BRONX NEW YORK

Drawing Title
LATERAL PRESSURE DIAGRAM

Project No. 100677101	Figure No. 4
Date 10/10/2017	
Scale NTS	
Drawn By KH	
Checked By SV	Sheet 4 of 4

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APPENDIX A

INITIAL INVESTIGATION BORING LOGS

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Log of Boring **B-1 (OW-1)** Sheet 1 of 2

Project: Proposed 261 Walton Avenue Development	Project No.: 100677101
Location: Bronx, NY	Elevation and Datum: Approx. el 26 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling	Date Started: 9/25/17 — Date Finished: 9/25/17
Drilling Equipment: CME Truck-Mounted Drill Rig	Completion Depth: 27 ft — Rock Depth: 2 ft
Size and Type of Bit: 2-7/8", 3-7/8" & 4-7/8" Tricone Roller Bits	Number of Samples: Disturbed 4 — Undisturbed - — Core 4
Casing Diameter (in): 4" I.D. Steel — Casing Depth (ft): 6	Water Level (ft.): First ▽ - — Completion ▼ 8.2 — 24 HR. ▼ 7.8
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Joe Schuster
Sampler: 2" O.D. Split Spoon	Inspecting Engineer: Cristina Robles
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Building Code	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40
	+26.0				0					
	+25.8	Class 7	2-INCH-THICK ASPHALT Black f-c SAND, some asphalt, trace silt, trace concrete (dry) [FILL]		1	S-1	SS	9	11, 6, 23, 19	29
	+23.8	Class 6	Black f-c SAND, trace silt, trace rock fragments (dry) [DECOMPOSED ROCK]		2	S-2	SS	8	9, 4, 4, 11	8
	+21.8	Class 1d	No Recovery [Inferred DECOMPOSED ROCK]		3	S-3	SS	0	50/0"	50/0"
					4					
					5					
					6	S-4	SS	0	50/0"	50/0"
			Dark gray Fractured GNEISS	1:41	7					
				2:41	8					
				2:31	9					
				2:00	10					
				2:25	11					
	+14.0	Class 1c	Dark gray GNEISS	1:23	12	C-1 NX CORE BARREL		REC=60"/60" =100%	RQD=0"/60" =0%	
				1:20	13					
				1:30	14					
				1:28	15	C-2 NX CORE BARREL		REC=60"/60" =100%	RQD=25.5"/60" =43%	
				1:36	16					
	+9.0	Class 1b	Dark gray GNEISS	1:35	17	C-3 NX CORE BARREL		REC=60"/60" =100%	RQD=40"/60" =67%	
				1:47	18					
				2:00	19					
					20					

Remarks
(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Started drilling at 8:00 AM on 9/25/17.
Drilled through 2-inch-thick asphalt pavement.
SS 2" to 2'2"
SS 2'2" to 4'2"
Advanced 4-inch-dia casing to 4'.
Drilled to 4'2" using 4-7/8" roller bit.
Gray wash.
SS at 4'2"; spoon observed to bounce.
Drilled to 6' using 3-7/8"roller bit
Gray wash.
Advanced 4-inch-dia casing to 6'.
Drilled to 6.5' using 2-7/8" roller bit.
Gray wash.
SS at 6.5'; spoon observed to bounce.
Drilled to 7' using 2-7/8" roller bit; roller bit refusal.
Start of NX core run C-1 at 7' at 9:02 AM.
Gray wash.

End of NX core run C-1 at 12' at 9:15 AM.
Start of NX core run C-2 at 12' at 9:23 AM.
Gray wash.

End of NX core run C-2 at 17' at 9:30 AM.
Start of NX core run C-3 at 17' at 9:35 AM.

Gray wash.

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Log of Boring **B-1 (OW-1)** Sheet 2 of 2

Project	Project No.
Proposed 261 Walton Avenue Development	100677101
Location	**Elevation and Datum**
Bronx, NY	Approx. el 26 (NAVD 88)

Material Symbol	Elev. (ft)	Building Code	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Class 1b		2:02	20						
				2:11	21	C-3					End of NX core run C-3 at 22' at 9:52 AM. Start of NX core run C-4 at 27' at 10:05 AM.
	+4.0				22						
		Class 1a	Dark gray GNEISS	2:03	23	C-4	NX CORE BARREL	REC=60"/60" =100%	RQD=59"/60" =98%		Gray wash.
				2:20	24						
				2:16	25						
				3:18	26						
				3:20	27						End of NX core run C-4 at 27' at 10:20 AM. Driller installed a 2-inch-dia PVC temporary groundwater level observation well to the bottom of the boring at 27' (10' screen and 17' riser) upon completion. A flush-mount well cover was installed over the well.
	-1.0		End of Boring at 27'.		28						
					29						
					30						
					31						
					32						
					33						
					34						
					35						
					36						
					37						
					38						
					39						
					40						
					41						
					42						
					43						
					44						
					45						

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Log of Boring **B-2** Sheet 1 of 2

Project: Proposed 261 Walton Avenue Development	Project No.: 100677101
Location: Bronx, NY	Elevation and Datum: Approx. el 24 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling	Date Started: 9/25/17 — Date Finished: 9/25/17
Drilling Equipment: CME Truck-Mounted Drill Rig	Completion Depth: 24 ft — Rock Depth: 2 ft
Size and Type of Bit: 2-7/8" Tricone Roller Bit	Number of Samples: Disturbed 3 — Undisturbed - — Core 4
Casing Diameter (in): 4" I.D. Steel — Casing Depth (ft): 4	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Joe Schuster
Sampler: 2" O.D. Split Spoon	Inspecting Engineer: Cristina Robles
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Building Code	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40
	+24.0									
	+23.8	Class 7	2-INCH-THICK ASPHALT Black f-c SAND, some asphalt, trace concrete (dry) [FILL]		0	S-1	SS	12	5, 11, 8, 12	19
	+21.8	Class 1d	Gray to black f-c SAND, some rock fragments (dry) [DECOMPOSED ROCK]		3	S-2	SS	7	9, 50, 50/0"	50/0"
	+19.9		No Recovery (Inferred DECOMPOSED ROCK)		4	S-3	SS	0	50/1"	50/1"
		Class 1b	Gray GNEISS	2:13	5	C-1	NX CORE BARREL	REC=57"/60" =95%	RQD=32"/60" =53%	
				1:56	6					
				1:46	7					
				1:48	8					
				2:00	9					
			Gray GNEISS	1:41	10	C-2	NX CORE BARREL	REC=60"/60" =100%	RQD=42.5"/60" =71%	
				1:48	11					
				2:40	12					
				2:30	13					
				2:41	14					
			Gray GNEISS	1:50	15	C-3	NX CORE BARREL	REC=60"/60" =100%	RQD=39.5"/60" =66%	
				2:03	16					
				2:14	17					
				2:07	18					
				2:01	19					
			Gray GNEISS	1:56	20	C-4				

Remarks

(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)

Started drilling at 10:50 AM on 9/25/17.
Drilled through 2-inch-thick asphalt pavement.
SS 2" to 2'2"
SS 2'2" to 3'2"
Advanced 4-inch-thick casing to 4'.
Drilled to 4' using 2-7/8" roller bit.
Gray wash.
SS at 4'; spoon observed to bounce.
Start of NX core run C-1 at 4.1' at 11:14 AM.

Gray wash.

End of NX core run C-1 at 9.1' at 11:25 AM.
Start of NX core run C-2 at 9.1' at 11:30 AM.

Gray wash.

End of NX core run C-2 at 14.1' at 11:42 AM.
Start of NX core run C-3 at 14.1' at 11:46 AM.

Gray wash.

End of NX core run C-3 at 19.1' at 11:58 AM.
Start of NX core run C-4 at 19.1' at 12:05 PM.

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Log of Boring **B-2** Sheet 2 of 2

Project	Project No.
Proposed 261 Walton Avenue Development	100677101
Location	**Elevation and Datum**
Bronx, NY	Approx. el 24 (NAVD 88)

MATERIAL SYMBOL	Elev. (ft)	Building Code	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Class 1b	Gray GNEISS	2:10 2:46 2:20 2:00	20–24	C-4	NX CORE BARREL	REC=60"/60" =100%	RQD=49"/60" =82%		Gray wash.
	-0.1		End of Boring at 24.1'.		24–45						End of NX core run C-4 at 24.1' at 12:16 PM. Borehole backfilled with soil cuttings and patched at the surface with asphalt upon completion.

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Log of Boring **B-3** Sheet 1 of 2

Project: Proposed 261 Walton Avenue Development	Project No.: 100677101
Location: Bronx, NY	Elevation and Datum: Approx. el 29 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling	Date Started: 9/26/17 — Date Finished: 9/26/17
Drilling Equipment: CME Truck-Mounted Drill Rig	Completion Depth: 24 ft — Rock Depth: 0.3 ft
Size and Type of Bit: 2-7/8", 3-7/8" & 4-7/8" Tricone Roller Bits	Number of Samples: Disturbed 3 — Undisturbed - — Core 4
Casing Diameter (in): 4" I.D. Steel — Casing Depth (ft): 4	Water Level (ft.): First - — Completion - — 24 HR. -
Casing Hammer: Automatic — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Joe Schuster
Sampler: 2" O.D. Split Spoon	Inspecting Engineer: Cristina Robles
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Building Code	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	+29.0				0						Started drilling at 8:20 AM on 9/26/17.
	+28.5	Class 7	Black f-c SAND, trace f-c gravel, trace silt, trace rock fragments, trace glass (dry) [FILL]		1	S-1A S-1B	SS	5	10 100/5"	100/5"	SS 0' to 11"
		Class 1d	Gray fine SAND, some rock fragments, some silt (dry) [DECOMPOSED ROCK] No Recovery [Inferred DECOMPOSED ROCK]		2	S-2	SS	0	50/1"	50/1"	Drilled to 2' using 3-7/8" roller bit. Moderate rig chatter. SS 2' to 2'1" Drilled to 4' using 4-7/8" roller bit. Moderate rig chatter.
	+25.0				3						Gray wash.
		Class 1c	Dark gray GNEISS	3:45	4	S-3	SS	0	50/0"	50/0"	Advanced 4-inch-dia casing to 4'. Redrilled to 4' using 2-7/8" roller bit. SS at 4'; spoon observed to bounce. Start of NX core run C-1 at 4' at 9:22 AM.
				2:52	5	C-1 NX CORE BARREL		REC=60"/60" =100%	RQD=29"/60" =48%		
				1:47	6						Gray wash.
				1:30	7						
				1:11	8						End of NX core run C-1 at 9' at 9:35 AM. Start of NX core run C-2 at 9' at 9:40 AM.
	+20.0				9						
			Dark gray GNEISS	1:25	10						
				1:55	11	C-2 NX CORE BARREL		REC=60"/60" =100%	RQD=38.5"/60" =64%		Gray wash.
				2:50	12						
				3:01	13						
				2:30	14						End of NX core run C-2 at 14' at 9:53 AM. Start of NX core run C-3 at 14' at 10:25 AM.
		Class 1b	Dark gray GNEISS	2:05	15						
				2:02	16	C-3 NX CORE BARREL		REC=59"/60" =98%	RQD=37.5"/60" =63%		Gray wash.
				2:29	17						
				2:32	18						
				2:01	19						End of NX core run C-3 at 19' at 10:39 AM. Start of NX core run C-4 at 19' at 10:44 AM.
	+10.0										
		Class 1c	Dark gray GNEISS	1:25	20	C-4					

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Log of Boring **B-3** Sheet 2 of 2

Project	Project No.
Proposed 261 Walton Avenue Development	100677101
Location	**Elevation and Datum**
Bronx, NY	Approx. el 29 (NAVD 88)

MATERIAL SYMBOL	Elev. (ft)	Building Code	Sample Description	Coring (min)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Class 1c	Dark gray GNEISS	1:50 2:00 1:56 1:50	20 21 22 23	C-4	NX CORE BARREL	REC=60"/60" =100%	RQD=25"/60" =42%		Gray wash. End of NX core run C-4 at 24' at 10:54 AM. Borehole backfilled with soil cuttings upon completion.
	+5.0		End of Boring at 24'.		24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45						

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REMEDIAL INVESTIGATION WORK PLAN

for

261 Walton Avenue
Bronx, New York

Prepared for:

Tuck-It-Away Associates – Deegan, LLC
555 Madison Avenue
New York, NY 10022

Prepared by:

Langan Engineering, Environmental, Surveying,
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21 Penn Plaza
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Jason J. Hayes, P.E., LEED^{AP}
Principal/Vice President

November 2, 2021
Revised: November 4, 2021
Langan Project No. 170601701

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CERTIFICATION

I, Jason Hayes, certify that I am currently a Qualified Environmental Professional as defined in 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 and that this Remedial Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation.



Jason J. Hayes, P.E., LEED^{AP}

1.0 INTRODUCTION

This Remedial Investigation Work Plan (RIWP) was prepared on behalf of Tuck-It-Away Associates, Deegan, LLC (the Requestor) for the property located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York (the site). The Requestor is submitting this RIWP in conjunction with an Application to the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) to investigate and remediate the site.

The objective of the scope of work defined in this RIWP is to further investigate and characterize the nature and extent of environmental impacts at and emanating from the site and to provide sufficient information to evaluate remedial alternatives, as required. This RIWP was developed in accordance with the process and requirements identified in the NYSDEC Division of Environmental Remediation (DER)-10 *Technical Guidance for Site Investigation and Remediation* (May 2010) and the New York State Department of Health (NYSDOH) *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006, with updates).

2.0 SITE BACKGROUND

2.1 Site Description

The site is located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York. The site is about 27,454 square feet (0.63 acres) in area and is identified on the Bronx Borough Tax Map as Block 2344, Lot 60. A site location map is provided as Figure 1 and details of the site are included in Figure 2.

The site is improved with a vacant six-story building and an asphalt-paved lot; numerous large metal storage containers are stacked on the asphalt-paved lot. The site is bound by an industrial/manufacturing building to the north, Walton Avenue followed by industrial buildings to the east, a gas station to the south, and Gerard Avenue followed by the Major Deegan Expressway to the west. The proposed development will include abatement and demolition of the existing building to prepare the site for investigation and remediation, and construction of an affordable residential building. A site plan is provided as Figure 2.

2.2 Surrounding Property Land Use

The site is in a mixed-use area with commercial, light industrial, and institutional uses nearby. The following is a summary of surrounding property usage:

Direction	Adjoining and Adjacent Properties			Surrounding Properties
	Block No.	Lot No.	Description	
North	2344	83	3-story industrial/manufacturing building	Light industrial/manufacturing and institutional buildings
East	NA	NA	Walton Avenue	Light industrial/manufacturing and commercial buildings
South	2344	52	BP Gas Station	Madison Avenue Bridge, Deegan Rock Memorial Park
West	NA	NA	Gerard Avenue	Major Deegan Expressway, light industrial/manufacturing buildings and Con Edison buildings

Public infrastructure (storm drains, sewers, and underground utility lines) exists within the streets surrounding the site.

Land use within a half-mile radius is urban and includes residential, light industrial, and commercial buildings and institutional facilities. The nearest ecological receptor is the Harlem River, which is located approximately 500 feet west of the site.

No schools or day care facilities are located on the site. Sensitive receptors, as defined in DER-10, within a half mile of the site include those listed below:

Number	Name (Approximate distance from site)	Address
1	Health Opportunities High School (0.08 miles north of the site)	350 Gerard Avenue Bronx, NY 10451
2	Community School for Social Justice (0.10 miles north of the site)	350 Gerard Avenue Bronx, NY 10451
3	Family Life Academy Charter School III (0.14 miles north of the site)	370 Gerard Avenue Bronx, NY 10451
4	P.S. 168 (0.2 miles east of the site)	339 Morris Avenue Bronx, NY 10451
5	Success Academy Bronx 1 Middle School (0.24 miles east of the site)	339 Morris Avenue Bronx, NY 10451
6	KIPP NYC College Prep High School (0.31 miles southeast of the site)	201 East 144th Street Bronx, NY 10451
7	Sunshine Learning Center (0.26 miles northeast of the site)	253 East 142nd Street Bronx, NY 10451
8	Global Community Charter School (0.28 miles northwest of the site)	2350 5th Avenue New York, NY 10037
9	Hostos Community Children's Center (0.28 miles north of the site)	475 Grand Concourse New York, NY 10039
10	Family Life Academy Charter School II (0.32 miles southeast of the site)	296 East 140th Street Bronx, NY 1454
11	The Jewish Board: Harlem Child Development Center (0.34 miles northwest of the site)	34 West 139th Street New York, NY 10037
12	Creciendo DayCare (0.35 miles east of the site)	281 East 143rd Street Apt. 12-F Bronx, NY 10451
13	Cuddly Bundles Childcare (0.38 miles north of the site)	137 East 150th Street Bronx, NY 10451
14	Democracy Prep Charter Middle School (0.39 miles northwest of the site)	2230 5th Avenue New York, NY 10037
15	Zeta Charter School Bronx 1 (0.41 miles southeast of the site)	222 Alexander Avenue Bronx, NY 10454
16	PS 18 John Peter Zenger (0.41 miles northeast of the site)	502 Morris Avenue Bronx, NY 10451
17	St. Mark the Evangelist School (0.42 miles northwest of the site)	55 West 138th Street New York, NY 10037
18	New York City Housing Authority's Lincoln Day Care Center	212 Madison Avenue New York, NY 10037

Number	Name (Approximate distance from site)	Address
	(0.42 miles west of the site)	
19	PS 49 Willis Avenue (0.46 miles southeast of the site)	383 East 139th Street Bronx, NY 10454
20	South Bronx Classical Charter School II (0.48 miles southeast of the site)	333 East 135th Street Bronx, NY 10454
21	The Laboratory School of Finance and Technology (0.49 miles east of the site)	360 East 145th Street Bronx, NY 10454

2.3 Site Physical Conditions

2.3.1 Topography

According to the 2013 United States Geological Survey (USGS) Central Park Quadrangle 7.5-minute Series Topographic Map, the site is at an elevation of approximately 25 feet above mean sea level (msl). The topography of the site slopes to the west, towards the Harlem River.

2.3.2 Site Geology

According to soil descriptions provided in the February 2012 Limited Phase II Environmental Site Assessment conducted by IVI Environmental, Inc. and the October 2017 Initial Geotechnical Investigation memorandum prepared by Langan Engineering, Environmental, Surveying, Landscape Architecture, and Geology, D.P.C. (Langan), historic fill was identified beneath the asphalt layer across the site to depths ranging from 6 inches to 5 feet below grade surface (bgs)[1]. The fill material, generally characterized as fine to medium sands, with varying amounts of silt, clay, gravel, and brick, is underlain by silty sands, clay and/or weathered bedrock, and bedrock. Bedrock was encountered at depths ranging from 10 inches to 9 feet bgs.

Based on a review of the "Bedrock and Engineering Geologic Maps of Bronx County and Parts of New York and Queens Counties, New York" by Charles A. Baskerville, et al. and the geotechnical investigation results, the bedrock underlying the site is the Manhattan Schist formation. The Manhattan Schist is a Lower Cambrian formation composed of sillimanite-muscovite-biotite-kyanite schist and gneiss.

[1] The October 2017 Initial Geotechnical Investigation included three borings and one temporary groundwater level observation well advanced within the asphalt-paved areas on site.

2.3.3 Hydrogeology

Groundwater flow is typically topographically influenced because shallow groundwater tends to originate in areas of topographic highs and flows toward areas of topographic lows, such as rivers, stream valleys, ponds, and wetlands. A broader, interconnected hydrogeologic network often governs groundwater flow at depth or in the bedrock aquifer. Groundwater depth and flow direction are also subject to hydrogeologic and anthropogenic variables such as precipitation, evaporation, extent of vegetative cover, coverage by impervious surfaces, and subsurface structures. Other factors influencing groundwater include depth to bedrock, the presence of anthropogenic fill, and variability in local geology and groundwater sources or sinks.

Based on the Langan's Initial Geotechnical Investigation memorandum, site groundwater observed at about 8 feet bgs represents a perched groundwater condition near top of bedrock.

2.3.4 Wetlands and Floodplain

Wetlands on and near the site were evaluated by reviewing the National Wetlands Inventory and NYSDEC regulated wetlands map. There are no wetlands on the site. According to the NYSDEC Tidal Wetlands Map 588-518 the Harlem River is mapped as a Littoral Zone (LZ) approximately 500 feet west of the site.

According to the Effective National Flood Insurance Rate map for the City of New York published by the Federal Emergency Management Agency (Community Panel No. 3604970083F), the site falls within Zone X, which is defined as having a 0.2% annual chance of flood.

2.4 Summary of Previous Environmental Investigations

Three previous environmental reports were reviewed in the preparation of this RIWP (See Appendix A).

- *December 13, 2011 Phase I Environmental Site Assessment (ESA), prepared by Airtek Environmental Corporation*
- *February 16, 2012 Limited Phase II ESA, prepared by IVI Environmental, Inc.*
- *June 8, 2015 ASTM E1528-14 Transaction Screen Environmental Site Assessment Report, prepared by LCS, Inc.*

To supplement these reports, data will be gathered during the Remedial Investigation (RI) proposed herein using appropriate sampling and analytical procedures as approved and conducted under the oversight of the NYSDEC and NYSDOH. The purpose of the RI will be to characterize the nature and extent of contamination at this site. Sufficient information will be collected to determine if contamination is migrating or emanating from the site, inform the qualitative human health exposure assessment, and support the positive or negative significant

threat determination. The conclusions of previous investigations may or may not be supported by the findings of this RI.

Phase I ESA, prepared by Airtek Environmental Corporation (December 13, 2011)

Airtek Environmental Corporation conducted a Phase I ESA on behalf of M & T Bank in accordance with ASTM E1527-13. The site was occupied and owned by Tuck-It-Away Associates and used for self-storage at the time of the assessment. The Phase I ESA identified the following Recognized Environmental Conditions (REC):

- Previous site use included an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909-1965); a card and paper warehouse (1927-1956); a brick, lime and cement manufacturing company with a 550-gallon gasoline underground storage tank (1935); an automotive repair facility (1936-1976); and a furniture warehouse and showroom (1977-2007).

- Current and historical use of the adjoining and surrounding properties included the following:

    - The southern adjoining property was occupied by a piano factory and lumber storage facility (1908-1935) and then by a gasoline station (1951-present). The property is associated with two closed NYSDEC Spills (Nos. 9408104 and 0207682).

    - The northern adjoining property was used for furniture manufacturing, storage, and as a fur processing and dyeing facility with an associated paint shop (1935-1951).

    - The northeastern property across Walton Avenue was used as an automotive sales and service facility (1935 and 1977 - 2007), a gasoline station (1944 – 2002) and a car wash (1992 – 2011). The site is associated with an open NYSDEC Spill (No. 9909720).

    - The eastern adjoining property across Walton Avenue was used as an automotive gasoline station (1935) and plastics manufacturing facility (1947-1951).

- As part of the Lower Concourse Rezoning, dated May 8, 2009, the site was assigned an E-Designation (E-227) for hazardous materials and air quality (for fuel oil/natural gas restriction and exhaust stack location limitations).

Limited Phase II ESA, prepared by IVI Environmental, Inc. (February 16 2012)

IVI Environmental, Inc. conducted a Limited Phase II ESA in February 2012 to investigate the RECs identified in the Phase I ESA. The Limited Phase II ESA included a geophysical survey, advancement of ten soil borings and collection and laboratory analysis of eight soil samples from the asphalt-paved area on the site. The following summarizes the findings of the Limited Phase II ESA:

- Subsurface soils encountered during the investigation consisted of historic fill material and brown silty sands and clay. The historic fill was observed to depths varying between about 10 inches and 5 feet bgs. Historic fill was generally underlain by silty sands, clay, and weathered rock. Refusal, on presumed bedrock, was encountered in each of the ten borings at depths ranging from approximately 10 inches bgs in the northeastern part of the site to 9 feet bgs in the northwestern part of the site. Groundwater was not encountered in any of the soil borings.

- Petroleum impacts (i.e., visual, olfactory and/or photoionization detector [PID] readings) were not observed in the borings. Soil samples were collected from the bottom of each soil boring and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and Resource Conservation and Recovery Act (RCRA) metals.

- Soil sample results were compared to the NYSDEC Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use (UU) and Restricted Use Restricted Residential (RURR) Soil Cleanup Objectives (SCO). Analytes with detections above the UU SCOs are listed below, with those above the RURR SCOs shown in **bold**.

    - No VOCs were detected at concentrations above UU or RURR SCO.

    - SVOCs: **benzo(a)anthracene** (maximum concentration 8.3 milligrams per kilogram [mg/kg]), **benzo(a)pyrene** (maximum concentration 10 mg/kg), **benzo(b)fluoranthene** (maximum concentration 13 mg/kg), **benzo(k)fluoranthene** (maximum concentration 6.3 mg/kg), **chrysene** (maximum concentration 7.9 mg/kg), **dibenzo(a,h)anthracene** (maximum concentration 1.2 mg/kg) and **indeno(1,2,3-cd)pyrene** (maximum concentration 3.7 mg/kg).

    - Metals: barium (maximum concentration 386 mg/kg), **cadmium** (maximum concentration 6.9 mg/kg), **lead** (maximum concentration 8,440 mg/kg), mercury (maximum concentration 0.56 mg/kg) and silver (maximum concentration 3.69 mg/kg).

Figure 3 summarizes the detected soil concentrations from the Limited Phase II ESA.

ASTM E1528-14 Transaction Screen Environmental Site Assessment Report, prepared by LCS Inc. (June 8, 2015)

LCS Inc. conducted an ASTM 15-28-14 Transaction Screen Environmental Site Assessment Report for M&T Bank of New York to identify potential environmental concerns (PEC) for financing purposes. The site was occupied by Tuck-It-Away Self Storage at the time of the site inspection and the report identified the following PECs:

- Historic site use included an auto wrecking yard and auto repair facility. An associated 2012 investigation (the Limited Phase II ESA described above) identified metal and SVOCs at concentrations above Part 375 criteria in soil across the site.
- The site was assigned an E-Designation for hazardous materials and air quality.
- There were adjacent properties, including a south adjacent gasoline station, with the potential to impact subsurface conditions on the site.

2.5 Areas of Concern

Based on the site history and the findings of the previous studies, the areas of concerns (AOC) to be further investigated by this RI are shown on Figure 4 and described below.

AOC 1: Prior Site Use

Historical operations at the site include an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909 – 1965); a brick, lime and cement manufacturing company with a 550-gallon gasoline underground storage tank (1935); and an automotive repair facility (1936 – 1976). The RI will evaluate whether releases of petroleum products or other hazardous substances associated with prior uses have adversely impacted soil, soil vapor and/or groundwater.

AOC 2: Historic Fill

Historic fill from unknown sources was identified on the site from below surface grade up to 5 feet bgs. Contaminants associated with historic fill, including SVOCs and metals, were identified in soil samples at concentrations exceeding the UU and/or RURR SCOs. The RI will evaluate the nature and extent of historic fill and the presence of SVOCs and metals above UU and/or RURR SCOs.

AOC 3: Off-site Current and Historical Use

Historical and current operations at adjoining and surrounding properties include a gasoline station (1951 – present) at the southern adjoining property, a gasoline station (1935) and plastics

manufacturing facility (1947 – 1951) at the eastern adjoining property, an auto service facility (1935 and 1977 – 2007) and a gasoline station (1944 – 2002) at the northeastern surrounding property, and a fur processing and dyeing facility (1935 – 1951) with an associated paint shop in 1935 at the northern adjoining property. The RI will evaluate whether releases of petroleum products or other hazardous substances associated with adjoining and surrounding property use have adversely impacted groundwater and/or soil vapor at the site.

3.0 SCOPE OF WORK

The objective of this RIWP is to investigate and characterize "the nature and extent of the contamination at and/or emanating from a brownfield site", per Environmental Conservation Law Article 27, Title 14 (Brownfield Cleanup Program). The field investigation will include the tasks summarized below. The rationale for each sampling location, in relation to the AOCs, and analytical parameters for each proposed sample are provided in Table 1. These tasks are discussed in more detail in the following sections.

Asbestos Abatement and Demolition of Existing Structures and Site Clearing

- Removal of stacked metal containers to allow for the investigation on the exterior portions of the RI
- Abate and demolish the existing self-storage building to allow for the safe implementation of the RI within the building footprint

Geophysical Survey

- Perform a geophysical survey to locate unidentified underground storage tanks (USTs) and underground structures and identify utilities in the vicinity of proposed sampling locations.

Soil Borings and Sampling

- Advance 19 soil borings to refusal/bedrock (assumed at a maximum of 9 feet bgs).
- Collect up to 41 soil samples (plus quality assurance/quality control |QA/QC| samples) to characterize the nature and extent of soil contamination.

Monitoring Well Installation and Sampling

- Install and develop up to 5 permanent monitoring wells.
- Collect one groundwater sample from each monitoring well for a total of 5 samples (plus QA/QC samples) for laboratory analysis to evaluate groundwater quality across the site.
- Survey and gauge monitoring wells to establish groundwater elevations and evaluate flow direction.

Soil Vapor and Ambient Air Sampling

- Install 7 soil vapor points to about 2 feet above the groundwater table, if encountered. If groundwater is not encountered the vapor points will be installed above the bedrock.
- Collect one vapor sample from each vapor point for a total of 7 samples for laboratory analysis to evaluate the nature of soil vapor across the site.
- Collect one outdoor ambient air sample as a QA/QC sample for laboratory analysis.

The investigation will be conducted in two phases. Phase 1 will include the borings, wells, and soil vapor points in the exterior portion of the site. Phase 2 will include the borings, wells and soil vapor sample points located within the footprint of the building and will be conducted after abatement and demolition of the building is complete. This RIWP was designed to allow for real-time decision making in the field. Additional soil, groundwater or soil vapor samples may be required:

(1) in the event unexpected soil and groundwater contamination is encountered in the field or exhibited by lab data; and

(2) to adequately characterize and delineate impacts related to AOCs in compliance with the BCP legislation, regulations and applicable investigation guidance documents (e.g., DER-10).

The NYSDEC and NYSDOH Project Managers will be consulted, as reasonable, to inform this decision-making process. In addition, modifications to the scope of work presented above may be required because of site operations, equipment or restrictions (not anticipated). All additions and modifications will be reflected in the Remedial Investigation Report (RIR).

The field investigation will be completed in accordance with NYSDEC DER-10 Guidance and the procedures specified in the Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP) included as Appendices B and C, respectively. A Community Air Monitoring Plan will be implemented during this investigation (See Section 3.10.2).

The names, contact information and roles of the principal personnel who will participate in the investigation — including NYSDEC/NYSDOH personnel, project managers, and subcontractors — are listed below. Resumes for Langan employees involved in the project are included in the QAPP (Appendix B).

Personnel	Investigation Role	Contact Information
Stuart Knoop Langan Engineering	Project Manager	Phone – 212-479-5461 Email – sknoop@Langan.com

Personnel	Investigation Role	Contact Information
Jason J. Hayes, P.E. Langan Engineering	Project Engineer	Phone – 212-479-5427 Email – jhayes@langan.com
Julia Leung, P.E. Langan Engineering	Field Team Leader	Phone – 212-479-5452 Email – jleung@langan.com
Tony Moffa, CHMM Langan Engineering	Langan Health & Safety Officer	Phone – 215-491-6500 Email – tmoffa@langan.com
Bill Bohrer Langan Engineering	Field Safety Officer	Phone – 410-984-3068 Email – wbohrer@langan.com
Mimi S. Raygorodetsky Langan Engineering	Quality Assurance Officer	Phone – 212-479-5441 Email – mraygorodetsky@langan.com
Steve Plofker AARCO Environmental	Drilling Contractor	Phone – 631-586-5900 Email – splofker@aarcoenvironmental.com
Ben Rao Alpha Analytical	Laboratory Contractor	Phone – 201-847-9100 Email – brao@alphalab.com
Marla Miller Langan Engineering	Program Quality Assurance Monitor/ Data Validator	Phone – 602-772-1839 Email – mmiller@langan.com
Hasan Ahmed NYSDEC	Project Manager	Phone – 718-482-6405 Email – hasan.ahmed@dec.ny.gov
Renata Ockerby NYSDOH	Project Manager	Phone – 518-402-7867 Email – renata.ockerby@health.ny.gov

3.1 Asbestos Abatement and Demolition

The stacked metal storage containers on the northern and western portions of the site were removed in July 2021 to allow for the investigation of the exterior portions of the RI.

Abatement of hazardous materials, including asbestos containing materials (ACM), lead based paint (LBP), and other universal waste and miscellaneous hazardous waste articles and demolition of the existing self-storage building will be implemented to prepare the site for the RI within the building footprint. ACM abatement will be implemented in accordance with New York State Department of Labor Policies and Procedures.

3.2 Geophysical Survey

We will coordinate with a geophysical contractor to clear subsurface testing locations of potential subsurface utilities and to locate any USTs. The geophysical survey will be completed using a collection of geophysical instruments, including electromagnetic and utility line locator instruments and ground-penetrating radar (GPR). The results of the survey may require relocating subsurface testing locations.

3.3 Soil Investigation

Soil Boring Installation

A drilling subcontractor will advance 19 soil borings (SB01 through SB19) to investigate the site and the AOCs identified in Section 2.5. Soil borings will terminate five feet below the groundwater interface if encountered or at bedrock, which is anticipated at about 9 feet bgs. A plan showing the proposed sample locations is included as Figure 4. Table 1 indicates the sample locations that are intended to investigate each AOC.

The soil borings will be advanced using direct-push drilling technology by an experienced environmental driller. The direct-push drill rig will be equipped with a closed-point Macro-Core® sampler or dual-tube sampling system to prevent the collapse of sidewall material as borings are advanced. A Langan field engineer, scientist or geologist will document the work, screen soil samples for environmental impacts, and collect representative environmental soil samples for laboratory analyses. Soil will be screened continuously to the boring termination depth for organic vapors with a photoionization detector (PID) equipped with a 10.6 electron volt (eV) bulb and for visual and olfactory evidence of environmental impacts (e.g., non-aqueous phase liquid [NAPL], staining, odor). Soil will be visually classified for color, grain size, texture, and moisture content, and will be recorded in a field log. Non-disposable, down-hole drilling equipment and sampling apparatus will be decontaminated between locations with Alconox® and water. Water used for decontamination and rinsate will be containerized into United Nations/Department of Transportation (UN/DOT)-approved 55-gallon drums, labeled, and staged for off-site disposal.

Soil Sampling and Analysis

Up to two grab soil samples will be collected for laboratory analysis from each soil boring:

- One soil sample will be collected from the shallow fill layer.
- One sample will be collected from the interval exhibiting the greatest degree of contamination, where observed (based on the presence of staining, odor, and/or PID readings above background). If no impacts are observed, the sample will be collected from above the groundwater interface, if groundwater is encountered. If groundwater is not encountered, the sample will be collected from the interval above refusal/bedrock.

The proposed soil samples are summarized in Table 1. Depending on the site conditions (e.g., historic fill and bedrock depth, presence/absence of impacts), the number of samples collected at each boring may vary.

The samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in a chilled cooler (to attempt to maintain a temperature of about 4°C) for delivery to a

NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory. Soil samples will be analyzed using the latest USEPA methods as follows:

- Part 375 Target Compound List (TCL) VOCs by USEPA methods 8260C/5035
- Part 375 TCL SVOCs by USEPA method 8270D
- Part 375 Polychlorinated biphenyls (PCB) by USEPA method 8082A
- Part 375 Target Analyte List (TAL)/Part 375 List metals (including cyanide and hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/9010C/7196A
- Part 375 Pesticides and herbicides by USEPA methods 8081B and 8151A, respectively
- NYSDEC list for per- and poly-fluoroalkyl substances (PFAS) by USEPA method 537 Rev 1.15

Relevant QA/QC procedures to be followed are described in the QAPP in Appendix B.

3.4 Groundwater Investigation

Monitoring Well Installation

Five soil borings will be converted into permanent groundwater monitoring wells. A plan showing the proposed well locations is included as Figure 4. Table 1 indicates the monitoring wells that are intended to investigate each AOC. Monitoring well locations will be numbered in conjunction with their respective soil boring numbers and prefixed with "MW". Wells will be constructed across the observed water table. The wells will be constructed with 2-inch-diameter, threaded, flush-joint, polyvinyl chloride (PVC) casing and 0.01-inch-slot well screens. Clean sand (e.g., Morrie No. 1) will be used to fill the annulus around the screen and above the top of the screened interval. A bentonite seal will be installed above the sand and the remaining borehole annulus will be backfilled with drill cuttings with no evidence of petroleum impacts (i.e., staining, odors, or elevated PID readings) to within 12 inches of the surface and/or grouted to the surface with bentonite and cement slurry.

If petroleum impacted material is encountered at the top of the bedrock surface and perched groundwater is not encountered on top of bedrock, a bedrock well will be installed. The bedrock well will be installed into bedrock using an appropriate drill rig by advancing steel protective casing at least 5 feet into bedrock, grouting the annulus outside the casing within the borehole up to the ground surface, and coring another 5 feet into rock starting at the bottom of the casing. The targeted depth of the well will be about 10 feet below the bedrock surface. The bedrock monitoring well will be developed by surging with a surge block. Bedrock monitoring wells will be prefixed with "BRW".

After installation, the wells will be developed by surging using either a weighted bailer or surge block across the well screen and casing to agitate and remove fines. The bailer or surge block will be surged across the well screen in 2- to 3-foot increments for about two minutes per increment. After surging, the well will be purged via pumping until the water becomes visually clear. The well will then be allowed to stabilize for a minimum of one week.

Groundwater Sampling and Analysis

Before sampling, the headspace of each well will be monitored with a PID and the wells will be gauged and purged. Each well will be gauged with an interface probe to determine the depth to groundwater and thickness of any light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid DNAPL. If either is encountered, representative samples of the product will be collected for laboratory fingerprint analysis.

Groundwater samples will be collected about one week after the wells are installed and developed. The proposed groundwater samples are summarized in Table 1. One groundwater sample will be collected from each well in general accordance with NYSDEC DER-10 and USEPA's *Low Flow Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (EQASOP-GW4 Revised Sep. 2017)*. Before the groundwater samples are collected, wells will be gauged and then, provided no NAPL is present, continuously purged until groundwater quality parameters (pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential) stabilize, to the extent practical, in accordance with the USEPA low-flow guidance. A multi-parameter water quality system will be used to monitor the groundwater quality parameters during sampling. No groundwater samples will be collected from monitoring wells containing NAPL. Samples will be collected with a peristaltic pump (if possible) or equivalent and dedicated polyethylene tubing. The pump will be decontaminated with Alconox® and water between each sample location. Development and purge water will be containerized into UN/DOT-approved 55-gallon drums, labeled, and staged for off-site disposal.

The groundwater samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in a chilled cooler (to attempt to maintain a temperature of about 4°C) for delivery to the laboratory. Groundwater samples will be analyzed using the latest USEPA methods as follows:

- TCL VOCs by USEPA method 8260C
- TCL SVOCs by USEPA method 8270D (including 1,4-dioxane by 8270 SIM isotope dilution)
- PCBs by USEPA method 8082A
- Metals (field-filtered and unfiltered) by USEPA method 6010C/7470

- Pesticides and herbicides by USEPA methods 8081B and 8151A, respectively
- Per- and poly-fluoroalkyl substances (PFAS) by USEPA method 537 Rev 1.15

QA/QC procedures to be followed are described in the QAPP in Appendix B.

3.5 Soil Vapor Investigation

Soil Vapor Point Installation

Seven soil vapor points will be installed using direct-push technology in accordance with the NYSDOH's *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006, with updates). A plan showing the proposed soil vapor point locations is included as Figure 4. Table 1 indicates the soil vapor points that are intended to investigate AOCs 1, 2 and 3. Soil vapor points will be installed by advancing a probe implant to about 2 feet above the groundwater table or if groundwater is not encountered, soil vapor probes will be installed above the bedrock.

The soil vapor collection points will consist of a 1.875-inch polyethylene implant with inert sample tubing (e.g., polyethylene or Teflon) and inert sample tubing only, respectively. The annulus (i.e., the sampling zone) around the soil vapor implant and tubing will be filled with a clean, coarse sand pack followed by a hydrated bentonite seal to surface grade. Hydrated bentonite will also be used to create a seal around the tubing at the surface of the soil vapor point.

Soil Vapor Sampling and Analysis

Samples will be collected in general accordance with the 2006 NYSDOH guidance. The proposed vapor samples are summarized in Table 1. Before collecting vapor samples, about three soil vapor point volumes (i.e., the volume of the sample implant and tubing) will be purged from each sample location at a rate of less than 0.2 liters per minute using a RAE Systems MultiRAE® meter set at a low flow setting. The purged soil vapor will be monitored for VOCs with the MultiRAE® during purging.

A helium tracer gas will be used in accordance with the NYSDOH protocols to serve as a QA/QC technique to document the integrity of each soil vapor point seal before and after sampling. The tracer gas will be introduced into a container, which will shroud the soil vapor point and seal. Helium will be measured from the sampling tube and inside the container. If the sample tubing contains more than 10% of the tracer gas concentration that was introduced into the container, then the seal will be considered compromised and will be enhanced or reconstructed to reduce outdoor air infiltration.

A log sheet for each soil vapor sample will be completed to record sample identification; date and time of sample collection; sampling depth; name of the field engineer, geologist or scientist

responsible for sampling; sampling methods and equipment; vapor purge volumes; volume of vapor extracted; flow rate; and vacuum of canisters before and after sample collection.

After the integrity of each seal is confirmed, soil vapor samples will be collected into laboratory-supplied batch-certified clean 2.7-liter Summa® canisters with calibrated flow controllers. Soil vapor samples will be collected over a 2-hour sampling period and analyzed for VOCs by USEPA Method TO-15.

Ambient Air Sampling

One ambient air sample will be collected at a height above the ground to represent the breathing zone (about 3 to 5 feet). The air sample will be collected over a 2-hour sampling period (concurrently with the soil vapor samples) and analyzed for VOCs by USEPA TO-15 to evaluate potential outdoor air interferences with sampling apparatus.

QA/QC procedures to be followed are described in the QAPP in Appendix B.

3.6 Sampling Contingency

Additional soil, groundwater, and soil vapor sampling locations may be completed, as needed, to evaluate unanticipated contamination and to horizontally and vertically delineate identified contamination (e.g., NAPL, VOCs, SVOCs, metals, or other analytes) based on field observations and analytical results. The objective of sampling contingency is to provide adequate delineation of AOCs during a single mobilization event, if possible. Off-site groundwater and soil vapor sampling may be completed as part of the human health exposure assessment if perimeter sampling indicates potential contaminant migration to off-site receptors. Adjoining properties are exclusively occupied by manufacturing/industrial and commercial tenants. The decision to complete additional sampling and delineation (including step-out distances and target-depth intervals) based on field observations and/or preliminary (non-validated) laboratory data will be made by Langan in consultation with NYSDEC and NYSDOH Project Managers, where appropriate. The location and number of any step-out soil borings and additional monitoring wells will be based on field observations and analytical data from adjacent borings and wells, site access and drilling considerations. Sampling depths and analyses will be contingent on findings.

3.7 Monitoring Well Survey

The location and elevation of groundwater monitoring wells (top of casing) will be surveyed. This data will be used in conjunction with synoptic groundwater well gauging data to prepare a groundwater elevation contour map and evaluate the direction of groundwater flow. The survey will be conducted relative to the NAVD88 by a NYS-licensed land surveyor. Elevations of the top of monitoring-well casings and protective well covers will be surveyed to the nearest 0.01 foot.

3.8 Data Management and Validation

Laboratory analyses of all samples collected as part the remedial investigation will be conducted by a NYSDOH ELAP-approved laboratory in accordance with USEPA SW-846 methods and NYSDEC Analytical Services Protocol (ASP) Category B deliverable format. Environmental data will be reported electronically using the database software application EQuIS as part of NYSDEC's Environmental Information Management System (EIMS) and/or e-mail. Data usability summary reports will be included as an appendix in the RIR.

QA/QC procedures required by the NYSDEC ASP and SW-846 methods, including initial and continuing instrument calibrations, standard compound spikes, surrogate compound spikes, and analysis of other samples (blanks, laboratory control samples, and matrix spikes/matrix spike duplicates), will be followed. The laboratory will provide sample bottles, which will be pre-cleaned and preserved in accordance with the SW-846 methods. Where there are differences in the SW-846 and NYSDEC ASP requirements, the NYSDEC ASP will take precedence.

Data validation will be performed in accordance with the USEPA validation guidelines for organic and inorganic data review. Validation will include the following:

- Verification of QC sample results (qualitative and quantitative)
- Verification of sample results (positive hits and non-detects
- Recalculation of 10 percent of all investigative) sample results
- Preparation of Data Usability Summary Reports (DUSR

The DUSRs will be prepared and reviewed by the Program Quality Assurance Monitor (PQAM). The DUSRs will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and COC procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. A detailed assessment of each sample delivery group (SDG) will follow. Additional details on the DUSRs are provided in the QAPP in Appendix B.

The RI results will be reported to the NYSDEC using EQuIS in NYSDEC ASP Category B deliverable format and validated by the Data Validator identified in the QAPP.

3.9 Management of Investigation-Derived Waste

Soil cuttings will be returned to the borehole unless:

- Free product or grossly contaminated soil is present in the cuttings.
- The borehole has penetrated a confining layer.

- Backfilling the borehole with cuttings will create a significant path for vertical movement of contaminants. Soil additives (bentonite) may be added to the cuttings to reduce permeability.
- The soil cannot fit into the borehole.

Boreholes requiring disposal of drill cuttings will be filled with hydrated bentonite chips or clean sand and capped with asphalt or concrete. Soil cuttings and decontamination, well-development and purging fluids (together, investigation-derived waste [IDW]) will be containerized in properly labeled and sealed UN/DOT-approved 55-gallon drums and staged for future waste characterization and off-site disposal at a facility with a permit to accept the waste. The drums will be staged in a secure area on-site, pending receipt of laboratory data and off-site disposal to an appropriate facility. Spent disposable sampling equipment, including spoons, gloves, bags, and paper towels, will be double-bagged and disposed of as municipal trash in a dumpster or garbage can.

3.10 Air Monitoring

Worker and community air monitoring will be conducted during ground intrusive field activities. We will record air monitoring results in the field book during the investigation. Fugitive particulate (dust) generation that could affect site workers or the community is not expected for the following reasons:

- Most of the work area and the boring locations are paved with asphalt or concrete; therefore, vehicle movement will not generate dust.
- Intrusive work is limited to boring, soil vapor point and well installation, which does not generate large volumes of soil cuttings or dust.

3.10.1 Worker Air Monitoring

Air monitoring of the breathing zone will be performed periodically during drilling and sampling activities to document health and safety protection for the field team. Langan will monitor VOCs with a PID in accordance with the HASP. If air monitoring during intrusive operations identifies the presence of VOCs, we will follow the guidelines outlined in the HASP regarding action levels, permissible exposure, engineering controls, and personal protective equipment. If the VOC threshold action level is exceeded, work will cease and the work location will be evacuated. Monitoring will continue until the levels drops to permissible limits, at which point, work will resume with continued monitoring. If high levels persist, field activities will be halted and the work relocated to another area. If dust emissions are observed, work will stop and dust suppression measures (e.g., water spray) will be implemented.

3.10.2 Community Air Monitoring Plan

In addition to air monitoring in the workers' breathing zone, we will conduct community air monitoring in compliance with the NYSDOH Generic CAMP. Work may be conducted within 20 feet of potentially exposed individuals at adjoining properties; therefore, Special Requirements are included in the CAMP. The CAMP is included in Appendix D.

The CAMP will consist of continuous monitoring for VOCs and dust emissions during ground-intrusive activities (e.g., soil boring and monitoring-well installation). Baseline upwind and downwind concentrations will be measured prior to the start of each workday, and periodically thereafter, to establish background concentrations. VOCs and dust emissions will be monitored at the downwind perimeter of the work zone, which will be established at a point on the site where the general public or site employees may be present. VOC monitoring will be conducted with a PID equipped with a 10.6-eV lamp. VOC community air monitoring requirements will be conducted until it is determined that the site is not a source of organic vapors. Dust emissions will be monitored using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM10) and capable of averaging a period of 15 minutes (or less) for comparison to the airborne particulate action level (e.g., DustTrak).

Periodic monitoring for VOCs will be conducted during nonintrusive activities such as the collection of groundwater samples. Periodic monitoring may include obtaining measurements upon arrival at a location, when opening a monitoring-well cap, when bailing or purging a well, and upon departure from the location.

Daily field reports will include a summary of CAMP data, a figure displaying wind direction and location of CAMP stations. A summary of particulate matter/VOC exceedances and corrective actions taken will be reported to the NYSDEC and NYSDOH Project Managers within one business day.

3.11 Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment will be conducted in accordance with Appendix 3B of the NYSDEC DER-10, *Technical Guidance for Site Investigation and Remediation*. The assessment will be submitted in the RIR.

4.0 REMEDIAL INVESTIGATION REPORT

After completion of the RI and receipt of analytical data, a RIR will be prepared. The report will include:

- A summary of the site history and previous investigations
- A description of site conditions and the remedial investigation
- Sampling methodology and field observations
- Presentation and evaluation of the results and findings
- Conclusions and recommendations for any further assessment, if warranted

The report will summarize the nature and extent of contamination at each area of concern and identify unacceptable exposure pathways (as determined through a Qualitative Human Health Exposure Assessment).

The report will include soil boring and well-construction logs, sampling logs, tabulated analytical results, figures, and laboratory-data packages. The tabulated analytical results will be organized in table format and include sample location; media sampled; sample depth; field/laboratory identification numbers; analytical results; and applicable Standards, Criteria, and Guidance (SCG) pertaining to the site and contaminants of concern for comparison. The soil and groundwater analytical results will be compared to the UU and RURR SCOs and NYSDEC SGVs for Class GA water, respectively. Soil vapor analytical data will be presented and evaluated in conjunction with soil and groundwater analytical data. The report will include scaled figures showing the locations of soil borings, monitoring wells, and soil vapor points, sample concentrations above SCGs for each media, groundwater-elevation contours and flow direction, and, if appropriate, groundwater-contaminant concentration contours.

5.0 SCHEDULE

The table below presents an anticipated schedule for the proposed remedial investigation and reporting. If the scheduled changes, it will be updated and submitted to the NYSDEC.

Estimated Project Schedule		2021												2022											
Item	Action	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	Removal of Metal Storage Containers																								
2	RI Scheduling and Mobilization																								
3	Implementation of RI Field Work on Exterior Portions of Site																								
4	Laboratory Analysis																								
5	Partial RIR Preparation																								
6	Asbestos Abatement and Building Demolition																								
7	Implementation of RI Field Work on Building Footprint																								
8	Laboratory Analysis																								
9	Data Validation																								
10	RIR Prepration																								

TABLES

Table 1
Proposed Sample Summary

261 Walton Avenue
Bronx, NY 10451
Langan Project No. 17061701

No.	Sample Name	Type	Location	Rationale	Depth	Analysis
SOIL						
1	SB01_depth	Grab	SB01	Investigate AOC 1, 2 & 3	Historic Fill	TCL VOCs, TCL SVOCs, pesticides, herbicides, PCBs, TAL metals including hexavalent and trivalent chromium, cyanide, PFAS, and 1,4-dioxane.
2	SB01_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
3	SB02_2-3	Grab	SB02	Investigate AOCs 1, 2 & 3 and to Delineate Lead impacts	2-3 feet below grade	
4	SB02_3-4				3-4 feet below grade	
5	SB02_4-5				4-5 feet below grade	
6	SB03_depth	Grab	SB03	Investigate AOC 1, 2 & 3	Historic Fill	
7	SB03_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
8	SB04_depth	Grab	SB04	Investigate AOCs 1, 2 & 3	Historic Fill	
9	SB04_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
10	SB05_depth	Grab	SB05	Investigate AOC 1, 2 & 3	Historic Fill	
11	SB05_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
12	SB06_depth	Grab	SB06	Investigate AOCs 1, 2, & 3	Historic Fill	
13	SB06_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
14	SB07_depth	Grab	SB07	Investigate AOCs 1, 2, & 3	Historic Fill	
15	SB07_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
16	SB08_depth	Grab	SB08	Investigate AOCs 1, 2, & 3	Historic Fill	
17	SB08_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
18	SB09_depth	Grab	SB09	Investigate AOC 1, 2 & 3	Historic Fill	
19	SB09_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	

Notes are on Page 3.

Table 1
Proposed Sample Summary

261 Walton Avenue
Bronx, NY 10451
Langan Project No. 17061701

No.	Sample Name	Type	Location	Rationale	Depth	Analysis
SOIL						
20	SB10_2-3	Grab	SB10	Investigate AOCs 1, 2, & 3 and to Delineate lead impacts	2-3 feet below grade	TCL VOCs, TCL SVOCs, pesticides, herbicides, PCBs, TAL metals including hexavalent and trivalent chromium, cyanide, PFAS, and 1,4-dioxane.
21	SB10_3-4				3-4 feet below grade	
22	SB10_4-5				4-5 feet below grade	
23	SB11_2-3	Grab	SB11	Investigate AOCs 1, 2, & 3 and to Delineate lead impacts	2-3 feet below grade	
24	SB11_3-4				3-4 feet below grade	
25	SB11_4-5				4-5 feet below grade	
26	SB12_depth	Grab	SB12	Investigate AOCs 1, 2 & 3	Historic Fill	
27	SB12_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
28	SB13_depth	Grab	SB13	Investigate AOCs 1, 2 & 3	Historic Fill	
29	SB13_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
30	SB14_depth	Grab	SB14	Investigate AOCs 1, 2 & 3	Historic Fill	
31	SB14_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
32	SB15_depth	Grab	SB15	Investigate AOCs 1, 2 & 3	Historic Fill	
33	SB15_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
34	SB16_depth	Grab	SB16	Investigate AOCs 1, 2 & 3	Historic Fill	
35	SB16_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
36	SB17_depth	Grab	SB17	Investigate AOCs 1, 2 & 3	Historic Fill	
37	SB17_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
38	SB18_depth	Grab	SB18	Investigate AOCs 1, 2 & 3	Historic Fill	
39	SB18_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
40	SB19_depth	Grab	SB19	Investigate AOCs 1, 2 & 3	Historic Fill	
41	SB19_depth				Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
QA/QC SOIL						
42	SBDUP01_date	Duplicate	TBD	QA/QC	TBD	TCL VOCs, TCL SVOCs, pesticides, herbicides, PCBs, TAL metals including hexavalent and trivalent chromium, cyanide, PFAS, and 1,4-dioxane.
43	SBDUP02_date	Duplicate	TBD			
44	MS/MSD-SS01_date	MS/MSD	TBD			
45	MS/MSD-SS02_date	MS/MSD	TBD		Greatest degree of impacts, if encountered. Otherwise, groundwater interface if encountered or above bedrock	
46	SBEB01_date	Equipment Blank	TBD		NA	
47	SBEB02_date	Equipment Blank	TBD		NA	
48	SBTB01_date	Trip Blank	NA		NA	TCL VOCs
49	SBTB02_date	Trip Blank	NA		NA	
50	SBTB03_date	Trip Blank	NA		NA	

Notes are on Page 3.

Table 1
Proposed Sample Summary

261 Walton Avenue
Bronx, NY 10451
Langan Project No. 17061701

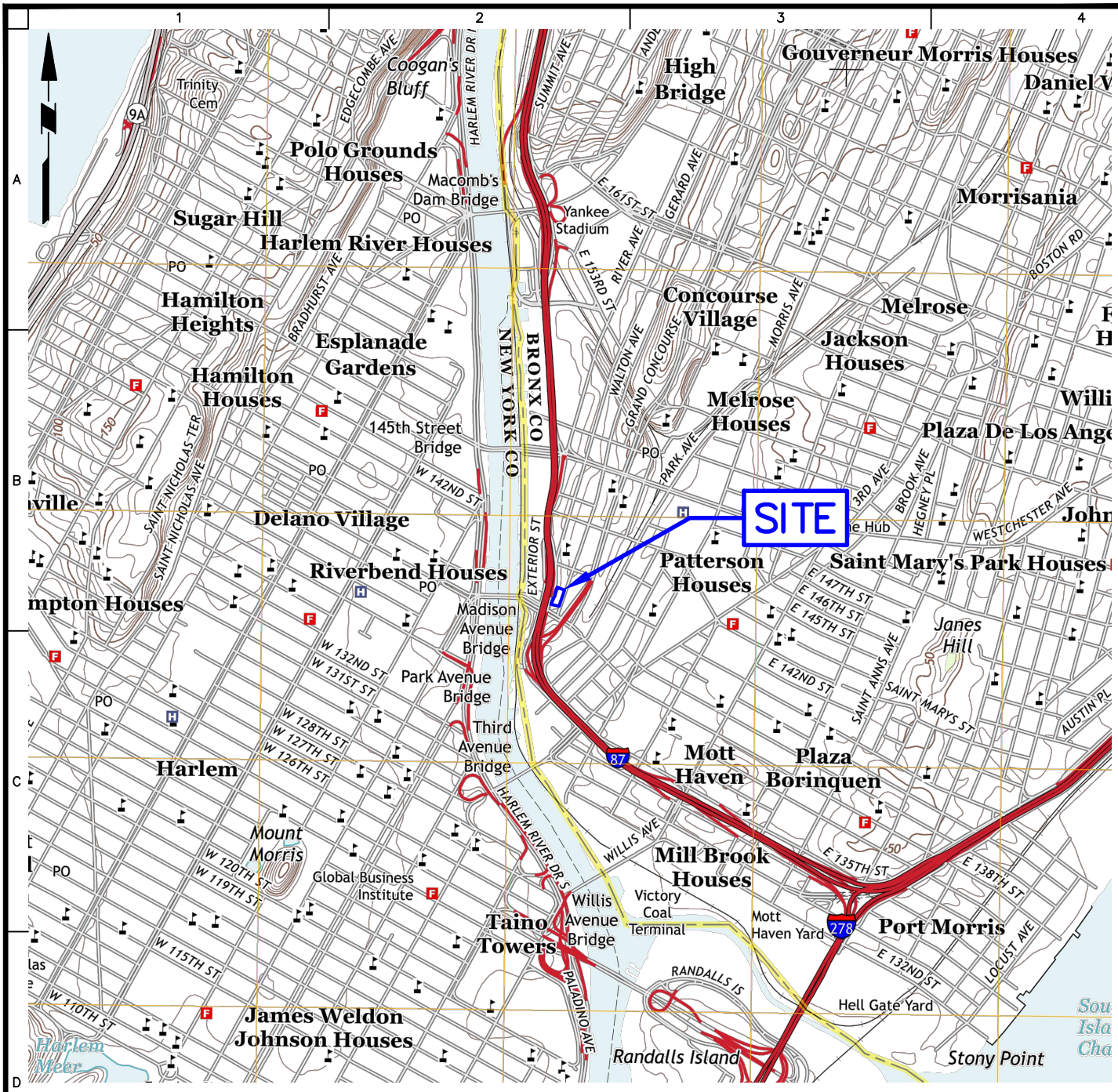
No.	Sample Name	Type	Location	Rationale	Depth	Analysis
GROUNDWATER						
1	MW01_date	Grab	MW01	Investigate AOCs 1, 2 & 3	middle of observed water column	TCL VOCs, TCL SVOCs, 1,4 Dioxane, Pesticides, Herbicides, PCBs, Cyanide, TAL Metals including hexavalent and trivalent chromium (total and dissolved [field filtered]), and PFAS.
2	MW02_date		MW02	Investigate AOCs 1 & 2	middle of observed water column	
3	MW03_date		MW03	Investigate AOCs 1 & 2	middle of observed water column	
4	MW04_date		MW04	Investigate AOCs 1, 2 & 3	middle of observed water column	
5	MW17_date		MW17	Investigate AOCs 1, 2 & 3	middle of observed water column	
6	GWDUP01_date	Duplicate	TBD	QA/QC	middle of observed water column	
7	MS/MSD-GW01_date	MS/MSD	TBD		middle of observed water column	
8	GWEB01_date	Equipment Blank	TBD		NA	
9	GWTB01_date	Trip Blank	NA			TCL VOC
SOIL VAPOR						
1	SV01_date	Grab	SV01	Investigate AOCs 1 & 3	Anticipated depth of proposed foundation footings, if known at the time of the investigation, or to about 2 feet above the groundwater table	TO-15
2	SV02_date		SV02			
3	SV03_date		SV03			
4	SV04_date		SV04			
5	SV05_date		SV05			
6	SV06_date		SV06			
7	SV07_date		SV07			
8	AA01_date	Field Blank	TBD	QA/QC	NA	

Notes:

Area of Concern (AOC) 1 - Historical Site Use
AOC 2 - Historic Fill
AOC 3 - Off-site Current and Historic Use

1. TBD = To be determined in the field
2. VOC = Volatile organic compounds
3. SVOC = Semivolatile organic compounds
4. PCBs = Polychlorinated biphenyls
5. TCL = Target compound list
6. TAL = Target analyte list
7. PFAS = per- and poly-fluoroalkyl substances
8. QA/QC = Quality assurance/quality control
9. NA = Not applicable

FIGURES



NOTES:

1. BASE MAP REFERENCED FROM THE UNITED STATE GEOLOGICAL SURVEY 7.5 MINUTE SERIES CENTRAL PARK QUADRANGLE, DATED 2013
2. ALL LOCATIONS APPROXIMATE

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

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Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
SITE LOCATION MAP

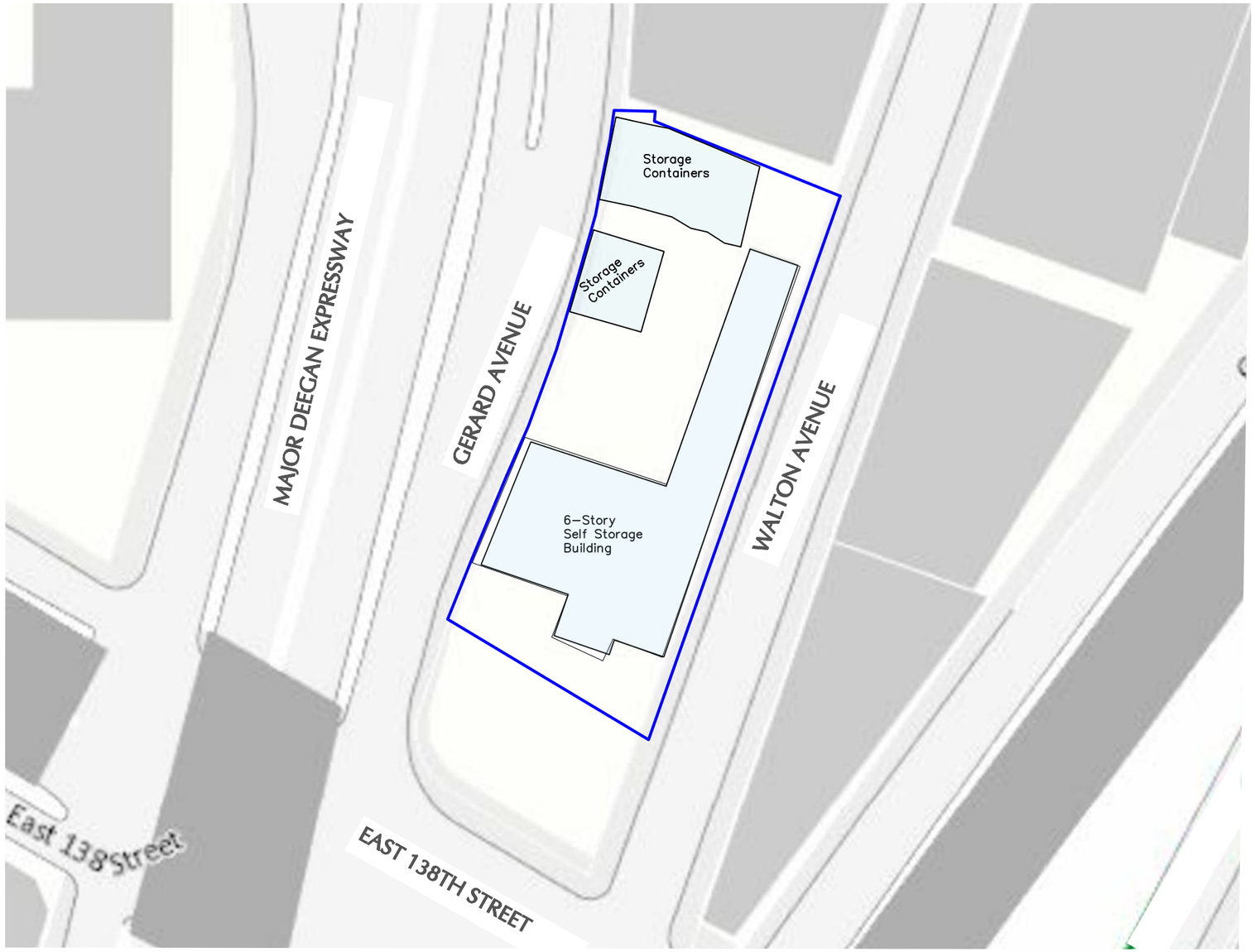
Project No.	170601701
Date	10/29/2019
Drawn By	KW
Checked By	JL

Figure No. 1

Sheet 1 of 4

© 2018 Langan

Filename: \\langan.com\data\NYC\data7\170601701\Project Data\CAD\01\SheetFiles\Environmental\RIWP\Figure 1 - Site Location Map.dwg Date: 2/19/2020 Time: 10:53 User: kwexler Style Table: Langan.stb Layout: ANSIA-BP



LEGEND:

APPROXIMATE SITE BOUNDARY

APPROXIMATE BUILDING AND STORAGE CONTAINER LOCATIONS

NOTES:

1. BASE MAP REFERENCED FROM NEW YORK CITY DEPARTMENT OF CITY PLANNING OPEN ACCESSIBLE SPACE INFORMATION SYSTEM (OASIS) MAP, ACCESSED ON JANUARY 29, 2020.
2. ALL BOUNDARIES ARE APPROXIMATE.

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Figure Title
SITE PLAN

Project No. 170601701
Date 1/29/2020
Drawn By KW
Checked By JL

Figure No. 2
Figure 2 of 4

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Filename: \\langan.com\data\NYC\data7\170601701\Project Data\CAD\01\SheetFiles\Environmental\RIWP\Figure 2 - Site Plan.dwg Date: 2/19/2020 Time: 17:04 User: kwexler Style Table: Langan.stb Layout: ANSIB-BL



Sample ID	B-4
Sample Date	1/24/2012
Sample Depth (feet bgs)	9
VOCs (mg/kg)	ND
Inorganics (mg/kg)	NE
SVOCs (mg/kg)	ND

Sample ID	B-7
Sample Date	1/24/2012
Sample Depth (feet bgs)	4
VOCs (mg/kg)	ND
Inorganics (mg/kg)	
Lead	**494**
Mercury	**0.3**
SVOCs (mg/kg)	
Benz(a)anthracene	**1.1**
Benzo(b)fluoranthene	**1.1**
Chrysene	**1.1**

Sample ID	B-8
Sample Date	1/24/2012
Sample Depth (feet bgs)	3.5
VOCs (mg/kg)	ND
Inorganics (mg/kg)	
Cadmium	**6.9**
Lead	**8440**
Mercury	**0.56**
Silver	**3.69**
SVOCs (mg/kg)	
Benz(a)anthracene	**1.9**
Benzo(a)pyrene	**1.8**
Benzo(b)fluoranthene	**2.6**
Benzo(k)fluoranthene	**0.87**
Chrysene	**2.2**

Sample ID	B-10
Sample Date	1/24/2012
Sample Depth (feet bgs)	4
VOCs (mg/kg)	ND
Inorganics (mg/kg)	NA
SVOCs (mg/kg)	ND

Sample ID	B-3
Sample Date	1/24/2012
Sample Depth (feet bgs)	1.5
VOCs (mg/kg)	ND
Inorganics (mg/kg)	
Lead	**106**
Mercury	**0.4**
SVOCs (mg/kg)	
Benz(a)anthracene	**8.3**
Benzo(a)pyrene	**10**
Benzo(b)fluoranthene	**13**
Benzo(k)fluoranthene	**6.3**
Chrysene	**7.9**
Dibenz(a,h)anthracene	**1.2**
Indeno(1,2,3-cd)pyrene	**3.7**

Sample ID	B-5
Sample Date	1/24/2012
Sample Depth (feet bgs)	3.5
VOCs (mg/kg)	NE
Inorganics (mg/kg)	
Barium	**386**
Cadmium	**4.9**
Lead	**311**
Mercury	**0.29**
SVOCs (mg/kg)	NE

Sample ID	B-6
Sample Date	1/24/2012
Sample Depth (feet bgs)	4
VOCs (mg/kg)	ND
Inorganics (mg/kg)	NE
SVOCs (mg/kg)	NE

Sample ID	B-9
Sample Date	1/24/2012
Sample Depth (feet bgs)	6
VOCs (mg/kg)	ND
Inorganics (mg/kg)	NA
SVOCs (mg/kg)	ND

LEGEND:

SITE BOUNDARY

IVI LIMITED PHASE II SOIL BORING LOCATION

Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs
SVOCs (mg/kg)		
Benz(a)anthracene	1	1
Benzo(a)pyrene	1	1
Benzo(b)fluoranthene	1	1
Benzo(k)fluoranthene	0.8	3.9
Chrysene	1	3.9
Dibenz(a,h)anthracene	0.33	0.33
Indeno(1,2,3-cd)pyrene	0.5	0.5
Inorganics (mg/kg)		
Barium	350	400
Cadmium	2.5	4.3
Lead	63	400
Mercury	0.18	0.81
Silver	2	180

NOTES:

1. BASE MAP REFERENCED FROM IVI ENVIRONMENTAL LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT, DATED FEBRUARY 16, 2012.
2. ALL BOUNDARIES ARE APPROXIMATE.
3. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (NYCRR) UNRESTRICTED USE (UU) AND RESTRICTED USE RESTRICTED - RESIDENTIAL (RURR) SOIL CLEANUP OBJECTIVES (SCOs).
4. ONLY COMPOUNDS EXCEEDING COMPARISON CRITERIA ARE SHOWN.
5. RESULTS ABOVE THE PART 375 UU SCOs ARE BOLDED.
6. RESULTS ABOVE THE PART 375 RURR SCOs ARE SHADED.
7. VOCs = VOLATILE ORGANIC COMPOUNDS
8. SVOCs = SEMIVOLATILE ORGANIC COMPOUNDS
9. mg/kg = MILLIGRAMS PER KILOGRAM
10. ND = ANALYTE NOT DETECTED
11. NE = ANALYTE CONCENTRATIONS DID NOT EXCEED SCOs
12. NA = ANALYTE NOT ANALYZED
13. UST = UNDERGROUND STORAGE TANK
14. BGS = BELOW GRADE SURFACE

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BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
PREVIOUS SOIL SAMPLE LOCATIONS AND ANALYTICAL RESULTS MAP

Project No. 170601701
Date 11/5/2019
Drawn By KW
Checked By JL

Figure No. 3
Figure 3 of 4

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Filename: \\langan.com\data\NYC\data7\170601701\Project Data\CAD\01\SheetFiles\Environmental\RIWP\Figure 3 - Previous Soil Sample Analytical Results Map.dwg Date: 2/19/2020 Time: 11:51 User: kwexler Style Table: Langan.stb Layout: ANSIB-BL



LEGEND:

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE BUILDING LOCATIONS
- B-1 — PREVIOUS SOIL BORING LOCATION (IVI ENVIRONMENTAL, 2012)
- SB05 — PROPOSED SOIL BORING LOCATION
- SB01/MW01/SV01 — PROPOSED SOIL BORING/MONITORING WELL/SOIL VAPOR POINT LOCATION
- SB12/SV12 — PROPOSED SOIL BORING/SOIL VAPOR POINT LOCATION
- SV05 — PROPOSED SOIL VAPOR POINT LOCATION
- APPROXIMATE LOCATION OF HISTORICAL UST DOCUMENTED
- AOC 1, 2, & 3: HISTORICAL SITE USE, HISTORIC FILL, AND CURRENT AND HISTORICAL OFF–SITE USE

NOTES:

1. BASE MAP REFERENCED FROM NEW YORK CITY DEPARTMENT OF CITY PLANNING OPEN ACCESSIBLE SPACE INFORMATION SYSTEM (OASIS) MAP, ACCESSED ON JANUARY 29, 2020.
2. ALL LOCATIONS ARE APPROXIMATE.
3. SB = SOIL BORING
4. MW = MONITORING WELL
5. SV = SOIL VAPOR
6. AOC = AREA OF CONCERN
7. UST= UNDERGROUND STORAGE TANK

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

40 0 20 40
SCALE IN FEET

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BRONX NEW YORK

Figure Title: PROPOSED REMEDIAL INVESTIGATION SAMPLE LOCATION PLAN

Project No. 170601701
Date 1/29/2020
Drawn By KW
Checked By JL

Figure No. 4
Figure 4 of 4

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Appendix A

PREVIOUS ENVIRONMENTAL REPORTS

Appendix B

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

261 Walton Avenue
BRONX, NY 10451

Prepared for:

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September 30, 2021
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1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

This Quality Assurance Project Plan (QAPP) for the proposed remedial investigation (RI) was completed on behalf of Tuck-It-Away Associates – Deegan, LLC, pursuant to the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) for the site at 261 Walton Avenue, Bronx, New York (the site). Tuck-It-Away Associates – Deegan, LLC, selected Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, DPC (Langan) to complete the RI. The objective of the RI is to investigate and characterize the nature and extent of environmental impacts at the site and emanating from the site and to provide sufficient information to evaluate remedial alternatives, as required. Additional site information and data collected previously by Langan is provided in the Remedial Investigation Work Plan (RIWP).

This QAPP specifies analytical methods to be used to ensure that data from the proposed Remedial Investigation (RI) at the site are precise, accurate, representative, comparable, and complete.

1.2 PROJECT OBJECTIVES

The objective of the RI is to investigate and characterize the nature and extent of on-site and off-site environmental impacts associated with areas of concern (AOC). This QAPP addresses sampling and analytical methods that may be necessary in support of the RI. These objectives were established in order to meet standards that will protect public health and the environment for the site.

1.3 SCOPE OF WORK

The field investigation will include the tasks listed below to supplement the data and findings of previous investigations, and is described in detail in the RIWP. All RI work will be overseen by Langan. The proposed RI consists of the following:

- Completion of a geophysical survey;
- Advancement of soil borings to evaluate potential subsurface impacts from the identified areas of concerns and historical site uses;
- Installation of monitoring wells;
- Completion of a monitoring well survey;
- Installation of soil vapor points;
- Collection and chemical analysis of soil, groundwater, soil vapor, and ambient air samples;
- Implementation of a community air monitoring plan (CAMP); and
- A qualitative assessment of potential exposure pathways based on the investigation findings.

1.3.1 SUMMARY OF PROPOSED FIELD SAMPLING ACTIVITIES

Soil Boring Installation and Soil Sampling

A geophysical subcontractor will clear subsurface testing locations of potential subsurface utilities and to locate any underground storage tanks (USTs). The geophysical survey will be completed using a collection of geophysical instruments, including electromagnetic and utility line locator instruments and ground-penetrating radar (GPR). The results of the survey may require relocating subsurface testing locations.

Soil Boring Installation and Soil Sampling

A drilling subcontractor will advance 15 soil borings (SB01 through SB15) to investigate the site and the AOCs identified in Section 2.5. Soil borings will terminate at the groundwater interface if encountered or at bedrock, which is anticipated at about 9 feet bgs. Six of the soil borings (SB through SB) will be used to horizontally and vertically delineate lead impacts detected in the 3- to 4-foot sample collected from soil boring B-8. A plan showing the proposed sample locations is included as Figure 4. Table 1 indicates the sample locations that are intended to investigate each AOC.

The soil borings will be advanced using direct-push drilling technology by an experienced environmental driller. The direct-push drill rig will be equipped with a closed-point Macro-Core® sampler or dual-tube sampling system to prevent the collapse of sidewall material as borings are advanced. A Langan field engineer, scientist or geologist will document the work, screen soil samples for environmental impacts, and collect representative environmental soil samples for laboratory analyses. Soil will be screened continuously to the boring termination depth for organic vapors with a photoionization detector (PID) equipped with a 10.6 electron volt (eV) bulb and for visual and olfactory evidence of environmental impacts (e.g., NAPL, staining, odor). Soil will be visually classified for color, grain size, texture, and moisture content, and will be recorded in a field log. Nondisposable, down-hole drilling equipment and sampling apparatus will be decontaminated between locations with Alconox® and water. Water used for decontamination and rinsate will be containerized into United Nations/Department of Transportation (UN/DOT)-approved 55-gallon drums, labeled, and staged for off-site disposal.

Per- and poly-fluoroalkyl substances (PFAS) analysis will be performed according to USEPA Method 537 Modified with a maximum reporting limit of 0.5 micrograms per kilogram (ug/kg). 1,4-Dioxane analysis will be performed according to USEPA Method 8270 with a reporting limit of 0.1 milligram per kilogram (mg/kg).

Monitoring Well Installation and Groundwater Sampling

A total of four permanent groundwater monitoring wells will be installed during the investigation. Fourteen of the thirty-two soil borings will be converted into monitoring wells. Wells will be constructed across the observed water table. The wells will be constructed with 2-inch diameter, threaded, flush-joint, polyvinyl chloride (PVC) casing and 0.01-inch slot screens. Clean sand will be used to fill the annulus around the screen up to approximately two feet above the top of the screened interval. A two-foot bentonite seal will be installed above the sand, and the borehole annulus will be grouted to the surface with bentonite/cement slurry. After installation, wells will be developed by surging either a weighted bailer or surge block across the well screen/casing to agitate and remove fines.

After installation, the wells will be developed by surging using either a weighted bailer or surge block across the well screen and casing to agitate and remove fines. The bailer or surge block will be surged across the well screen in 2- to 3-foot increments for about two minutes per increment. After surging, the well will be purged via pumping until the water becomes visually clear. The well will then be allowed to stabilize for a minimum of one week.

Before sampling, the headspace of each well will be monitored with a PID and the wells will be gauged and purged. Dedicated tubing will be used at each well, and the interface probe and any sampling apparatus will be decontaminated between locations with Alconox® and water.

One groundwater sample will be collected from each newly-installed well in general accordance with NYSDEC DER-10 and United States Environmental Protection Agency's (USEPA) *Low Flow Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells*. Groundwater samples will be collected about one week after new wells are installed. No groundwater samples will be collected from monitoring wells containing NAPL.

Per- and poly-fluoroalkyl substances (PFAS) and 1,4-Dioxane will be sampled in accordance with the protocol outlined in Attachments A and B. PFAS analysis will be performed according to USEPA Method 537 Modified with a reporting limit of 2 nanograms per liter (ng/L). 1,4-Dioxane analysis will be performed according to USEPA Method 8270 SIM with a reporting limit of 0.35 ug/L.

Soil Vapor and Ambient Air Sampling

Seven soil vapor points will be installed using direct-push technology in accordance with the NYSDOH's *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006). Soil vapor points will be installed by advancing a 1.875-inch polyethylene implant with tubing to the anticipated depth of proposed foundation footings, if known at the time of the investigation, or to 2 feet above the groundwater table. Samples will be collected in general accordance with the NYSDOH guidance. Before collecting vapor samples, a minimum of three vapor probe volumes (i.e., the volume of the sample implant and tubing) will be purged from each sample point at a rate

of less than 0.2 liters per minute using a RAE Systems MultiRAE® meter. An ambient air sample will be collected concurrently with the soil vapor sample at a height above the ground to represent the breathing zone (about 3 to 5 feet). Soil vapor and ambient air samples will be collected into laboratory-supplied batch-certified clean 2.7- or 6-liter Summa® canisters with calibrated flow controllers for an 2-hour sampling period.

A dust and organic vapor control and monitoring plan will be implemented during investigation activities. A table summarizing the sampling plan as outlined in the RIWP is included in Table 1.1.

1.4 DATA QUALITY OBJECTIVES AND PROCESS

The quality assurance and quality control objectives for all measurement data include:

- **Precision** – an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Field sampling precision will be determined by analyzing coded duplicate samples and analytical precision will be determined by analyzing internal QC duplicates and matrix spike duplicates.
- **Accuracy** – a measure of the degree of agreement of a measured value with the true or expected value of the quantity of concern. Sampling accuracy will be determined through the assessment of the analytical results of field blanks and trip blanks for each sample set. Analytical accuracy will be 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.
- **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 will be determined by assessing a number of investigation procedures, including chain of custody, decontamination, and analysis of field blanks and trip blanks.
- **Completeness** – the percentage of measurements made which are judged to be valid. Completeness will be assessed through data validation. The QC objective for completeness is generation of valid data for at least 90 percent of the analyses requested.
- **Comparability** – expresses the degree of confidence with which one data set can be compared to another. The comparability of all data collected for this project will be ensured using several procedures, including standard methods for sampling and analysis, instrument calibrations, using standard reporting units and reporting formats, and data validation.

- **Sensitivity** - the ability of the instrument or method to detect target analytes at the levels of interest. The project manager will select, with input from the laboratory and QA personnel, sampling and analytical procedures that achieve the required levels of detection.

Each of the above objectives is discussed in detail in Section 3.

TABLE 1.1
Analytical Methods / Quality Assurance Summary Table

SOIL

	Quantity (1)	Analysis (2, 3, 4)
Soil Samples	36	TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, and TAL metals (including all 6 NYCRR Part 375 compounds), TCLP – Lead, PFAS, and 1,4-Dioxane
Duplicate Soil Samples	1 (one per 20 soil samples)	
Soil Matrix Spike/Matrix Spike Duplicate	1 (one per 20 soil samples)	

GROUNDWATER

	Quantity (5)	Analysis (2, 3, 4, 6)
Groundwater Samples	4	TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, TAL metals (including all 6 NYCRR Part 375 compounds), PFAS, and 1,4-Dioxane
Duplicate Groundwater Samples	1 (one per 20 groundwater samples)	
Groundwater Matrix Spike/Matrix Spike Duplicate	1 (one per 20 groundwater samples)	

SOIL VAPOR

	Quantity	Analysis (2)
Soil Vapor / Ambient Air Samples	7	TO-15 VOCs
Duplicate Soil Vapor Samples	1 (one per 20 soil vapor samples)	

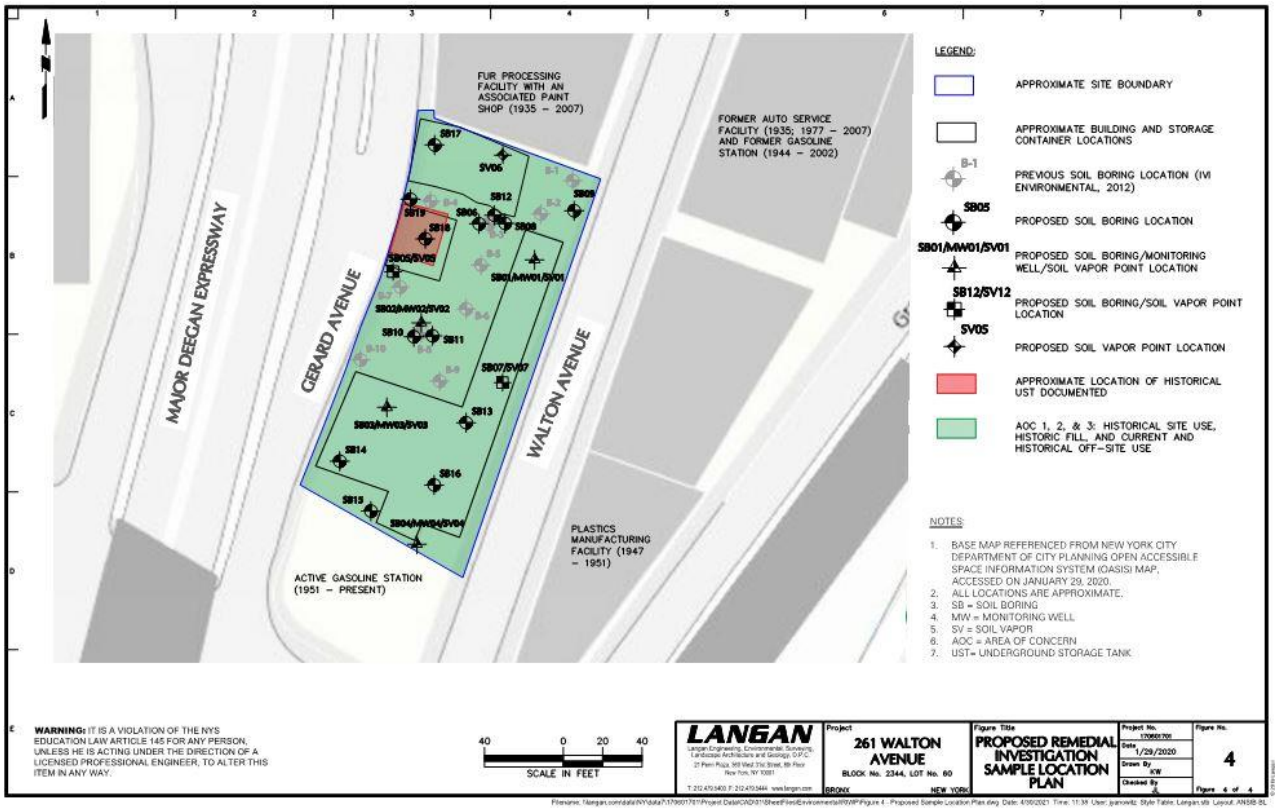
FIELD AND TRIP BLANKS

	Quantity	Analysis (2)
Soil Equipment Blanks	1 (one per 20 soil samples)	TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, and TAL metals (including all 6 NYCRR Part 375 compounds)
Groundwater Equipment Blanks	1 (one per 20 groundwater samples)	
Trip Blanks	One per shipment of soil and groundwater samples for VOC analysis	TCL VOCs

Notes
1) Up to three soil samples are proposed for collection at each of proposed soil borings.
2) For details regarding sample containerization, volume requirements, preservation, and holding times for water, soil, and soil vapor samples, refer to tables 4.1, 4.2, and 4.3, respectively.
3) For analytical methods and reporting limits, see Table 7.1.
4) For detailed information on matrix spike and matrix spike duplicate analysis for groundwater and soil samples, see tables 3.1 and 3.2, respectively.
5) Additional samples may be collected based on encountered field conditions.
6) Groundwater samples and the duplicate groundwater sample will also be analyzed for PFAS and 1,4-Dioxane

PFAS = per- and poly-fluoroalkyl substances (PFAS)
VOCs = volatile organic compounds
SVOCs = semivolatile organic compounds
PCBs = polychlorinated biphenyls
TCL = target compound list
TAL = target analyte list
NA = not applicable
6 NYCRR = Title 6 of the New York Codes, Rules and Regulations

Figure 1.1 Soil, Groundwater, Soil Vapor, and Ambient Air Sample Locations Map



2.0 PROJECT ORGANIZATION

The execution of the RIWP will be overseen by Langan on behalf of Tuck-It-Away Associates – Deegan, LLC. Langan will collect media samples and will subcontract with a qualified driller and an Environmental Laboratory Approval Program (ELAP)-certified laboratory. Langan will also perform the data analysis, evaluation, and reporting tasks.

The analytical services will be performed by Alpha Analytical Laboratories, Inc. of Mansfield, MA, New York State Department of Health (NYSDOH) ELAP certification number 11148. Data validation services will be performed by Marla Miller; resume attached (Attachment C).

Key contacts for this project are as follows:

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Langan Project Manager:	Mr. Stuart Knoop Telephone: (212) 479-5461
Qualified Environmental Professional (QEP):	Jason J. Hayes, P.E Telephone: (212) 479-5427
Langan Quality Assurance Officer (QAO):	Mr. William Bohrer Telephone: (212) 479-5533
Data Validator:	Ms. Marla Miller Telephone: (602) 772-1839
Laboratory Representatives:	Alpha Analytical Laboratories, Inc. Mr. Ben Rao Telephone: (201) 847-9100

3.0 QUALITY ASSURANCE OBJECTIVES FOR COLLECTION OF DATA

3.1 INTRODUCTION

The quality assurance and quality control objectives for all data include precision, accuracy, representativeness, completeness, comparability, and sensitivity. These objectives are defined in following subsections. They are formulated to meet the requirements of the USEPA SW-846. The

laboratory will aim to achieve low reporting limits for all analytical methods. The analytical methods and their Contract Required Quantification 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.

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 l**	**LCS (d) % Recovery**	**Surrogate Compounds**	**Surrogate % Recovery**
VOCs (e)	8260	1,1-Dichloroethane	61-145	-	NA	Toluene-d8	88-110
		Trichloroethene	71-120	-	NA	Bromofluorobenzene	86-115
		Benzene	76-127	-	NA	1,2-Dichloroethane-d4	76-114
		Toluene	76-125	-	NA		
		Chlorobenzene	75-130	-	NA		
SVOCs (f)	8270	Phenol	12-110	-	NA	Nitrobenzene-d5	35-114
		2-Chlorophenol	27-123	-	NA	2-Fluorobiphenyl	43-116
		1,4-Dichlorobenzene	36-97	-	NA	Terphenyl-d14	33-141
		N-Nitroso-di-n-propylamine	41-116	-	NA	Phenol-d5	10-110
		1,2,4-Trichlorobenzene	39-98	-	NA	2-Fluorophenol	21-110
		4-Chloro-3-methylphenol	23-97	-	NA	2,4,6-Tribromophenol	10-123
		Acenaphthene	46-118	-	NA	2-Chlorophenol-d4	33-110 (g)
		4-Nitrophenol	10-80	-	NA	1,2-Dichlorobenzene-d4	16-110 (g)
		2,4-Dinitrotoluene	24-96	-	NA		
		Pentachlorophenol	9-103	-	NA		
		Pyrene	26-127	-	NA		
Inorganics (i)	6010,7470/7471,7841,9010, OIA-1677	Inorganic Analyte	75-125 (j)	- (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) TCL VOCs plus library search
(f) TCL SVOCs plus library search
(g) Limits are advisory only
(i) Target Analyte List Inorganics (metals)
(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)	8260	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)	8270	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		
Inorganics (i)	6010, 7470/7471, 7841, 9010	Inorganic Analyte	75-125 (j)	20 (k)	80-120	NA	NA
PCBs (h)	8082	PCBs (Aroclor 1260)	50-128	50	NA	Tetrachlorometaxylene	24-154
						Decachlorobiphenyl	25-159

(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) TCL VOCs plus library search
(f) TCL SVOCs plus library search
(g) Limits are advisory only
(h) PCBs
(i) Target Analyte List Inorganics (metals and cyanide)
(j) Matrix spike only
(k) Laboratory duplicate RPD
NA - Not Applicable

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. Decontamination of sampling devices and digging equipment will be performed between samples as outlined in the Field Sampling Plan. Analysis of field blanks, trip blanks, and method blanks will also be performed to monitor for potential sample contamination from field and laboratory procedures.

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 COMPATABILITY

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 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 users of either the data or the conclusions drawn from them will be able to judge the comparability of the data and conclusions.

3.7 SENSITIVITY

Sensitivity is the ability of the instrument or method to detect target analytes at the levels of interest. The project manager will select, with input from the laboratory and QA personnel, sampling and analytical procedures that achieve the required levels of detection and QC acceptance limits that meet established performance criteria. Concurrently, the project manager will select the level of data assessment to ensure that only data meeting the project data quality objectives are used in decision-making.

Field equipment will be used that can achieve the required levels of detection for analytical measurements in the field. In addition, the field sampling staff will collect and submit full volumes of samples as required by the laboratory for analysis, whenever possible. Full volume aliquots will help ensure achievement of the required limits of detection and allow for reanalysis if necessary. The concentration of the lowest level check standard in a multi-point calibration curve will represent the reporting limit.

Analytical methods and quality assurance parameters associated with the sampling program are presented in Table 1.1. The frequency of associated equipment blanks and duplicate samples will be based on the recommendations listed in DER-10 and as described in Table 1.1.

Site-specific MS and MSD samples will be prepared and analyzed by the analytical laboratory by spiking an aliquot of submitted sample volume with analytes of interest. Additional sample volume is not required by the laboratory for this purpose. An MS/MSD analysis will be analyzed at a rate of 1 out of every 20 samples, or one per analytical batch. MS/MSD samples are only required for soil and groundwater samples.

4.0 SAMPLING PROGRAM

4.1 INTRODUCTION

Soil and groundwater sampling will be conducted in accordance with the established NYSDEC protocols contained in DER-10. Air sampling will be conducted in accordance with the established NYSDOH protocols contained in the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006). The following sections describe procedures to be followed for specific tasks.

4.2 SAMPLE NOMENCLATURE

The sample nomenclature system was devised such that the following objectives can be attained (see Attachment D):

- Sorting of data by matrix;
- Sorting of data by depth;
- Maintenance of consistency (filed, laboratory, and database sample numbers);
- Accommodation of all project-specific requirements; and
- Accommodation of laboratory sample number length constraints (maximum 20 characters).

4.3 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 labeled and the appropriate preservatives will be added. The types of containers are shown in Tables 4.1 and 4.2.

Food and beverages will be prohibited near sampling equipment. Additionally, no cosmetics, moisturizers, hand cream, sun screen or clothing material containing Gore-Tex™ or Tyvek® will be worn during sampling. Each grab PFAS soil sample will be collected into one 8-ounce HDPE container. Soil 1,4-Dioxane samples will be collected in 4 ounce jars.

Samples shall be preserved according to the preservation techniques given in Tables 4.1 and 4.2. 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 in Ziploc® bags (or equivalent), and delivered to the laboratory within 48 hours of collection. Chain-of-custody procedures are described in Section 5.

4.4 PFAS SPECIAL CONSIDERATIONS AND TARGET ANALYTE LIST

Special considerations applying to the collection of soil and groundwater samples for PFAS analysis to prevent cross-contamination include the following;

- Field equipment will no contain Teflon®
- All sampling material will be made from stainless, HDPE, acetate or silicon
- No waterproof field books will be used
- No plastic clipboards, binders, or spiral hard cover notebooks will be used
- No adhesives will be used
- No sharpies or permanent markers will be used; ball point pens are acceptable
- Aluminum foil will not be used
- PFAS samples will be kept in a separate cooler from other sampling containers
- Coolers will be filled only with regular ice

PFAS sampling protocols are provided in Attachments A and B.

DER has developed a PFAS target analyte list. At minimum, the laboratory will report the following PFAS target compounds:

Group	Analyte Name	Abbreviation	CAS #
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Perfluoroalkyl sulfonates	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	PFOS	1763-23-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4

Group	Analyte Name	Abbreviation	CAS #
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

4.5 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 USEPA requirements for each method. The USEPA technical holding times must be strictly adhered to by the laboratory. Any holding time exceedances must be reported to Langan.

4.6 FIELD QC SAMPLES

To assess cross-contamination and effectiveness of equipment decontamination, 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 vials 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 Part 375 volatiles analysis. The trip blank will be analyzed for volatile organic compounds to assess any contamination from sampling and transport, and internal laboratory procedures.

b. **Equipment Blanks** - Equipment blanks will be collected for quality assurance purposes at a rate of one per 20 investigative samples per matrix (soil and groundwater only). Equipment blanks will be obtained by pouring laboratory-demonstrated analyte-free water on or through a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided sample container for analysis. Equipment blank samples will be analyzed for the complete list of analytes on the day of sampling.

c. **PFAS Equipment Blanks** – A PFAS equipment blank will be prepared each day that PFAS sampling occurs. PFAS equipment blanks will be obtained by pouring laboratory-demonstrated analyte-free water on or throughout a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided HDPE sample container for analysis. The PFAS equipment blank will be analyzed for PFAS via USEPA Method 537 Modified.

The duplicates will include:

a. **Coded Field Duplicate** - To determine the representativeness of the sampling methods, coded field duplicates will be collected at a minimum frequency of one per 20 field samples for each matrix (soil, groundwater, and soil vapor). 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 20 field samples (soil and groundwater). 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.

4.7 DECONTAMINATION PROCEDURES

Decontamination procedures will be used for non-dedicated sampling equipment. Decontamination of field personnel is discussed in the site-specific HASP. Field sampling equipment that is to be reused will be decontaminated in the field in accordance with the following procedures:

1. Laboratory-grade glassware detergent and tap water scrub to remove visual contamination
2. Generous tap water rinse
3. Distilled/de-ionized water rinse

Non-dedicated equipment used for PFAS sampling will be rinsed using a three bucket rinse procedure. An about three-gallon solution of decontamination fluid consisting of Alconox® or Citranox® and de-ionized water will be prepared in a five-gallon bucket for the first equipment rinse. A second five-gallon bucket will be filled with about three gallons of de-ionized water for the second rinse. A third five-gallon bucket will be filled with about three gallons of water for the final rinse. Powderless nitrile gloves will be donned during the handling of sampling equipment and containers.

The Safety Data Sheets of detergents used in decontamination procedures will be reviewed to ensure fluoro-surfactants and 1,4-dioxane are not listed as ingredients. Laboratory-verified PFAS-free water will be used as the final rinse during decontamination of sampling equipment.

4.8 RESIDUALS MANAGEMENT

Debris (e.g., paper, plastic and disposable PPE) will be collected in plastic garbage bags and disposed of as non-hazardous industrial waste. Debris is expected to be transported to a local municipal landfill for disposal. Drill cuttings will be placed back in the borehole from which it was sampled unless the soil is grossly-contaminated. If gross contamination is observed, soil will be collected and stored in Department of Transportation (DOT)-approved 55-gallon drums in a designated storage area at the site. Grossly-contaminated drill cuttings contained in drums will be stored in a designated storage area at the site and will be analyzed, characterized and disposed off-site in accordance with applicable federal and state regulations.

Residual fluids (such as purge water) will be collected and stored in DOT-approved (or equivalent) 55-gallon drums in a designated storage area at the site. The residual fluids will be analyzed, characterized and disposed off-site in accordance with applicable federal and state regulations. Residual fluids such as decontamination water may be discharged to the ground surface; however, if gross contamination is observed, the residual fluids will be collected, stored, and transported similar purge water or other residual fluids.

TABLE 4.1
WATER SAMPLE CONTAINERIZATION, PRESERVATION, AND HOLDING TIMES

Analysis	Bottle Type	Preservation (a)	Holding Time (b)
VOCs	40 mL glass VOA vials w/ Teflon-lined cap	HCl pH<2, Cool to 4°C	14 days
SVOCs	1000 mL glass w/ Teflon-lined cap	Cool to 4°C	7 days*
PCBs	1000 mL glass w/ Teflon-lined cap	Cool to 4°C	7 days**
Metals	1000 mL plastic bottle	HNO_3 to pH < 2 Cool to 4°C	180 days, except mercury (28 days)
1,4-Dioxane	1000 mL glass w/ Teflon-lined cap	Cool to 4°C	7 days**
PFAS	250 mL HDPE bottles	Cool to 4°C	14 days

(a) All samples to be preserved in ice during collection and transport. Select samples preserved with hydrochloric acid (HCl) and nitric acid (HNO_3) as noted.

(b) Days from date of sample collection.

* Continuous liquid-liquid extraction is the required extraction for water samples for SVOCs. Continuous liquid-liquid extraction and concentration of water samples for SVOC analysis completed within 7 days from the date of sample collection. Extracts of water samples must be analyzed within 40 days of extraction.

** Procedures for extraction and concentration of water samples for PCBs must be completed within 7 days from the date of sample collection. Extracts of water samples must be analyzed within 40 days of extraction.

TABLE 4.2
SOIL SAMPLE
CONTAINERIZATION, PRESERVATION AND HOLDING TIMES

Analysis	Bottle Type	Preservation [a]	Holding Time [b]
VOCs	40 mL glass VOA vials or 5-g Encore samplers	Cool to 4°C, MeOH (VOA vials)	14 days*
SVOCs	Wide-mouth glass w/ Teflon lined cap	Cool to 4°C	14 days*
Metals	Wide-mouth plastic or glass	Cool to 4°C	180 days, except mercury (28 days)
PCBs	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14 days**
Herbicides	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14 days**
Cyanide, Total	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14 days
Hexavalent Chromium	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	30 Days
1,4-Dioxane	40 mL glass VOA vials or 5-g Encore samplers	Cool to 4°C MeOH (VOA vials)	14 days *
PFAS	8-oz HDPE bottles	Cool to 4°C	28 days

(a) All samples to be preserved in ice during collection and transport. Samples collected for VOC analysis in VOA vials are preserved with methanol (MeOH).

(b) Days from date of sample collection.

* Samples collected for VOC analysis using Encore samplers must be analyzed within 48 hours unless frozen. Samples frozen within 48 hours can be analyzed up to 14 days from the date of sample collection.

* Soxhlet or sonication procedures for extraction and concentration of soil/waste samples for SVOCs must be completed within 14 days from the date of sample collection. Extracts of soil samples must be analyzed within 40 days of extraction.

** Procedures for extraction and concentration of soil/waste samples for PCBs and herbicides must be completed within 14 days from the date of sample collection. Extracts of soil samples must be analyzed within 40 days of extraction.

TABLE 4.3
SOIL VAPOR, INDOOR AIR, AND AMBIENT AIR SAMPLES
CONTAINERIZATION PRESENTATION AND HOLDING TIMES

Analysis	Bottle Type	Preservation	Holding Time [(a)]
VOCs	Summa Canister	None	30 days

(a) Days from date of sample collection.

* Summa canisters will be batch-certified by the analytical laboratory.

5.0 SAMPLE SHIPMENT, 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 his/her 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, restricted to authorized personnel.

5.2 PACKAGING

Air samples canisters can be stored and transported without additional packaging. Soil and groundwater sample containers will be placed in plastic coolers. Ice in Ziploc® bags (or equivalent) will be placed around sample containers. Cushioning material will be added around the sample containers if necessary. COCs and other paperwork will be placed in a Ziploc® bag (or equivalent) and placed inside the cooler. The cooler will be taped closed and custody seals will be affixed to one side of the cooler at a minimum. If the samples are being shipped by an express delivery company (e.g. FedEx) then laboratory address labels will be placed on top of the cooler

5.3 SHIPPING

Standard procedures to be followed for shipping environmental samples to the analytical laboratory are outlined below.

- All environmental samples will be transported to the laboratory by a laboratory-provided courier under the chain-of-custody protocols.

Prior notice will be provided to the laboratory regarding when to expect shipped samples. If the number, type or date of shipment changes due to site constraints or program changes, the laboratory will be informed.

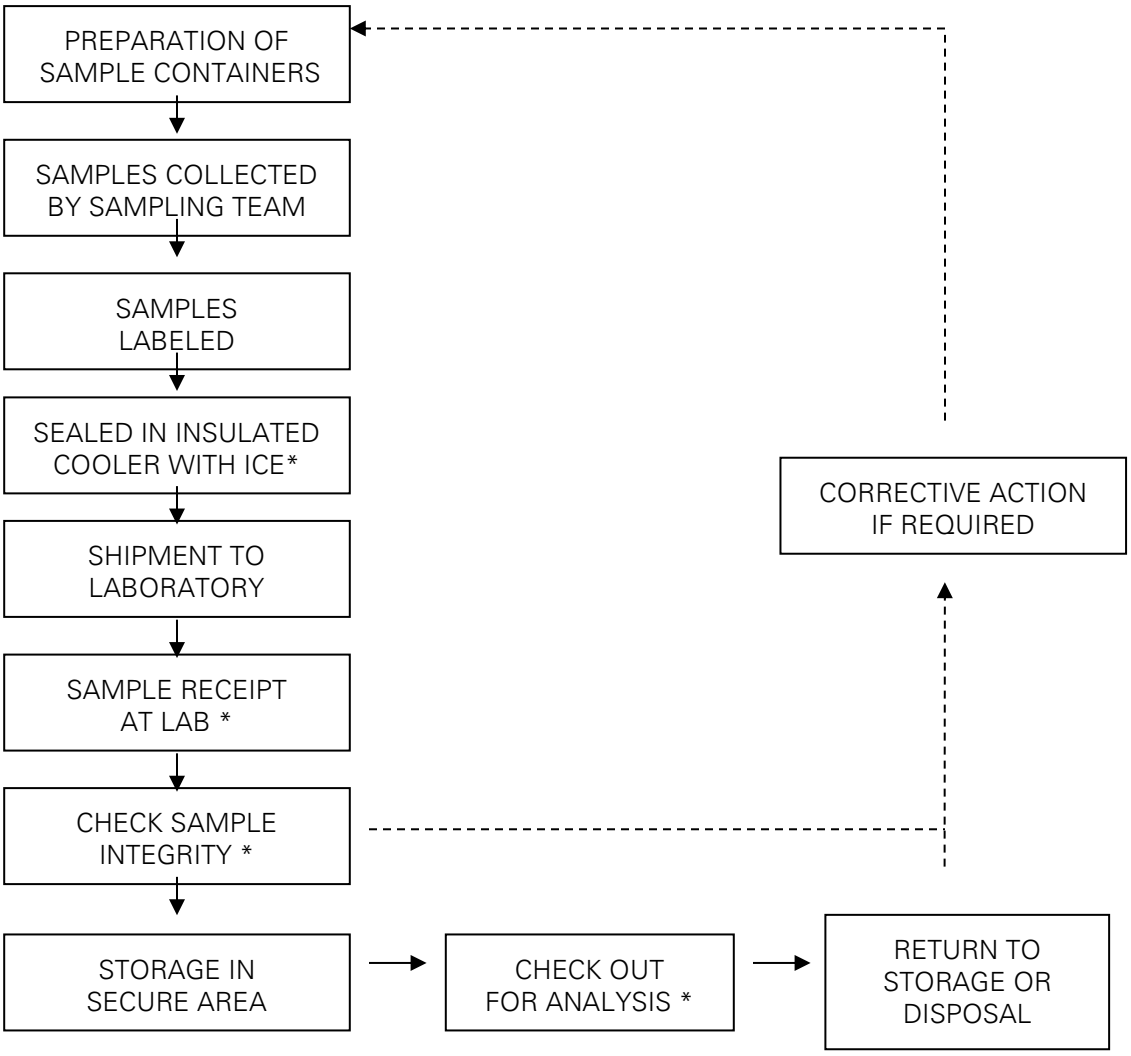
5.4 FIELD SAMPLE CUSTODY

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.

Figure 5.1 Sample Custody



* REQUIRES SIGN-OFF ON CHAIN-OF-CUSTODY FORM

Figure 5.2 Sample Chain-of-Custody Form

ALPHA ANALYTICAL LABORATORIES

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW YORK CHAIN OF CUSTODY

Page of

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Date Rec'd in Lab

ALPHA Job #

Client Information

Client:
Address:
Phone:
Fax:
Email:

Project Information

Project Name:
Project Location:
Project #
(Use Project name as Project #)
Project Manager:
ALPHAQuote #:

Turn-Around Time

Standard
Rush (only if pre approved)
Due Date:
# of Days:

Deliverables

ASP-A
EQuIS (1 File)
Other
ASP-B
EQuIS (4 File)

Regulatory Requirement

NY TOGS
AWQ Standards
NY Restricted Use
NY Unrestricted Use
NYC Sewer Discharge
NY Part 375
NY CP-51
Other

Billing Information

Same as Client Info
PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.
Disposal Facility:
NJ
NY
Other:

These samples have been previously analyzed by Alpha
Other project specific requirements/comments:

Please specify Metals or TAL.

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS	Sample Filtration	Total Bottles
							☐ Done ☐ Lab to do Preservation ☐ Lab to do (Please Specify below)	

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 (notations identifying blind duplicate samples will be added to this copy of the COC, but not the others that will go to the laboratory) 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.

5.5 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°C 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.

6.0 CALIBRATION PROCEDURES

6.1 FIELD INSTRUMENTS

A PID will be used during the sampling activities to evaluate work zone action levels, collect pre- and post-sample readings for air samples, screen soil samples, and collect monitoring well headspace readings. Field calibration and/or field checking of the PID will be the responsibility of the field team leader and will be accomplished by following the procedures outlined in the operating manual for the instrument. At a minimum, field calibration and/or field equipment checking will be performed once daily, prior to use. Field calibration will be documented in the field notebook. Entries made into the logbook regarding the status of field equipment will include the following information:

- Date and time of calibration
- Type of equipment serviced and identification number (such as serial number)
- Reference standard used for calibration
- Calibration and/or maintenance procedure used
- Other pertinent information

A water quality meter (Horiba U-52 or similar) will be used during purging and sampling of groundwater to measure pH, specific conductance, temperature, dissolved oxygen, turbidity and oxidation-reduction-potential (ORP) every five minutes. Water-quality meters should be calibrated and the results documented before use each day using standardized field calibration procedures and calibration checks.

Equipment that fails calibration or becomes inoperable during use will be removed from service and segregated to prevent inadvertent utilization. The equipment will be properly tagged to indicate that it is out of calibration. Such equipment will be repaired and recalibrated to the manufacturer's specifications by qualified personnel. Equipment that cannot be repaired will be replaced.

Off-site calibration and maintenance of field instruments will be conducted as appropriate throughout the duration of project activities. All field instrumentation, sampling equipment and accessories will be maintained in accordance with the manufacturer's recommendations and specifications and established field equipment practice. Off-site calibration and maintenance will be performed by qualified personnel. A logbook will be kept to document that established calibration and maintenance procedures were followed. Documentation will include both scheduled and unscheduled maintenance.

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.

7.0 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 for the laboratory analysis of soil, water, and air samples and the quantitation limits presented in Table 7.1.

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
	VOCs			
1	Methylene chloride	8260C/5035	0.01	0.00165
2	1,1-Dichloroethane	8260C/5035	0.0015	0.00027
3	Chloroform	8260C/5035	0.0015	0.00037
4	Carbon tetrachloride	8260C/5035	0.001	0.000345
5	1,2-Dichloropropane	8260C/5035	0.0035	0.000228
6	Dibromochloromethane	8260C/5035	0.001	0.000176
7	1,1,2-Trichloroethane	8260C/5035	0.0015	0.000313
8	Tetrachloroethene	8260C/5035	0.001	0.000302
9	Chlorobenzene	8260C/5035	0.001	0.000348
10	Trichlorofluoromethane	8260C/5035	0.005	0.000417
11	1,2-Dichloroethane	8260C/5035	0.001	0.000246
12	1,1,1-Trichloroethane	8260C/5035	0.001	0.00035
13	Bromodichloromethane	8260C/5035	0.001	0.000308
14	trans-1,3-Dichloropropene	8260C/5035	0.001	0.000208
15	cis-1,3-Dichloropropene	8260C/5035	0.001	0.000231
16	1,3-Dichloropropene, Total	8260C/5035	0.001	0.000208
17	1,1-Dichloropropene	8260C/5035	0.005	0.000328
18	Bromoform	8260C/5035	0.004	0.000237
19	1,1,2,2-Tetrachloroethane	8260C/5035	0.001	0.000298
20	Benzene	8260C/5035	0.001	0.000193
21	Toluene	8260C/5035	0.0015	0.000195
22	Ethylbenzene	8260C/5035	0.001	0.00017
23	Chloromethane	8260C/5035	0.005	0.000436
24	Bromomethane	8260C/5035	0.002	0.000338
25	Vinyl chloride	8260C/5035	0.002	0.000315
26	Chloroethane	8260C/5035	0.002	0.000316
27	1,1-Dichloroethene	8260C/5035	0.001	0.000372
28	trans-1,2-Dichloroethene	8260C/5035	0.0015	0.000241
29	Trichloroethene	8260C/5035	0.001	0.000302

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
30	1,2-Dichlorobenzene	8260C/5035	0.005	0.000182
31	1,3-Dichlorobenzene	8260C/5035	0.005	0.000218
32	1,4-Dichlorobenzene	8260C/5035	0.005	0.000182
33	Methyl tert butyl ether	8260C/5035	0.002	0.000153
34	p/m-Xylene	8260C/5035	0.002	0.000351
35	o-Xylene	8260C/5035	0.002	0.000338
36	Xylene (Total)	8260C/5035	0.002	0.000338
37	cis-1,2-Dichloroethene	8260C/5035	0.001	0.000342
38	1,2-Dichloroethene (total)	8260C/5035	0.001	0.000241
39	Dibromomethane	8260C/5035	0.01	0.000239
40	Styrene	8260C/5035	0.002	0.000401
41	Dichlorodifluoromethane	8260C/5035	0.01	0.0005
42	Acetone	8260C/5035	0.01	0.00229
43	Carbon disulfide	8260C/5035	0.01	0.0011
44	2-Butanone	8260C/5035	0.01	0.00069
45	Vinyl acetate	8260C/5035	0.01	0.000153
46	4-Methyl-2-pentanone	8260C/5035	0.01	0.000244
47	1,2,3-Trichloropropane	8260C/5035	0.01	0.000177
48	2-Hexanone	8260C/5035	0.01	0.000666
49	Bromochloromethane	8260C/5035	0.005	0.000357
50	2,2-Dichloropropane	8260C/5035	0.005	0.00045
51	1,2-Dibromoethane	8260C/5035	0.004	0.000199
52	1,3-Dichloropropane	8260C/5035	0.005	0.000183
53	1,1,1,2-Tetrachloroethane	8260C/5035	0.001	0.000318
54	Bromobenzene	8260C/5035	0.005	0.000219
55	n-Butylbenzene	8260C/5035	0.001	0.000228
56	sec-Butylbenzene	8260C/5035	0.001	0.000217
57	tert-Butylbenzene	8260C/5035	0.005	0.000247
58	o-Chlorotoluene	8260C/5035	0.005	0.000221
59	p-Chlorotoluene	8260C/5035	0.005	0.000183
60	1,2-Dibromo-3-chloropropane	8260C/5035	0.005	0.000396
61	Hexachlorobutadiene	8260C/5035	0.005	0.000348
62	Isopropylbenzene	8260C/5035	0.001	0.000194
63	p-Isopropyltoluene	8260C/5035	0.001	0.000202
64	Naphthalene	8260C/5035	0.005	0.000138
65	Acrylonitrile	8260C/5035	0.01	0.000514
66	n-Propylbenzene	8260C/5035	0.001	0.000215

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
67	1,2,3-Trichlorobenzene	8260C/5035	0.005	0.000251
68	1,2,4-Trichlorobenzene	8260C/5035	0.005	0.000215
69	1,3,5-Trimethylbenzene	8260C/5035	0.005	0.000161
70	1,2,4-Trimethylbenzene	8260C/5035	0.005	0.000186
71	1,4-Dioxane	8260C/5035	0.04	0.0144
72	1,4-Diethylbenzene	8260C/5035	0.004	0.004
73	4-Ethyltoluene	8260C/5035	0.004	0.000234
74	1,2,4,5-Tetramethylbenzene	8260C/5035	0.004	0.000156
75	Ethyl ether	8260C/5035	0.005	0.00026
76	trans-1,4-Dichloro-2-butene	8260C/5035	0.005	0.000392
	SVOCs			
1	Acenaphthene	8270D	0.1332	0.0172494
2	1,2,4-Trichlorobenzene	8270D	0.1665	0.0190476
3	Hexachlorobenzene	8270D	0.0999	0.018648
4	Bis(2-chloroethyl)ether	8270D	0.14985	0.0225774
5	2-Chloronaphthalene	8270D	0.1665	0.0165168
6	1,2-Dichlorobenzene	8270D	0.1665	0.0299034
7	1,3-Dichlorobenzene	8270D	0.1665	0.028638
8	1,4-Dichlorobenzene	8270D	0.1665	0.0290709
9	3,3'-Dichlorobenzidine	8270D	0.1665	0.044289
10	2,4-Dinitrotoluene	8270D	0.1665	0.0333
11	2,6-Dinitrotoluene	8270D	0.1665	0.0285714
12	Fluoranthene	8270D	0.0999	0.0191142
13	4-Chlorophenyl phenyl ether	8270D	0.1665	0.0178155
14	4-Bromophenyl phenyl ether	8270D	0.1665	0.0254079
15	Bis(2-chloroisopropyl)ether	8270D	0.1998	0.0284382
16	Bis(2-chloroethoxy)methane	8270D	0.17982	0.0166833
17	Hexachlorobutadiene	8270D	0.1665	0.0243756
18	Hexachlorocyclopentadiene	8270D	0.47619	0.150849
19	Hexachloroethane	8270D	0.1332	0.0269397
20	Isophorone	8270D	0.14985	0.0216117
21	Naphthalene	8270D	0.1665	0.0202797
22	Nitrobenzene	8270D	0.14985	0.024642
23	NitrosoDiPhenylAmine(NDPA)/DPA	8270D	0.1332	0.0189477
24	n-Nitrosodi-n-propylamine	8270D	0.1665	0.0257076
25	Bis(2-Ethylhexyl)phthalate	8270D	0.1665	0.057609

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
26	Butyl benzyl phthalate	8270D	0.1665	0.041958
27	Di-n-butylphthalate	8270D	0.1665	0.0315684
28	Di-n-octylphthalate	8270D	0.1665	0.05661
29	Diethyl phthalate	8270D	0.1665	0.0154179
30	Dimethyl phthalate	8270D	0.1665	0.034965
31	Benzo(a)anthracene	8270D	0.0999	0.0187479
32	Benzo(a)pyrene	8270D	0.1332	0.040626
33	Benzo(b)fluoranthene	8270D	0.0999	0.0280386
34	Benzo(k)fluoranthene	8270D	0.0999	0.02664
35	Chrysene	8270D	0.0999	0.017316
36	Acenaphthylene	8270D	0.1332	0.0257076
37	Anthracene	8270D	0.0999	0.0324675
38	Benzo(ghi)perylene	8270D	0.1332	0.0195804
39	Fluorene	8270D	0.1665	0.0161838
40	Phenanthrene	8270D	0.0999	0.0202464
41	Dibenzo(a,h)anthracene	8270D	0.0999	0.0192474
42	Indeno(1,2,3-cd)Pyrene	8270D	0.1332	0.0232101
43	Pyrene	8270D	0.0999	0.0165501
44	Biphenyl	8270D	0.37962	0.038628
45	4-Chloroaniline	8270D	0.1665	0.030303
46	2-Nitroaniline	8270D	0.1665	0.0321012
47	3-Nitroaniline	8270D	0.1665	0.0314019
48	4-Nitroaniline	8270D	0.1665	0.068931
49	Dibenzofuran	8270D	0.1665	0.0157509
50	2-Methylnaphthalene	8270D	0.1998	0.0201132
51	Acetophenone	8270D	0.1665	0.0206127
52	2,4,6-Trichlorophenol	8270D	0.0999	0.0315684
53	P-Chloro-M-Cresol	8270D	0.1665	0.0248085
54	2-Chlorophenol	8270D	0.1665	0.0196803
55	2,4-Dichlorophenol	8270D	0.14985	0.0267732
56	2,4-Dimethylphenol	8270D	0.1665	0.054945
57	2-Nitrophenol	8270D	0.35964	0.062604
58	4-Nitrophenol	8270D	0.2331	0.067932
59	2,4-Dinitrophenol	8270D	0.7992	0.077589
60	4,6-Dinitro-o-cresol	8270D	0.4329	0.07992
61	Pentachlorophenol	8270D	0.1332	0.03663
62	Phenol	8270D	0.1665	0.0251415

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
63	2-Methylphenol	8270D	0.1665	0.0258075
64	3-Methylphenol/4-Methylphenol	8270D	0.23976	0.0260739
65	2,4,5-Trichlorophenol	8270D	0.1665	0.0319014
66	Benzoic Acid	8270D	0.53946	0.168498
67	Benzyl Alcohol	8270D	0.1665	0.050949
68	Carbazole	8270D	0.1665	0.0161838
	Pesticides			
1	Delta-BHC	8081B	0.007992	0.0015651
2	Lindane	8081B	0.00333	0.00148851
3	Alpha-BHC	8081B	0.00333	0.00094572
4	Beta-BHC	8081B	0.007992	0.0030303
5	Heptachlor	8081B	0.003996	0.00179154
6	Aldrin	8081B	0.007992	0.00281385
7	Heptachlor epoxide	8081B	0.014985	0.0044955
8	Endrin	8081B	0.00333	0.0013653
9	Endrin aldehyde	8081B	0.00999	0.0034965
10	Endrin ketone	8081B	0.007992	0.00205794
11	Dieldrin	8081B	0.004995	0.0024975
12	4,4'-DDE	8081B	0.007992	0.00184815
13	4,4'-DDD	8081B	0.007992	0.00285048
14	4,4'-DDT	8081B	0.014985	0.0064269
15	Endosulfan I	8081B	0.007992	0.00188811
16	Endosulfan II	8081B	0.007992	0.00267066
17	Endosulfan sulfate	8081B	0.00333	0.00152181
18	Methoxychlor	8081B	0.014985	0.004662
19	Toxaphene	8081B	0.14985	0.041958
20	cis-Chlordane	8081B	0.00999	0.00278388
21	trans-Chlordane	8081B	0.00999	0.00263736
22	Chlordane	8081B	0.064935	0.0264735
	Herbicides			
1	2,4,5-TP (Silvex)	8151A	0.1665	0.0044289
	PCBs			
1	Aroclor 1016	8082A	0.0335	0.0026465
2	Aroclor 1221	8082A	0.0335	0.0030887

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
3	Aroclor 1232	8082A	0.0335	0.0039262
4	Aroclor 1242	8082A	0.0335	0.0041004
5	Aroclor 1248	8082A	0.0335	0.0028274
6	Aroclor 1254	8082A	0.0335	0.0027537
7	Aroclor 1260	8082A	0.0335	0.0025527
8	Aroclor 1262	8082A	0.0335	0.0016616
9	Aroclor 1268	8082A	0.0335	0.0048575
10	PCBs, Total	8082A	0.0335	0.0016616
	Metals			
1	Aluminum, Total	6010C	4	1.08
2	Antimony, Total	6010C	2	0.152
3	Arsenic, Total	6010C	0.4	0.0832
4	Barium, Total	6010C	0.4	0.0696
5	Beryllium, Total	6010C	0.2	0.0132
6	Cadmium, Total	6010C	0.4	0.0392
7	Calcium, Total	6010C	4	1.4
8	Chromium, Total	6010C	0.4	0.0384
9	Cobalt, Total	6010C	0.8	0.0664
10	Copper, Total	6010C	0.4	0.1032
11	Iron, Total	6010C	2	0.3612
12	Lead, Total	6010C	2	0.1072
13	Magnesium, Total	6010C	4	0.616
14	Manganese, Total	6010C	0.4	0.0636
15	Mercury	7471B	0.08	0.016896
16	Nickel, Total	6010C	1	0.0968
17	Potassium, Total	6010C	100	5.76
18	Selenium, Total	6010C	0.8	0.1032
19	Silver, Total	6010C	0.4	0.1132
20	Sodium, Total	6010C	80	1.26
21	Thallium, Total	6010C	0.8	0.126
22	Vanadium, Total	6010C	0.4	0.0812
23	Zinc, Total	6010C	2	0.1172
	General Chemistry			
1	Cyanide	9010C	0.8	0.16
2	Hexavalent Chromium	7196A	1	0.166

TABLE 7.1
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
3	Trivalent Chromium	7196	0.8	0.8
	PFAS		**RL (µg/kg)**	**MDL (µg/kg)**
1	Perfluorohexanoic acid (PFHxA)	537 Rev 1.15	0.5	0.0525
2	Perfluoroheptanoic acid (PFHpA)	537 Rev 1.15	0.5	0.0451
3	Perfluorooctanoic acid (PFOA)	537 Rev 1.15	0.5	0.0419
4	Perfluorononanoic acid (PFNA)	537 Rev 1.15	0.5	0.075
5	Perfluorodecanoic acid (PFDA)	537 Rev 1.15	0.5	0.067
6	Perfluoroundecanoic acid (PFUnA)	537 Rev 1.15	0.5	0.0468
7	Perfluorododecanoic acid (PFDoA)	537 Rev 1.15	0.5	0.07
8	Perfluorotridecanoic Acid (PFTrDA)	537 Rev 1.15	0.5	0.2045
9	Perfluorotetradecanoic acid (PFTA)	537 Rev 1.15	0.5	0.054
10	Perfluorobutanesulfonic acid (PFBS)	537 Rev 1.15	0.5	0.039
11	Perfluorohexanesulfonic acid (PFHxS)	537 Rev 1.15	0.5	0.0605
12	Perfluorooctanesulfonic acid (PFOS)	537 Rev 1.15	0.5	0.13
13	Perfluorodecanesulfonic Acid (PFDS)	537 Rev 1.15	0.5	0.153
14	Perfluorobutanoic Acid (PFBA)	537 Rev 1.15	0.5	0.0227
15	Perfluoropentanoic Acid (PFPeA)	537 Rev 1.15	0.5	0.046
16	Perfluoroheptane Sulfonic Acid (PFHpS)	537 Rev 1.15	0.5	0.1365
17	1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2 FTS)	537 Rev 1.15	0.5	0.1795
18	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2 FTS)	537 Rev 1.15	0.5	0.287
19	Perfluorooctanesulfonamide (FOSA)	537 Rev 1.15	0.5	0.098
20	N-methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	537 Rev 1.15	0.5	0.2015
21	N-ethyl perfluorooctanesulfonamidoacetic acid (EtFOSAA)	537 Rev 1.15	0.5	0.0845

Notes:
1) RL = Reporting Limit
2) MDL = Method Detection Limit
3) RL and MDL values were supplied by Alpha Analytical Laboratories
4) RL and MDL values are estimated and may vary depending on instruments
5) mg/kg = milligram per kilogram

TABLE 7.1
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
	VOCs			
1	Methylene chloride	8260C	2.5	0.7
2	1,1-Dichloroethane	8260C	5	0.7
3	Chloroform	8260C	2.5	0.7
4	Carbon tetrachloride	8260C	5	0.134
5	1,2-Dichloropropane	8260C	5	0.133
6	Dibromochloromethane	8260C	5	0.149
7	1,1,2-Trichloroethane	8260C	5	0.5
8	Tetrachloroethene	8260C	5	0.181
9	Chlorobenzene	8260C	5	0.7
10	Trichlorofluoromethane	8260C	5	0.7
11	1,2-Dichloroethane	8260C	2.5	0.132
12	1,1,1-Trichloroethane	8260C	2.5	0.7
13	Bromodichloromethane	8260C	2	0.192
14	trans-1,3-Dichloropropene	8260C	2.5	0.164
15	cis-1,3-Dichloropropene	8260C	2.5	0.144
16	1,3-Dichloropropene, Total	8260C	2.5	0.144
17	1,1-Dichloropropene	8260C	2.5	0.7
18	Bromoform	8260C	2.5	0.65
19	1,1,2,2-Tetrachloroethane	8260C	2.5	0.144
20	Benzene	8260C	2.5	0.159
21	Toluene	8260C	2.5	0.7
22	Ethylbenzene	8260C	2.5	0.7
23	Chloromethane	8260C	2.5	0.7
24	Bromomethane	8260C	2.5	0.7
25	Vinyl chloride	8260C	2.5	0.0699
26	Chloroethane	8260C	2.5	0.7
27	1,1-Dichloroethene	8260C	2.5	0.142
28	trans-1,2-Dichloroethene	8260C	2.5	0.7
29	Trichloroethene	8260C	2.5	0.175
30	1,2-Dichlorobenzene	8260C	2.5	0.7
31	1,3-Dichlorobenzene	8260C	250	0.7
32	1,4-Dichlorobenzene	8260C	2	0.7
33	Methyl tert butyl ether	8260C	2	0.7
34	p/m-Xylene	8260C	2	0.7
35	o-Xylene	8260C	2.5	0.7
36	Xylene (Total)	8260C	2.5	0.7

TABLE 7.1
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
37	cis-1,2-Dichloroethene	8260C	2.5	0.7
38	1,2-Dichloroethene (total)	8260C	2.5	0.7
39	Dibromomethane	8260C	5	1
40	1,2,3-Trichloropropane	8260C	2.5	0.7
41	Acrylonitrile	8260C	5	1.5
42	Styrene	8260C	2.5	0.7
43	Dichlorodifluoromethane	8260C	5	1
44	Acetone	8260C	5	1.46
45	Carbon disulfide	8260C	5	1
46	2-Butanone	8260C	5	1.94
47	Vinyl acetate	8260C	5	1
48	4-Methyl-2-pentanone	8260C	5	1
49	2-Hexanone	8260C	5	1
50	Bromochloromethane	8260C	2.5	0.7
51	2,2-Dichloropropane	8260C	2.5	0.7
52	1,2-Dibromoethane	8260C	2	0.65
53	1,3-Dichloropropane	8260C	2.5	0.7
54	1,1,1,2-Tetrachloroethane	8260C	2.5	0.7
55	Bromobenzene	8260C	2.5	0.7
56	n-Butylbenzene	8260C	2.5	0.7
57	sec-Butylbenzene	8260C	2.5	0.7
58	tert-Butylbenzene	8260C	2.5	0.7
59	o-Chlorotoluene	8260C	2.5	0.7
60	p-Chlorotoluene	8260C	2.5	0.7
61	1,2-Dibromo-3-chloropropane	8260C	2.5	0.7
62	Hexachlorobutadiene	8260C	2.5	0.7
63	Isopropylbenzene	8260C	2.5	0.7
64	p-Isopropyltoluene	8260C	2.5	0.7
65	Naphthalene	8260C	2.5	0.7
66	n-Propylbenzene	8260C	2.5	0.7
67	1,2,3-Trichlorobenzene	8260C	2.5	0.7
68	1,2,4-Trichlorobenzene	8260C	2.5	0.7
69	1,3,5-Trimethylbenzene	8260C	2.5	0.7
70	1,2,4-Trimethylbenzene	8260C	2.5	0.7
71	1,4-Dioxane	8270 SIM Isotope Dilution	0.15	0.075
72	1,4-Diethylbenzene	8260C	2	0.7

TABLE 7.1
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
73	4-Ethyltoluene	8260C	2	0.7
74	1,2,4,5-Tetramethylbenzene	8260C	2	0.65
75	Ethyl ether	8260C	2.5	0.7
76	trans-1,4-Dichloro-2-butene	8260C	2.5	0.7
	SVOCs			
1	Acenaphthene	8270D	2	0.591
2	1,2,4-Trichlorobenzene	8270D	5	0.661
3	Hexachlorobenzene	8270D	2	0.579
4	Bis(2-chloroethyl)ether	8270D	2	0.669
5	2-Chloronaphthalene	8270D	2	0.64
6	1,2-Dichlorobenzene	8270D	2	0.732
7	1,3-Dichlorobenzene	8270D	2	0.732
8	1,4-Dichlorobenzene	8270D	2	0.708
9	3,3'-Dichlorobenzidine	8270D	5	1.39
10	2,4-Dinitrotoluene	8270D	5	0.845
11	2,6-Dinitrotoluene	8270D	5	1.12
12	Fluoranthene	8270D	2	0.568
13	4-Chlorophenyl phenyl ether	8270D	2	0.625
14	4-Bromophenyl phenyl ether	8270D	2	0.731
15	Bis(2-chloroisopropyl)ether	8270D	2	0.696
16	Bis(2-chloroethoxy)methane	8270D	5	0.626
17	Hexachlorobutadiene	8270D	2	0.658
18	Hexachlorocyclopentadiene	8270D	20	7.84
19	Hexachloroethane	8270D	2	0.682
20	Isophorone	8270D	5	0.601
21	Naphthalene	8270D	2	0.68
22	Nitrobenzene	8270D	2	0.753
23	NitrosoDiPhenylAmine(NDPA)/DPA	8270D	2	0.644
24	n-Nitrosodi-n-propylamine	8270D	5	0.7
25	Bis(2-Ethylhexyl)phthalate	8270D	3	0.91
26	Butyl benzyl phthalate	8270D	5	1.26
27	Di-n-butylphthalate	8270D	5	0.689
28	Di-n-octylphthalate	8270D	5	1.14
29	Diethyl phthalate	8270D	5	0.628
30	Dimethyl phthalate	8270D	5	0.65
31	Benzo(a)anthracene	8270D	2	0.61

TABLE 7.1
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
32	Benzo(a)pyrene	8270D	2	0.539
33	Benzo(b)fluoranthene	8270D	2	0.635
34	Benzo(k)fluoranthene	8270D	2	0.597
35	Chrysene	8270D	2	0.543
36	Acenaphthylene	8270D	2	0.658
37	Anthracene	8270D	2	0.645
38	Benzo(ghi)perylene	8270D	2	0.611
39	Fluorene	8270D	2	0.619
40	Phenanthrene	8270D	2	0.613
41	Dibenzo(a,h)anthracene	8270D	2	0.548
42	Indeno(1,2,3-cd)Pyrene	8270D	2	0.707
43	Pyrene	8270D	2	0.569
44	Biphenyl	8270D	2	0.757
45	4-Chloroaniline	8270D	5	0.632
46	2-Nitroaniline	8270D	5	1.14
47	3-Nitroaniline	8270D	5	1.14
48	4-Nitroaniline	8270D	5	1.3
49	Dibenzofuran	8270D	2	0.656
50	2-Methylnaphthalene	8270D	2	0.72
51	Acetophenone	8270D	5	0.847
52	2,4,6-Trichlorophenol	8270D	5	0.681
53	P-Chloro-M-Cresol	8270D	2	0.617
54	2-Chlorophenol	8270D	2	0.631
55	2,4-Dichlorophenol	8270D	5	0.769
56	2,4-Dimethylphenol	8270D	5	1.64
57	2-Nitrophenol	8270D	10	1.52
58	4-Nitrophenol	8270D	10	1.77
59	2,4-Dinitrophenol	8270D	20	5.47
60	4,6-Dinitro-o-cresol	8270D	10	2.1
61	Pentachlorophenol	8270D	10	3.43
62	Phenol	8270D	5	1.89
63	2-Methylphenol	8270D	5	1.02
64	3-Methylphenol/4-Methylphenol	8270D	5	1.11
65	2,4,5-Trichlorophenol	8270D	5	0.715
66	Benzoic Acid	8270D	50	12.9
67	Benzyl Alcohol	8270D	2	0.725
68	Carbazole	8270D	2	0.627

TABLE 7.1
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
69	1,4-Dioxane	8270 SIM Isotope Dilution	0.15	0.075
	Pesticides			
1	Delta-BHC	8081B	0.02	0.00467
2	Lindane	8081B	0.02	0.00434
3	Alpha-BHC	8081B	0.02	0.00439
4	Beta-BHC	8081B	0.02	0.0056
5	Heptachlor	8081B	0.02	0.0031
6	Aldrin	8081B	0.02	0.00216
7	Heptachlor epoxide	8081B	0.02	0.00415
8	Endrin	8081B	0.04	0.00429
9	Endrin aldehyde	8081B	0.04	0.0081
10	Endrin ketone	8081B	0.04	0.00477
11	Dieldrin	8081B	0.04	0.00429
12	4,4'-DDE	8081B	0.04	0.00381
13	4,4'-DDD	8081B	0.04	0.00464
14	4,4'-DDT	8081B	0.04	0.00432
15	Endosulfan I	8081B	0.02	0.00345
16	Endosulfan II	8081B	0.04	0.00519
17	Endosulfan sulfate	8081B	0.04	0.00481
18	Methoxychlor	8081B	0.2	0.00684
19	Toxaphene	8081B	0.2	0.063
20	cis-Chlordane	8081B	0.02	0.00666
21	trans-Chlordane	8081B	0.02	0.00627
22	Chlordane	8081B	0.2	0.0463
	Herbicides			
1	2,4,5-TP (Silvex)	8151A	2	0.539
	PCBs			
1	Aroclor 1016	8082A	0.083	0.05478
2	Aroclor 1221	8082A	0.083	0.05312
3	Aroclor 1232	8082A	0.083	0.03071
4	Aroclor 1242	8082A	0.083	0.05976
5	Aroclor 1248	8082A	0.083	0.05063
6	Aroclor 1254	8082A	0.083	0.03403
7	Aroclor 1260	8082A	0.083	0.03154

TABLE 7.1
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
8	Aroclor 1262	8082A	0.083	0.02905
9	Aroclor 1268	8082A	0.083	0.03735
10	PCBs, Total	8082A	0.083	0.02905
	Metals			
1	Aluminum, Total	6010C	0.00001	0.00000327
2	Antimony, Total	6010C	0.000004	0.000000429
3	Arsenic, Total	6010C	0.0000005	0.000000165
4	Barium, Total	6010C	0.0000005	0.000000173
5	Beryllium, Total	6010C	0.0000005	0.000000107
6	Cadmium, Total	6010C	0.0000002	0.0000000599
7	Calcium, Total	6010C	0.0001	0.0000394
8	Chromium, Total	6010C	0.000001	0.000000178
9	Cobalt, Total	6010C	0.0000005	0.000000163
10	Copper, Total	6010C	0.000001	0.000000384
11	Iron, Total	6010C	0.00005	0.0000191
12	Lead, Total	6010C	0.000001	0.000000343
13	Magnesium, Total	6010C	0.00007	0.0000242
14	Manganese, Total	6010C	0.000001	0.00000044
15	Mercury	7040A	0.0000002	0.000000066
16	Nickel, Total	6010C	0.000002	0.000000556
17	Potassium, Total	6010C	0.0001	0.0000309
18	Selenium, Total	6010C	0.000005	0.00000173
19	Silver, Total	6010C	0.0000004	0.000000163
20	Sodium, Total	6010C	0.0001	0.0000293
21	Thallium, Total	6010C	0.0000005	0.000000143
22	Vanadium, Total	6010C	0.000005	0.00000157
23	Zinc, Total	6010C	0.00001	0.00000341
	General Chemistry			
1	Cyanide	9010C/9012A	0.00001	0.000003
2	Hexavalent Chromium	7196A	0.000005	0.0000018
3	Trivalent Chromium	7196	0.00001	0.00001

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ng/L)**	**MDL (ng/L)**
	PFAS			

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ng/L)**	**MDL (ng/L)**
1	Perfluorohexanoic acid (PFHxA)	537 Rev 1.15	2	0.1264
2	Perfluoroheptanoic acid (PFHpA)	537 Rev 1.15	2	0.0924
3	Perfluorooctanoic acid (PFOA)	537 Rev 1.15	2	0.0504
4	Perfluorononanoic acid (PFNA)	537 Rev 1.15	2	0.1008
5	Perfluorodecanoic acid (PFDA)	537 Rev 1.15	2	0.1904
6	Perfluoroundecanoic acid (PFUdA)	537 Rev 1.15	2	0.1912
7	Perfluorododecanoic acid (PFDoA)	537 Rev 1.15	2	0.0916
8	Perfluorotridecanoic Acid (PRTrDA)	537 Rev 1.15	2	0.0904
9	Perfluorotetradecanoic acid (PFTA)	537 Rev 1.15	2	0.072
10	Perfluorobutanesulfonic acid (PFBS)	537 Rev 1.15	2	0.11
11	Perfluorohexanesulfonic acid (PFHxS)	537 Rev 1.15	2	0.1076
12	Perfluorooctanesulfonic acid (PFOS)	537 Rev 1.15	2	0.1116
13	Perfluorodecanesulfonic Acid (PFDS)	537 Rev 1.15	2	0.2224
14	Perfluorobutanoic Acid (PFBA)	537 Rev 1.15	2	0.1312
15	Perfluoropentanoic Acid (PFPeA)	537 Rev 1.15	2	0.0856
16	Perfluoroheptane Sulfonic Acid (PFHpS)	537 Rev 1.15	2	0.1552
17	1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2 FTS)	537 Rev 1.15	2	0.194
18	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2 FTS)	537 Rev 1.15	2	0.2908
19	Perfluorooctanesulfonamide (FOSA)	537 Rev 1.15	2	0.2268
20	N-methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA)	537 Rev 1.15	2	0.2504
21	N-ethyl perfluorooctanesulfonamidoacetic acid (EtFOSAA)	537 Rev 1.15	2	0.3728

Notes:
1) RL = Reporting Limit
2) MDL = Method Detection Limit
3) RL and MDL values were supplied by Alpha Analytical Laboratories
4) RL and MDL values are estimated and may vary depending on instruments
5) µg/L = micrograms per liter
6) ng/L = nanograms per liter

TABLE 7.1
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (µg/m^3)**	**MDL(µg/m^3)**
	VOCs			
1	1,1,1,2-Tetrachloroethane	TO-15	1.37	0.38
2	1,1,1-Trichloroethane	TO-15	1.09	0.31
3	1,1,2,2-Tetrachloroethane	TO-15	1.37	0.38

TABLE 7.1
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (µg/m^3)**	**MDL(µg/m^3)**
4	1,1,2-Trichloro-1,2,2-Trifluoroethane	TO-15	1.53	0.39
5	1,1,2-Trichloroethane	TO-15	1.09	0.36
6	1,1-Dichloroethane	TO-15	0.81	0.31
7	1,1-Dichloroethene	TO-15	0.79	0.22
8	1,1-Dichloropropene	TO-15	0.91	0.32
9	1,2,3-Trichlorobenzene	TO-15	1.48	0.32
10	1,2,3-Trichloropropane	TO-15	1.21	0.46
11	1,2,3-Trimethylbenzene	TO-15	0.98	0.37
12	1,2,4,5-Tetramethylbenzene	TO-15	1.1	0.44
13	1,2,4-Trichlorobenzene	TO-15	1.48	0.45
14	1,2,4-Trimethylbenzene	TO-15	0.98	0.34
15	1,2-Dibromo-3-chloropropane	TO-15	1.93	0.72
16	1,2-Dibromoethane	TO-15	1.54	0.6
17	1,2-Dichloro-1,1,2,2-tetrafluoroethane	TO-15	1.4	0.29
18	1,2-Dichlorobenzene	TO-15	1.2	0.37
19	1,2-Dichloroethane	TO-15	0.81	0.22
20	1,2-Dichloroethene (total)	TO-15	0.79	0.23
21	1,2-Dichloropropane	TO-15	0.92	0.32
22	1,3,5-Trimethylbenzene	TO-15	0.98	0.29
23	1,3-Butadiene	TO-15	0.44	0.18
24	1,3-Dichlorobenzene	TO-15	1.2	0.38
25	1,3-Dichloropropane	TO-15	0.92	0.36
26	1,3-Dichloropropene, Total	TO-15	0.91	0.31
27	1,4-Dichlorobenzene	TO-15	1.2	0.25
28	1,4-Dioxane	TO-15	0.72	0.28
29	1-Methylnaphthalene	TO-15	5.82	1.66
30	2,2,4-Trimethylpentane	TO-15	0.93	0.31
31	2,2-Dichloropropane	TO-15	0.92	0.27
32	2-Butanone	TO-15	1.47	0.15
33	2-Ethylthiophene	TO-15	0.92	0.26
34	2-Hexanone	TO-15	0.82	0.25
35	2-Methylnaphthalene	TO-15	5.82	0.16
36	2-Methylthiophene	TO-15	0.8	0.32
37	3-Chloropropene	TO-15	0.63	0.25
38	3-Methylthiophene	TO-15	0.8	0.27
39	4-Ethyltoluene	TO-15	0.98	0.38
40	4-Methyl-2-pentanone	TO-15	2.05	0.25

TABLE 7.1
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (µg/m^3)**	**MDL(µg/m^3)**
41	Acetaldehyde	TO-15	4.5	0.99
42	Acetone	TO-15	2.38	0.64
43	Acetonitrile	TO-15	0.34	0.13
44	Acrolein	TO-15	1.15	0.26
45	Acrylonitrile	TO-15	1.09	0.17
46	Benzene	TO-15	0.64	0.17
47	Benzothiophene	TO-15	2.74	0.26
48	Benzyl chloride	TO-15	1.04	0.33
49	Bromobenzene	TO-15	0.79	0.31
50	Bromodichloromethane	TO-15	1.34	0.44
51	Bromoform	TO-15	2.07	0.54
52	Bromomethane	TO-15	0.78	0.27
53	Butane	TO-15	0.48	0.11
54	Butyl Acetate	TO-15	2.38	0.54
55	Carbon disulfide	TO-15	0.62	0.11
56	Carbon tetrachloride	TO-15	1.26	0.3
57	Chlorobenzene	TO-15	0.92	0.36
58	Chlorodifluoromethane	TO-15	0.71	0.22
59	Chloroethane	TO-15	0.53	0.2
60	Chloroform	TO-15	0.98	0.22
61	Chloromethane	TO-15	0.41	0.2
62	cis-1,2-Dichloroethene	TO-15	0.79	0.23
63	cis-1,3-Dichloropropene	TO-15	0.91	0.34
64	Cyclohexane	TO-15	0.69	0.23
65	Decane (C10)	TO-15	1.16	0.28
66	Dibromochloromethane	TO-15	1.7	0.64
67	Dibromomethane	TO-15	1.42	0.34
68	Dichlorodifluoromethane	TO-15	0.99	0.23
69	Dichlorofluoromethane	TO-15	0.84	0.24
70	Dodecane (C12)	TO-15	1.39	0.39
71	Ethyl Acetate	TO-15	1.8	0.47
72	Ethyl Alcohol	TO-15	4.71	1.02
73	Ethyl ether	TO-15	0.61	0.18
74	Ethylbenzene	TO-15	0.87	0.24
75	Ethyl-Tert-Butyl-Ether	TO-15	0.84	0.22
76	Heptane	TO-15	0.82	0.23
77	Hexachlorobutadiene	TO-15	2.13	0.78

TABLE 7.1
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (µg/m^3)**	**MDL(µg/m^3)**
78	Indane	TO-15	0.97	0.38
79	Indene	TO-15	0.95	0.29
80	iso-Propyl Alcohol	TO-15	1.23	0.28
81	Isopropyl Ether	TO-15	0.84	0.27
82	Isopropylbenzene	TO-15	0.98	0.21
83	Methanol	TO-15	6.55	0.96
84	Methyl Methacrylate	TO-15	2.05	0.61
85	Methyl tert butyl ether	TO-15	0.72	0.16
86	Methylene chloride	TO-15	1.74	0.65
87	Naphthalene	TO-15	1.05	0.23
88	n-Butylbenzene	TO-15	1.1	0.35
89	n-Heptane	TO-15	0.82	0.23
90	n-Hexane	TO-15	0.7	0.18
91	Nonane (C9)	TO-15	1.05	0.34
92	n-Propylbenzene	TO-15	0.98	0.27
93	o-Chlorotoluene	TO-15	1.04	0.25
94	Octane	TO-15	0.93	0.2
95	o-Xylene	TO-15	0.87	0.27
96	p/m-Xylene	TO-15	1.74	0.6
97	p-Chlorotoluene	TO-15	1.04	0.4
98	Pentane	TO-15	0.59	0.14
99	p-Isopropyltoluene	TO-15	1.1	0.33
100	Propane	TO-15	0.9	0.21
101	Propylene	TO-15	0.86	0.16
102	sec-Butylbenzene	TO-15	1.1	0.4
103	Styrene	TO-15	0.85	0.34
104	tert-Butyl Alcohol	TO-15	1.52	0.18
105	tert-Butylbenzene	TO-15	1.1	0.22
106	Tertiary-Amyl Methyl Ether	TO-15	0.84	0.33
107	Tetrachloroethene	TO-15	1.36	0.51
108	Tetrahydrofuran	TO-15	1.47	0.18
109	Thiophene	TO-15	0.69	0.18
110	Toluene	TO-15	0.75	0.24
111	Total HC As Hexane	TO-15	39.34	0.2
112	Total VOCs As Toluene	TO-15	37.69	0.24
113	trans-1,2-Dichloroethene	TO-15	0.79	0.29
114	trans-1,3-Dichloropropene	TO-15	0.91	0.31

TABLE 7.1
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits	
	Compound	**Method**	**RL (µg/m^3)**	**MDL(µg/m^3)**
115	Trichloroethene	TO-15	1.07	0.38
116	Trichlorofluoromethane	TO-15	1.12	0.23
117	Undecane	TO-15	1.28	0.34
118	Vinyl acetate	TO-15	3.52	0.2
119	Vinyl bromide	TO-15	0.87	0.31
120	Vinyl chloride	TO-15	0.51	0.14
121	Xylene (Total)	TO-15	0.87	0.27

Notes:
1) RL = Reporting Limit
2) MDL = Method Detection Limit
3) RL and MDL values were supplied by Alpha Analytical Laboratories
4) RL and MDL values are estimated and may vary depending on instrument
5) ppbV = parts per billion volume

8.0 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

The Analytical Services Protocol (ASP) Category B data packages and an electronic data deliverable (EDD) will be provided by the laboratory after receipt of a complete sample delivery group. The Project Manager will immediately arrange for archiving the results and preparation of result tables. These tables will form the database for assessment of the site contamination condition.

Each EDD deliverable must be formatted using a Microsoft Windows operating system and the NYSDEC data deliverable format for EQuIS. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system (LIMS). If this cannot be accomplished, the consultant should be notified via letter of transmittal indicating that manual entry of data is required for a particular method of analysis. All EDDs must also undergo a QC check by the laboratory before delivery. The original data, tabulations, and electronic media are stored in a secure and retrievable fashion.

The Project Manager will maintain close contact with the QA reviewer to ensure all non-conformance issues are acted upon prior to data manipulation and assessment routines. Once the QA review is completed, the Project Manager may direct others to initiate and finalize the analytical data assessment.

8.3 DATA VALIDATION

Data validation will be performed in accordance with the USEPA Region 2 SOPs for data validation and USEPA's National Functional Guidelines for Organic and Inorganic Data Review. Tier 1 data validation (the equivalent of USEPA's Stage 2A validation) will be performed to evaluate data quality. Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including:

- Holding times;
- Sample preservation;
- Blank results (method, trip, and field blanks);
- Surrogate recovery compounds and extracted internal standards (as applicable);
- LCS and LCSD recoveries and RPDs;
- MS and MSD recoveries and RPDs;
- Laboratory duplicate RPDs; and
- Field duplicate RPDs

A DUSR will be prepared by the data validator and reviewed by the Quality Assurance Manager before issuance. The DUSR will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain-of-custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

Based on the results of data validation, the validated analytical results reported by the laboratory will be assigned one of the following usability flags:

- "U" - Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank;
- "UJ" - Not detected. Quantitation limit may be inaccurate or imprecise;
- "J" - Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method
- "R" – Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample; and
- No Flag - Result accepted without qualification.

9.0 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 were designated, the laboratory will contact the Langan 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 detect "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 EQUIPMENT BLANKS

Trip blanks and equipment 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 evaluate the effectiveness of field decontamination procedures.

10.0 QUALITY ASSURANCE PERFORMANCE AUDITS AND SYSTEM AUDITS

10.1 INTRODUCTION

Quality assurance audits may be performed by the project quality assurance group under the direction and approval of the QAO. These audits will be implemented to evaluate the capability and performance of project and subcontractor personnel, items, activities, and documentation of the measurement system(s). Functioning as an independent body and reporting directly to corporate quality assurance management, the QAO may plan, schedule, and approve system and performance audits based upon procedures customized to the project requirements. At times, the QAO may request additional personnel with specific expertise from company and/or project groups to assist in conducting performance audits. However, these personnel will not have responsibility for the project work associated with the performance audit.

10.2 SYSTEM AUDITS

System audits may be performed by the QAO or designated auditors, and encompass a qualitative evaluation of measurement system components to ascertain their appropriate selection and application. In addition, field and laboratory quality control procedures and associated documentation may be system audited. These audits may be performed once during the performance of the project. However, if conditions adverse to quality are detected or at the request of the Project Manager, additional audits may occur.

10.3 PERFORMANCE AUDITS

The laboratory may be required to conduct an analysis of Performance Evaluation samples or provide proof that Performance Evaluation samples submitted by the USEPA or a state agency were analyzed within the past twelve months.

10.4 FORMAL AUDITS

Formal audits refer to any system or performance audit that is documented and implemented by the QA group. These audits encompass documented activities performed by qualified lead auditors to a written procedure or checklists to objectively verify that quality assurance requirements were developed, documented, and instituted in accordance with contractual and project criteria. Formal audits may be performed on project and subcontractor work at various locations.

Audit reports will be written by auditors who have performed the site audit after gathering and evaluating all data. Items, activities, and documents determined by lead auditors to be in noncompliance shall be identified at exit interviews conducted with the involved management. Non-compliances will be logged, and documented through audit findings, which are attached to

and are a part of the integral audit report. These audit-finding forms are directed to management to satisfactorily resolve the noncompliance in a specified and timely manner.

The Project Manager has overall responsibility to ensure that all corrective actions necessary to resolve audit findings are acted upon promptly and satisfactorily. Audit reports must be submitted to the Project Manager within fifteen days of completion of the audit. Serious deficiencies will be reported to the Project Manager within 24 hours. All audit checklists, audit reports, audit findings, and acceptable resolutions will be reviewed and approved by the QAO. Verification of acceptable resolutions may be determined by re-audit or documented surveillance of the item or activity. Upon verification acceptance, the QAO will close out the audit report and findings.

11.0 PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES

11.1 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.

11.2 SCHEDULES

Written procedures will establish the schedule for servicing critical items to minimize the downtime of the measurement system. Rental equipment subcontractors and the laboratory will adhere to the maintenance schedule, and arrange any necessary and prompt service. Required service will be performed by qualified personnel.

11.3 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. The QAO may audit these records to verify complete adherence to these procedures.

12.0 CORRECTIVE ACTION

12.1 INTRODUCTION

The following procedures were established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected.

12.2 PROCEDURE DESCRIPTION

When a significant condition adverse to quality is noted at site or laboratory, 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 laboratory 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 and laboratory groups, will monitor on-going work performance in the normal course of daily responsibilities. Work may be audited at the sites or laboratory. Activities ascertained to be noncompliant with quality assurance requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the Project Manager.

Personnel assigned to quality assurance functions will have the responsibility to issue and control Corrective Action Request (CAR) Forms (Figure 12.1 or similar). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered. The CAR is issued to the personnel responsible for the affected item or activity. A copy is also submitted to the Project Manager. The individual to whom the CAR is addressed returns the requested response promptly to the QA personnel, affixing his/her signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The QA personnel maintain the log for status of CARs, confirms the adequacy of the intended corrective action, and verifies its implementation. CARs will be retained in the project file for the records.

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.

FIGURE 12.1

CORRECTIVE ACTION REQUEST
Number: _____ Date: _____
TO: _____ You are hereby requested to take corrective actions indicated below and as otherwise determined by you to (a) resolve the noted condition and (b) to prevent it from recurring. Your written response is to be returned to the project quality assurance manager by _____
CONDITION:
REFERENCE DOCUMENTS:
RECOMMENDED CORRECTIVE ACTIONS:
_____ _____ _____ _____ _____ _____ Originator Date Approval Date Approval Date
RESPONSE
CAUSE OF CONDITION
CORRECTIVE ACTION (A) RESOLUTION (B) PREVENTION (C) AFFECTED DOCUMENTS
C.A. FOLLOWUP: CORRECTIVE ACTION VERIFIED BY: _____ DATE:_____

13.0 REFERENCES

NYSDEC. Division of Environmental Remediation. DER-10/Technical Guidance for Site Investigation and Remediation, dated May 3, 2010.

Taylor, J. K., 1987. Quality Assurance of Chemical Measurements. Lewis Publishers, Inc., Chelsea, Michigan

USEPA. Validating Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry. SOP No. HW-24, Revision 4, dated October 2014. USEPA Region II.

USEPA. Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15. SOP No. HW-31, Revision 6, dated June 2014. USEPA Region II.

USEPA. Polychlorinated Biphenyl (PCB) Aroclor Data Validation. SOP No. HW-37, Revision 3, dated May 2013. USEPA Region II.

USEPA. Pesticide Data Validation. SOP No. HW-36, Revision 4, dated May 2013. USEPA Region II.

USEPA. Semivolatile Data Validation. SOP No. HW-35, Revision 2, dated March 2013. USEPA Region II.

USEPA. Tetro-through Octa-chlorinated Dioxins and Furans by Isotope Dilution (HRGC/HRMS). SOP For EPA Method 1613, Revision B, dated December 2010. USEPA Region II.

USEPA. PCDDs/PCDFs using HRGC/HRMS. SOP for SW-846 Method 8290 HW-19, Revision 1.1, dated December 2010. USEPA Region II.

USEPA, Polychlorinated Dibenzodioxins/Polychlorinated Dibenzofurans. SW-846 Method 8280 HW-11, Revision 3, dated December 2010. USEPA Region II.

USEPA. Low/Medium Volatile Data Validation. SOP No. HW-33, Revision 3, dated March 2013. USEPA Region II.

USEPA. ICP-AES Data Validation. SOP No. HW-2a, Revision 15, dated December 2012. USEPA Region II.

USEPA. ICP-MS Data Validation. SOP No. HW-2b, Revision 15, dated December 2012. USEPA Region II.

USEPA. Mercury and Cyanide Data Validation. SOP No. HW-2c, Revision 15, dated December 2012, USEPA Region II.

USEPA. Trace Volatile Data Validation. SOP No. HW-34, Revision 3, dated February 2013, USEPA Region II.

ATTACHMENT A

PER- AND POLY-FLUOROALKYL SUBSTANCES SAMPLING PROTOCOL

Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol

Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.

The procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate and polypropylene. Equipment blanks should be generated at least daily. Additional materials may be acceptable if pre-approved by NYSDEC. Requests to use alternate equipment should include clean equipment blanks. **NOTE: Grunfos pumps and bladder pumps are known to contain PFC materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFC materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFCs.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 500 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at 4 ± 2º Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.

Groundwater Sampling for Emerging Contaminants

February 2018

Issue: NYSDEC has committed to analyzing representative groundwater samples at remediation sites for emerging contaminants (1,4-dioxane and PFAS) as described in the below guidance.

Implementation

NYSDEC project managers will be contacting site owners to schedule sampling for these chemicals. Only groundwater sampling is required. The number of samples required will be similar to the number of samples where "full TAL/TCL sampling" would typically be required in a remedial investigation. If sampling is not feasible (e.g., the site no longer has any monitoring wells in place), sampling may be waived on a site-specific basis after first considering potential sources of these chemicals and whether there are water supplies nearby.

Upon a new site being brought into any program (i.e., SSF, BCP), PFAS and 1,4-dioxane will be incorporated into the investigation of groundwater as part of the standard "full TAL/TCL" sampling. Until an SCO is established for PFAS, soil samples do not need to be analyzed for PFAS unless groundwater contamination is detected. Separate guidance will be developed to address sites where emerging contaminants are found in the groundwater. The analysis currently performed for SVOCs in soil is adequate for evaluation of 1,4-dioxane, which already has an established SCO.

Analysis and Reporting

Labs should provide a full category B deliverable, and a DUSR should be prepared by a data validator.

The work plan should explicitly describe analysis and reporting requirements.

PFAS sample analysis: Samples should be analyzed by an environmental laboratory certified by ELAP to use EPA method 537 or ISO 25101. ELAP does not currently offer certification for PFAS analysis of non-drinking water samples (including groundwater, soil and sediment), so there is no requirement to use an ELAP certified method. The preferred method is the modified EPA Method 537. Labs have been able to achieve reporting limits for PFOA and PFOS of 2 ng/l (part per trillion). If labs are not able to achieve similar reporting limits, the NYSDEC project manager will make case-by-case decisions as to whether the analysis can meet the needs for the specific site.

PFAS sample reporting: DER has developed a PFAS target analyte list (below) with the intent of achieving reporting consistency between labs for commonly reportable analytes. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. This list may be updated in the future as new information is learned and as labs develop new capabilities. If lab and/or matrix specific issues are encountered for any particular compounds, the NYSDEC project manager will make case-by-case decisions as to whether particular analytes may be temporarily or permanently discontinued from analysis for each site. Any technical lab issues should be brought to the attention of a NYSDEC chemist.

Some sampling using this full PFAS target analyte list is needed to understand the nature of contamination. It may also be critical to differentiate PFAS compounds associated with a site from other sources of these chemicals. Like routine refinements to parameter lists based on investigative findings, the full PFAS target analyte list may not be needed for all sampling intended to define the extent of

contamination. Project managers may approve a shorter analyte list (e.g., just the UCMR3 list) for some reporting on a case by case basis.

1,4-Dioxane Analysis and Reporting: The method detection limit (MDL) for 1,4-dioxane should be no higher than 0.28 µg/l (ppb). ELAP offers certification for both EPA Methods 8260 and 8270. In order to get the appropriate detection limits, the lab would need to run either of these methods in "selective ion monitoring" (SIM) mode. DER is advising PMS to use 8270, since this method provides a more robust extraction procedure, uses a larger sample volume, and is less vulnerable to interference from chlorinated solvents (we acknowledge that 8260 has been shown to have a higher recovery in some studies).

Full PFAS Target Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	**Perfluorobutanesulfonic acid**	**PFBS**	**375-73-5**
	Perfluorohexanesulfonic acid	**PFHxS**	**355-46-4**
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanessulfonic acid	**PFOS**	**1763-23-1**
	Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluoroalkyl carboxylates	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	**PFHpA**	**375-85-9**
	Perfluorooctanoic acid	**PFOA**	**335-67-1**
	Perfluorononanoic acid	**PFNA**	**375-95-1**
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
	8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctane-sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane-sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethyl perfluorooctanesulfonamidoacetic acid	N-EtFOSAA	2991-50-6

Bold entries depict the 6 original UCMR3 chemicals

ATTACHMENT B

STANDARD OPERATING PROCEDURES FOR DETERMINATION OF PERFLUORINATED ALYKL SUBSTANCES

Determination of Selected Perfluorinated Alkyl Substances by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry Isotope Dilution (LC/MS/MS)

Reference: EPA Method 537, Version 1.1, September 2009, EPA Document #: EPA/600/R-08/09

EPA Method 537.1, Version 1, November 2018, EPA Document #: EPA/600/R-18/352

Department of Defense, Quality Systems Manual for Environmental Laboratories, Version 5.2, .2019

1. Scope and Application

Matrices: Drinking water, Non-potable Water, and Soil Matrices

Definitions: Refer to Alpha Analytical Quality Manual.

1.1 This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water and soil Matrices. Accuracy and precision data have been generated in reagent water, and finished ground and surface waters for the compounds listed in Table 1.

1.2 The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

1.3 This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

2.1 A 250-mL water sample is fortified with extracted internal standards (EIS) and passed through a solid phase extraction (WAX) cartridge containing a mixed mode, Weak Anion Exchange, reversed phase, water-wettable polymer to extract the method analytes and isotopically-labeled compounds. The compounds are eluted from the solid phase in two fractions with methanol followed by a small amount of 2% ammonium hydroxide in methanol solution. The extract is concentrated with nitrogen in a heated water bath, and then adjusted to a 1-mL volume with 80:20% (vol/vol) methanol:water. A 3 µl injection is made into an LC equipped with a C18 column that is interfaced to an MS/MS. The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.2 Method Modifications from Reference

None.

Table 1

Parameter	Acronym	CAS
PERFLUOROALKYL ETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	62037-80-3
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		
Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA *	307-24-4
Perfluoroheptanoic acid	PFHpA *	375-85-9
Perfluorooctanoic acid	PFOA *	335-67-1
Perfluorononanoic acid	PFNA *	375-95-1
Perfluorodecanoic acid	PFDA *	335-76-2
Perfluoroundecanoic acid	PFUnA *	2058-94-8
Perfluorododecanoic acid	PFDoA *	307-55-1
Perfluorotridecanoic acid	PFTrDA *	72629-94-8
Perfluorotetradecanoic acid	PFTA *	376-06-7
Perfluorohexadecanoic acid	PFHxDA	67905-19-5
Perfluorooctadecanoic acid	PFODA	16517-11-6
PERFLUOROALKYLSULFONATES (PFASs)		
Perfluorobutanesulfonic acid	PFBS *	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS *	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS *	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5

*** also reportable via the standard 537 method**

Table 1 Cont.

Parameter	Acronym	CAS
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
PERFLUOROOCTANESULFONAMIDES (FOSAs)		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
TELOMER SULFONATES		
1H,1H,2H,2H-perfluorohexane sulfonate (4:2)	4:2FTS	27619-93-8
1H,1H,2H,2H-perfluorooctane sulfonate (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecane sulfonate (8:2)	8:2FTS	39108-34-4
1H,1H,2H,2H-perfluorododecane sulfonate (10:2)	10:2FTS	120226-60-0
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA *	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA *	2991-50-6
NATIVE PERFLUOROOCTANESULFONAMIDOETHANOLS (FOSEs)		
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol	NMeFOSE	24448-09-7
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol	NEtFOSE	1691-99-2

*** also reportable via the standard 537 method**

3. Reporting Limits

The reporting limit for PFAS's is 2 ng/L for aqueous samples (20 ng/L for HFPO-DA) and 1 ng/g (10 ng/g for HFPO-DA) for soil samples.

4. Interferences

4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.

4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such

as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/3 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.2. **Subtracting blank values from sample results is not permitted.**

4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

4.4 SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

5.1 The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

5.2 All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

5.3 PFOA has been described as "likely to be carcinogenic to humans." Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

6.1.1 Samples must be collected in two (2) 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap.

6.1.2 The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.

6.1.3 Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.

6.1.4 Fill sample bottles. Samples do not need to be collected headspace free.

6.1.5 After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.

6.1.6 Field Reagent Blank (FRB)

6.1.6.1 A FRB must be handled along with each sample set. The sample set is composed of samples collected from the same sample site and at the same time. At the laboratory, fill the field blank sample bottle with reagent water and preservatives, seal, and ship to the sampling site along with the sample bottles. For each FRB shipped, an empty sample bottle (no preservatives) must also be shipped. At the sampling site, the sampler must open the shipped FRB and pour the reagent water into the empty shipped sample bottle, seal and label this bottle as the FRB. The FRB is shipped back to the laboratory along with the samples and analyzed to ensure that PFAS's were not introduced into the sample during sample collection/handling.

The reagent water used for the FRBs must be initially analyzed for method analytes as a MB and must meet the MB criteria in Section 9.2.1 prior to use. This requirement will ensure samples are not being discarded due to contaminated reagent water rather than contamination during sampling.

6.2 Sample Collection for Soil and Sediment samples.

Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided.

6.3 Sample Preservation

Not applicable.

6.4 Sample Shipping

Samples must be chilled during shipment and must not exceed 10 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 10 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction, but should not be frozen.

NOTE: Samples that are significantly above 10° C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.5 Sample Handling

6.5.1 Holding Times

6.5.1.1 Water samples should be extracted as soon as possible but must be extracted within 14 days. Soil samples should be extracted within 28 days. Extracts are stored at < 10 ° C and analyzed within 28 days after extraction.

7. Equipment and Supplies

7.1 SAMPLE CONTAINERS – 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.2 POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.

7.3 CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.

7.4 AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.

7.4.1 NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.

7.5 POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.

7.6 Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µls.

7.7 PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.

7.8 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.9 SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.9.1 SPE CARTRIDGES – 0.5 g SPE cartridges containing a reverse phase copolymer characterized by a weak anion exchanger (WAX) sorbent phase.

7.9.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB (Sect. 9.2.1).

7.9.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8" O.D. x 1/16" I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB (Sect. 9.2.1) and LCS (Sect. 9.3) QC requirements. The PTFE transfer tubes may be used, but an MB must be run on each PFTE transfer tube and the QC requirements in Section 13.2.2 must be met. In the case of automated SPE, the removal of PTFE lines may not be feasible; therefore, MBs will need to be rotated among the ports and must meet the QC requirements of Sections 13.2.2 and 9.2.1.

7.10 Extract Clean-up Cartridge – 250 mg 6ml SPE Cartridge containing graphitized polymer carbon

7.11 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 65 °C.

7.12 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.13 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.13.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots, and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

NOTE: During the course of method development, it was discovered that while idle for more than one day, PFAS's built up in the PTFE solvent transfer lines. To prevent long delays in purging high levels of PFAS's from the LC solvent lines, they were replaced with PEEK tubing and the PTFE solvent frits were replaced with stainless steel frits. It is not possible to remove all PFAS background contamination, but these measures help to minimize their background levels.

7.13.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.13.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.13.4 ANALYTICAL COLUMN – An LC BEH C_{18} column (2.1 x 50 mm) packed with 1.7 µm d_p C_{18} solid phase particles was used. Any column that provides adequate resolution, peak shape, capacity, accuracy, and precision (Sect. 9) may be used.

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals should be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/3 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH_3OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE ($NH_4C_2H_3O_2$, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences.

8.1.4 ACETIC ACID (H_3CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE,1 ml ACETIC ACID and 50 ml METHANOL into l Liter of REAGENT WATER.

8.1.7 Methanol/Water (80:20) – To prepare a 1 Liter bottle, mix 200 ml of REAGENT WATER with 800 ml of METHANOL.

8.1.8 AMMONIUM HYDROXIDE (NH_3, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences.

8.1.9 Sodium Acetate ($NaOOCCH_3$, CAS#: 127-09-3) – High purity, demonstrated to be free of analytes and interferences.

8.1.10 25 mM Sodium Acetate Buffer – To prepare 250mls, dissolve .625 grams of sodium acetate into 100 mls of reagent water. Add 4 mls Acetic Acid and adjust the final volume to 250 mls with reagent water.

8.1.11 NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.12 ARGON – Used as collision gas in MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2 STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

NOTE: Stock standards and diluted stock standards are stored at ≤4 °C.

8.2.1 ISOTOPE DILUTION Extracted Internal Standard (ID EIS) STOCK SOLUTIONS - ID EIS stock standard solutions are stable for at least 6 months when stored at 4 °C. The stock solution is purchased at a concentration of 1000 ng/mL.

8.2.2 ISOTOPE DILUTION Extracted Internal Standard PRIMARY DILUTION STANDARD (ID EIS PDS) – Prepare the ID EIS PDS at a concentration of 500 ng/mL. The ID PDS is prepared in 80:20% (vol/vol) methanol:water. The ID PDS is stable for 6 months when stored at ≤4 °C.

Table 2

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Vol. of EIS Stock (mL)	Final Vol. of EIS PDS (mL)	Final Conc. of EIS PDS (ng/mL)
M4PFBA	1000	1.0	2.0	500
M5PFPeA	1000	1.0	2.0	500
M5PFHxA	1000	1.0	2.0	500
M4PFHpA	1000	1.0	2.0	500
M8PFOA	1000	1.0	2.0	500
M9PFNA	1000	1.0	2.0	500
M6PFDA	1000	1.0	2.0	500
M7PFUdA	1000	1.0	2.0	500
MPFDoA	1000	1.0	2.0	500
M2PFTeDA	1000	1.0	2.0	500
M2PFHxDA	50,000	.02	2.0	500
d3-N-MeFOSA	50,000	.02	2.0	500
d5-N-EtFOSA	50,000	.02	2.0	500
d7-N-MeFOSE	50,000	.02	2.0	500
d9-N-EtFOSE	50,000	.02	2.0	500
M8FOSA	1000	1.0	2.0	500
d3-N-MeFOSAA	1000	1.0	2.0	500
d5-N-EtFOSAA	1000	1.0	2.0	500
M3PFBS	929	1.0	2.0	464.5
M3PFHxS	946	1.0	2.0	473
M8PFOS	957	1.0	2.0	478.5
M2-4:2FTS	935	1.0	2.0	467.5
M2-6:2FTS	949	1.0	2.0	474.5
M2-8:2FTS	958	1.0	2.0	479
M3HFPO-DA	50,000	.4	2.0	10,000

8.2.3 ANALYTE STOCK STANDARD SOLUTION – Analyte stock standards are stable for at least 6 months when stored at 4 °C. When using these stock standards to prepare a PDS, care must be taken to ensure that these standards are at room temperature and adequately vortexed.

8.2.4 Analyte Secondary Spiking Standard Prepare the spiking solution of additional add on components for project specific requirements only. ANALYTE PRIMARY SPIKING STANDARD – Prepare the spiking standard at a concentration of 500 ng/mL in methanol. The spiking standard is stable for at least two months when stored in polypropylene centrifuge tubes at room temperature.

Table 3

Analyte	Conc. of IS Stock (ng/mL)	Vol. of IS Stock (mL)	Final Vol. of IS PDS (mL)	Final Conc. of IS PDS (ng/mL)
PFBA	2000	1	4	500
PFPeA	2000	1	4	500
PFHxA	2000	1	4	500
PFHpA	2000	1	4	500
PFOA	2000	1	4	500
PFNA	2000	1	4	500
PFDA	2000	1	4	500
PFUdA	2000	1	4	500
PFDoA	2000	1	4	500
PFTrDA	2000	1	4	500
PFTeDA	2000	1	4	500
FOSA	2000	1	4	500
N-MeFOSAA	2000	1	4	500
N-EtFOSAA	2000	1	4	500
L-PFBS	1770	1	4	442.5
L-PFPeS	1880	1	4	470
L-PFHxSK	1480	1	4	370
Br-PFHxSK	344	1	4	86
L-PFHpS	1900	1	4	475
L-PFOSK	1460	1	4	365
Br-PFOSK	391	1	4	97.75
L-PFNS	1920	1	4	480
L-PFDS	1930	1	4	482.5
4:2FTS	1870	1	4	467.5
6:2FTS	1900	1	4	475
8:2FTS	1920	1	4	480

8.2.5 Analyte Secondary Spiking Standard Prepare the spiking solution of additional add on components for project specific requirements only.

Table 4

Analyte	Conc. of IS Stock (ng/mL)	Vol. of IS Stock (mL)	Final Vol. of IS PDS (mL)	Final Conc. of IS PDS (ng/mL)
ADONA	2000	1	4	500
PFHxDA	2000	1	4	500
PFODA	2000	1	4	500
HFPO-DA	100,000	.4	4	10,000
9ClPF3ONS	50,000	0.04	4	500
11ClPF3OUdS	50,000	0.04	4	500

8.2.6 LOW, MEDIUM AND HIGH LEVEL LCS – The LCS's will be prepared at the following concentrations and rotated per batch; 2 ng/L, 40 ng/L, 500 ng/l for drinking waters. The analyte PDS contains all the method analytes of interest at various concentrations in methanol. The analyte PDS has been shown to be stable for six months when stored at ≤4 °C.

8.2.7 Isotope Dilution Labeled Recovery Stock Solutions (ID REC) – ID REC Stock solutions are stable for at least 6 months when stored at 4 °C. The stock solution is purchased at a concentration of 1000 ng/mL.

8.2.8 Isotope Dilution Labeled Recovery Primary Dilution Standard (ID REC PDS) - Prepare the ID REC PDS at a concentration of 500 ng/mL. The ID REC PDS is prepared in 80:20% (vol/vol) methanol:water. The ID REC PDS is stable for at least six months when stored in polypropylene centrifuge tubes at ≤4 °C.

Table 5

Analyte	Conc. of REC Stock (ng/mL)	Vol. of REC Stock (mL)	Final Vol. of REC PDS (mL)	Final Conc. of REC PDS (ng/mL)
M2PFOA	2000	1	4	500
M2PFDA	2000	1	4	500
M3PFBA	2000	1	4	500
M4PFOS	2000	1	4	500

8.2.9 CALIBRATION STANDARDS (CAL) –

Current Concentrations (ng/mL): 0.5, 1.0, 5.0, 10.0, 50.0, 125, 150, 250, 500

Prepare the CAL standards over the concentration range of interest from dilutions of the analyte PDS in methanol containing 20% reagent water. 20 µl of the EIS PDS and REC PDS are added to the CAL standards to give a constant concentration of 10 ng/ml. The lowest concentration CAL standard must be at or below the RL (2 ng/L), which may depend on system sensitivity. The CAL standards may also be used as CCVs (Sect. 9.8). To make calibration stock standards:

Table 6

Calibration Standard Concentration	Final Aqueous Cal STD Level Concentration	Final Soil Cal STD Level Concentration	24 compound stock added (ul)	PFHxDA Stock added (ul)	500 ng/ml PFHxDA dilution added (ul)	PFODA Stock added (ul)	500 ng/ml PFODA dilution added (ul)	ADONA, HFPO-DA, 11Cl-PF3OUdS, 9Cl-PF3ONS Stock added (ul)	500 ng/ml ADONA dilution added (ul)	Final Volume in MeOH/H_2O (82:20)
.5 ng/ml	2 ng/L	.25 ng/g	6.25		25		25		25	25 mls
1 ng/ml	4 ng/L	.5 ng/g	5		20		20		20	10 mls
5 ng/ml	20 ng/L	1 ng/g	25		100		100		100	10 mls
10 ng/ml	40 ng/L	5 ng/g	125	5		5		5		25 mls

50 ng/ml	200 ng/L	25 ng/g	250	10		10		10		10 mls
125 ng/ml	500 ng/L	62.5 ng/g	625	25		25		25		10 mls
150 ng/ml	600 ng/L	75 ng/g	750	30		30		30		10 mls
250 ng/ml	1000 ng/L	125 ng/g	625							5 mls
500 ng/ml	2000 ng/L	250 ng/g	1250							5 mls

9. Quality Control

The laboratory must maintain records to document the quality of data that is generated. Ongoing data quality checks are compared with established performance criteria to determine if the results of analyses meet the performance characteristics of the method.

9.1 MINIMUM REPORTING LIMIT (MRL) CONFIRMATION

9.1.1 Fortify, extract, and analyze seven replicate LCSs at 2 ng/l. Calculate the mean measured concentration (*Mean*) and standard deviation for these replicates. Determine the Half Range for the prediction interval of results (HR_{PIR}) using the equation below

$$HR_{PIR} = 3.963s$$

Where:

s = the standard deviation
3.963 = a constant value for seven replicates.

9.1.2 Confirm that the upper and lower limits for the Prediction Interval of Result ($PIR = Mean \pm HR_{PIR}$) meet the upper and lower recovery limits as shown below

The Upper PIR Limit must be ≤150% recovery.

$$\frac{Mean + HR_{PIR}}{Fortified\ Concentration} \times 100\% \leq 150\%$$

The Lower PIR Limit must be ≥ 50% recovery.

$$\frac{Mean - HR_{PIR}}{Fortified\ Concentration} \times 100\% \geq 50\%$$

9.1.3 The RL is validated if both the Upper and Lower PIR Limits meet the criteria described above. If these criteria are not met, the RL has been set too low and must be determined again at a higher concentration.

9.2 Blank(s)

9.2.1 **METHOD BLANK (MB)** - A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that

interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch. Because background contamination is a significant problem for several method analytes, it is highly recommended that the analyst maintain a historical record of MB data.

9.2.2 **FIELD REAGENT BLANK (FRB)** - The purpose of the FRB is to ensure that PFAS's measured in the Field Samples were not inadvertently introduced into the sample during sample collection/handling. Analysis of the FRB is required only if a Field Sample contains a method analyte or analytes at or above the RL. The FRB is processed, extracted and analyzed in exactly the same manner as a Field Sample.

9.3 Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicates (LCSD)

9.3.1 An LCS is required with each extraction batch. The fortified concentration of the LCS may be rotated between low, medium, and high concentrations from batch to batch. Default limits of 50-150% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B =fortification concentration.

9.3.2 Where applicable, LCSD's are to be extracted and analyzed. The concentration and analyte recovery criteria for the LCSD must be the same as the batch LCS The RSD's must fall within ≤30% of the true value for medium and high level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

9.3.3 **If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.**

9.4 Labeled Recovery Standards (REC)

The analyst must monitor the peak areas of the REC(s) in all injections during each analysis day.

9.5 Extracted Internal Standards (EIS)

9.5.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final

chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation

$$\%R = (A / B) \times 100$$

Where:

A = calculated EIS concentration for the QC or Field Sample
B = fortified concentration of the EIS.

9.5.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4) instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria,the data must be reanalyzed.

9.6 Matrix Spike (MS)

9.6.1 Analysis of an MS is required in each extraction batch and is used to determine that the sample matrix does not adversely affect method accuracy. Assessment of method precision is accomplished by analysis of a Field Duplicate (FD) (Sect. 9.6); however, infrequent occurrence of method analytes would hinder this assessment. If the occurrence of method analytes in the samples is infrequent, or if historical trends are unavailable, a second MS, or MSD, must be prepared, extracted, and analyzed from a duplicate of the Field Sample. Extraction batches that contain MSDs will not require the extraction of a field sample duplicate. If a variety of different sample matrices are analyzed regularly, for example, drinking water from groundwater and surface water sources, method performance should be established for each. Over time, MS data should be documented by the laboratory for all routine sample sources.

9.6.2 Within each extraction batch, a minimum of one Field Sample is fortified as an MS for every 20 Field Samples analyzed. The MS is prepared by spiking a sample with an appropriate amount of the Analyte Stock Standard (Sect. 8.2.3). Use historical data and rotate through the low, mid and high concentrations when selecting a fortifying concentration. Calculate the percent recovery (%*R*) for each analyte using the equation

$$\%R = \frac{(A - B)}{C} \times 100$$

Where:

A = measured concentration in the fortified sample
B = measured concentration in the unfortified sample
C = fortification concentration.

9.6.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be

matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Laboratory Duplicate

9.7.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.

9.7.2 Calculate the relative percent difference (*RPD*) for duplicate measurements (*FD1* and *FD2*) using the equation

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

9.7.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation

$$RPD = \frac{|MS - MSD|}{(MS + MSD) / 2} \times 100$$

9.7.5 RPDs for duplicate MSs should be ≤30% for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are ≤50% for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.8 Initial Calibration Verification (ICV)

9.8.1 As part of the IDC (Sect. 13.2), and after each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be ±

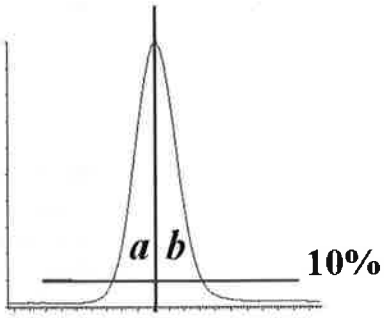
30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedureto locate and correct the problem.

9.9 Continuing Calibration Verification (CCV)

9.9.1 CCV Standards are analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch. See Section 10.7 for concentration requirements and acceptance criteria.

9.10 Method-specific Quality Control Samples

9.10.1 PEAK ASYMMETRY FACTOR – A peak asymmetry factor must be calculated using the equation below during the IDL and every time a calibration curve is generated. The peak asymmetry factor for the first two eluting peaks in a midlevel CAL standard (if only two analytes are being analyzed, both must be evaluated) must fall in the range of 0.8 to 1.5. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted. See guidance in Section 10.6.4.1 if the calculated peak asymmetry factors do not meet the criteria.



$$A_s = b / a$$

Where:

A_s = peak asymmetry factor .
b = width of the back half of the peak measured (at 10% peak height) from the trailing edge of the peak to a line dropped perpendicularly from the peak apex
a = the width of the front half of the peak measured (at 10% peak height) from the leading edge of the peak to a line dropped perpendicularly from the apex.

9.11 Method Sequence

- CCV-LOW
- MB
- LCS
- LCSD
- MS
- Duplicate or MSD
- Field Samples (1-10)
- CCV-MID
- Field Samples (11-20)
- CCV-LOW

10. Procedure

10.1 Equipment Set-up

10.1.1 This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements (Sect. 9.2).

10.1.2 Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent (Sect 10.3.4) whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected (Sect. 10.3.4).

10.1.3 **NOTE:** The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

10.2 Sample Preparation and Extraction of Aqueous Samples

10.2.1 Samples are preserved, collected and stored as presented in Section 6.

The entire sample that is received must be sent through the SPE cartridge. In addition, the bottle must be solvent rinsed and this rinse must be sent through the SPE cartridge as well. The method blank (MB) and laboratory control sample (LCS) must be extracted in exactly the same manner (i.e., must include the bottle solvent rinse). It should be noted that a water rinse alone is not sufficient. This does not apply to samples with high concentrations of PFAS that are prepared using serial dilution and not SPE.

10.2.2 Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new 250mL HDPE bottle and record the weight of the new container.

NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may **NOT** be transferred to a graduated cylinder for volume measurement.

10.2.3 The MB, LCS and FRB may be prepared by measuring 250 mL of reagent water with a polypropylene graduated cylinder or filling a 250-mL sample bottle to near the top.

10.2.4 Adjust the QC and sample pH to 3 by adding acetic acid in water dropwise

10.2.5 Add 20 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC, cap and invert to mix.

10.2.6 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.3). Cap and invert each sample to mix.

10.3 Cartridge SPE Procedure

10.3.1 CARTRIDGE CLEAN-UP AND CONDITIONING – DO NOT allow cartridge packing material to go dry during any of the conditioning steps. Rinse each cartridge with 3 X 5 mL of 2% ammonium hydroxide in methanol, followed by 5mls of methanol. Next, rinse each cartridge with 5 mls of the 25 mM acetate buffer, followed by 15 mL of reagent water, without allowing the water to drop below the top edge of the packing. If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Add 4-5 mL of reagent water to each cartridge, attach the sample transfer tubes (Sect. 7.9.3), turn on the vacuum, and begin adding sample to the cartridge.

10.3.2 SAMPLE EXTRACTON – Adjust the vacuum so that the approximate flow rate is approximately 4 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.3.3 SAMPLE BOTTLE AND CARTRIDGE RINSE – After the entire sample has passed through the cartridge, rinse the sample bottles with 4 ml reagent water followed by 4 ml 25 mM acetate buffer at pH 4 and draw the aliquot through the sample transfer tubes and the cartridges. Draw air or nitrogen through the cartridge for 5-10 min at high vacuum (10-15 in. Hg). **NOTE: If empty plastic reservoirs are used in place of the sample transfer tubes to pass the samples through the cartridges, these reservoirs must be treated like the transfer tubes. After the entire sample has passed through the cartridge, the reservoirs must be rinsed to waste with reagent water.**

10.3.4 SAMPLE BOTTLE AND CARTRIDGE ELUTION, Fraction 1 – Turn off and release the vacuum. Lift the extraction manifold top and insert a rack with collection tubes into the extraction tank to collect the extracts as they are eluted from the cartridges. Rinse the sample bottles with 12 mls of methanol and draw the aliquot through the sample transfer tubes and cartridges. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

SAMPLE BOTTLE AND CARTRIDGE ELUTION, Fraction 2 In a separate collection vial, rinse the sample bottles with 12 mL of 2% ammonium hydroxide in methanol and elute the analytes from the cartridges by pulling the 4 mL of methanol through the sample transfer tubes and the cartridges. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion. To the final extract, add 50 ul of acetic acid.

NOTE: If empty plastic reservoirs are used in place of the sample transfer tubes to pass the samples through the cartridges, these reservoirs must be treated like the transfer tubes. After the reservoirs have been rinsed in Section 10.3.3, the elution solvent used to rinse the sample bottles must be swirled down the sides of the reservoirs while eluting the cartridge to ensure that any method analytes on the surface of the reservoirs are transferred to the extract.

CLEAN-UP CARTRIDGE ELUTION, Elute the clean-up cartridge with 8 additional mls of methanol and draw the aliquot through the cartridge. Use a low vacuum such that the solvent exits the cartridge in a dropwise fashion.

10.3.5 Fractions 1 and 2 are to be combined during the concentration stage (section10.6)

10.4 Sample Prep and Extraction Protocol for Soils

10.4.1 Homogenize and weigh 2 grams of sample (measured to the nearest hundredth of a gram) intoa 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 2 grams of clean sand is used.

10.4.2 Add 20 µL of the EIS PDS (Sect. 8.2.2) to each sample and QC.

10.4.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS (Sect. 8.2.3). Cap and invert each sample to mix.

10.4.4 To all samples, add 10 mls of methanol, cap, vortex for 25 seconds at 3000RPM and mix for 30 minutes using a shaker table of tumbler at 120RPM.

10.4.5 Following mixing, sonicate each sample for 30 minutes and let samples sit overnight (at least 2 hours is required for RUSH samples).

10.4.6 Centrifuge each sample at 3500RPM for 10 minutes.

10.4.7 Remove supernatant, and reserve for clean-up.

10.5 Extract Clean-up

10.5.1 CARTRIDGE CLEAN-UP AND CONDITIONING –. Rinse each cartridge with 15 mL of methanol and discard. If the cartridge goes dry during the conditioning phase, the conditioning must be started over. Attach the sample transfer tubes (Sect. 7.9.3), turn on the vacuum, and begin adding sample to the cartridge.

10.5.2 Adjust the vacuum so that the approximate flow rate is 1-2 mL/min. Do not allow the cartridge to go dry before all the sample has passed through.

10.5.3 SAMPLE BOTTLE AND CARTRIDGE RINSE – After the entire sample has passed through the cartridge, rinse the sample collection vial with two 1-mL aliquots of methanol and draw each aliquot through the cartridges. Draw air or nitrogen through the cartridge for 5 min at high vacuum (10-15 in. Hg).

10.5.4 If extracts are not to be immediately evaporated, cover collection tubes and store at ambient temperature till concentration.

10.6 Extract Concentration

10.6.1 Concentrate the extract to dryness under a gentle stream of nitrogen in a heated water bath (60-65 °C) to remove all the water/methanol mix. Add the appropriate amount of 80:20% (vol/vol) methanol:water solution and 20 µl of the ID REC PDS (Sect. 8.2.7) to the collection vial to bring the volume to 1 mL and vortex. Transfer two aliquots with a plastic pipet (Sect. 7.6) into 2 polypropylene autosampler vials.

NOTE: It is recommended that the entire 1-mL aliquot not be transferred to the autosampler vial because the polypropylene autosampler caps do not reseal after injection. Therefore, do not store the extracts in the autosampler vials as evaporation losses can occur occasionally in these autosampler vials. Extracts can be split between 2 X 700 µl vials (Sect. 7.4).

10.7 Sample Volume Determination

10.7.1 If the level of the sample was marked on the sample bottle, use a graduated cylinder to measure the volume of water required to fill the original sample bottle to the mark made prior to extraction. Determine to the nearest 10 mL.

10.7.2 If using weight to determine volume, weigh the empty bottle to the nearest 10 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight (Sect. 10.2.2). Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration (Sect. 11.2).

10.8 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.8.1 ESI-MS/MS TUNE

10.8.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.

10.8.1.2 Optimize the [M-H]- for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined. The method analytes may have different optima requiring some compromise between the optima.

10.8.1.3 Optimize the product ion for each analyte by Infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions and the sulfonic acids have similar MS/MS conditions.

10.8.2 Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Cautions: LC system components, as well as the mobile phase constituents, contain many of the method analytes in this method. Thus, these PFAS's will build up on the head of the LC column during mobile phase equilibration. To minimize the background PFAS peaks and to keep background levels constant, the time the LC column sits at initial conditions must be kept constant and as short as possible (while ensuring reproducible retention times). In addition, prior to daily use, flush the column with 100% methanol for at least 20 min before initiating a sequence. It may be necessary on some systems to flush other LC components such as wash syringes, sample needles or any other system components before daily use.

10.8.3 Inject a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. If analyzing for PFTA, ensure that the LC

conditions are adequate to prevent co-elution of PFTA and the mobile phase interferants. These interferants have the same precursor and products ions as PFTA, and under faster LC conditions may co-elute with PFTA. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]-) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.8.4 Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

10.8.4.1 If broad, split or fronting peaks are observed for the first two eluting chromatographic peaks (if only two analytes are being analyzed, both must be evaluated), change the initial mobile phase conditions to higher aqueous content until the peak asymmetry ratio for each peak is 0.8 – 1.5. The peak asymmetry factor is calculated as described in Section 9.9.1 on a mid-level CAL standard. The peak asymmetry factor must meet the above criteria for the first two eluting peaks during the IDL and every time a new calibration curve is generated. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 5 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.8.5 Prepare a set of CAL standards as described in Section 8.2.5. The lowest concentration CAL standard must be at or below the RL (2 ng/L), which may depend on system sensitivity.

10.8.6 The LC/MS/MS system is calibrated using the IS technique. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve **must always** be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 5 levels are required for a linear calibration model and a minimum of 6 levels are required for a quadratic calibration model.

10.8.7 CALIBRATION ACCEPTANCE CRITERIA – A linear fit is acceptable if the coefficient of determination (r^2) is greater than 0.99. When quantitated using the initial calibration curve, each calibration point, except the lowest point, for each analyte should calculate to be within 70-130% of its true value. The lowest CAL point should calculate to be within 50-150% of its true value. If these criteria cannot be met, the analyst will have difficulty meeting ongoing QC criteria. It is

recommended that corrective action is taken to reanalyze the CAL standards, restrict the range of calibration, or select an alternate method of calibration (forcing the curve through zero is still required).

10.8.7.1 CAUTION: When acquiring MS/MS data, LC operating conditions must be carefully reproduced for each analysis to provide reproducible retention times. If this is not done, the correct ions will not be monitored at the appropriate times. As a precautionary measure, the chromatographic peaks in each window must not elute too close to the edge of the segment time window.

10.9 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a "sample" is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

10.9.1 Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.9.2 Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each analyte for medium level CCVs must be within ± 30% of the true value with an allowance of 10% of the reported analytes to be greater than 30%, but less than 40%. The calculated amount for each EIS must be within ± 50% of the true value. The calculated amount for the lowest calibration point for each analyte must be within ± 50%. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken (Sect. 10.7.4) which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. **If the CCV fails because the calculated concentration is greater than 130% (150% for the low-level CCV) for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.**

10.9.3 REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration (Sect 10.6) and verification of sensitivity by analyzing a CCV at or below the RL (Sect 10.7).

10.10 EXTRACT ANALYSIS

10.10.1 Establish operating conditions equivalent to those summarized in Tables 6-8 of Section 16. Instrument conditions and columns should be optimized prior to the initiation of the IDC.

10.10.2 Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration and completing the IDC can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.

10.10.3 Calibrate the system by either the analysis of a calibration curve (Sect. 10.6) or by confirming the initial calibration is still valid by analyzing a CCV as described in Section 10.7. If establishing an initial calibration, complete the IDC as described in Section 13.2.

10.10.4 Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.

10.10.5 At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.

10.10.6 The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to insure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 7.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.6. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.6 where:

C_{ex} = (Area of target analyte * Concentration of Labeled analog) / (area of labeled analog * CF)

C_s = (C_{ex} / sample volume in ml) * 1000

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 5 due to the linear and branch isomers of these compounds (Sect. 10.6.4.1). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified, and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2 All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1 The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

13.2.1 The IDC must be successfully performed prior to analyzing any Field Samples. Prior to conducting the IDC, the analyst must first generate an acceptable Initial Calibration following the procedure outlined in Section 10.6.

13.2.2 INITIAL DEMONSTRATION OF LOW SYSTEM BACKGROUND – Any time a new lot of SPE cartridges, solvents, centrifuge tubes, disposable pipets, and autosampler vials are used, it must be demonstrated that an MB is reasonably free of contamination and that the criteria in Section 9.2.1 are met. If an automated extraction system is used, an MB should be extracted on each port to ensure that all the valves and tubing are free from potential PFAS contamination.

13.2.3 INITIAL DEMONSTRATION OF PRECISION (IDP) – Prepare, extract, and analyze four to seven replicate LCSs fortified near the midrange of the initial calibration curve according to the procedure described in Section 10. Sample preservatives as described in Section 6.2.1 must be added to these samples. The relative standard deviation (RSD) of the results of the replicate analyses must be less than 20%.

13.2.4 INITIAL DEMONSTRATION OF ACCURACY (IDA) – Using the same set of replicate data generated for Section 13.2.3, calculate average recovery. The average recovery of the replicate values must be within ± 30% of the true value.

13.2.5 INITIAL DEMONSTRATION OF PEAK ASYMMETRY FACTOR – Peak asymmetry factors must be calculated using the equation in Section 9.10.1 for the first two eluting peaks (if only two analytes are being analyzed, both must be evaluated) in a mid-level CAL standard. The peak asymmetry factors must fall in the range of 0.8 to 1.5. See guidance in Section 10.6.4.1 if the calculated peak asymmetry factors do not meet the criteria.

13.2.6 Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.7 The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1 Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2 This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3 The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124

SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP

SOP ID 1739 Demonstration of Capability (DOC) Generation SOP

SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 7: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 MeOH/H_2O)	100% Methanol
Initial	100.0	0.0
1.0	100.0	0.0
2.2	85.0	15.0
11	20.0	80.0
11.4	0.0	100.0
12.4	100.0	00.0
15.5	100.0	0.0
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.4 mL/min 2-5 µL injection		

Table 8: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Capillary needle voltage	.5 kV
Cone Gas Flow	25 L/hr
Nitrogen desolvation gas	1000 L/hr
Desolvation gas temp.	500 °C

Table 9: Method Analyte Source, Retention Times (RTs), and EIS References

#	Analyte	Transition	RT	IS	Type
1	M3PBA	216>171	2.65		REC
2	PFBA	213 > 169	2.65	2: M4PFBA	
3	M4PFBA	217 > 172	2.65	1: M3PBA	EIS
4	PFPeA	263 > 219	5.67	4: M5PFPEA	
5	M5PFPEA	268 > 223	5.66	1: M3PBA	EIS
6	PFBS	299 > 80	6.35	6: M3PFBS	
7	M3PFBS	302 > 80	6.35	29:M4PFOS	EIS
8	FtS 4:2	327 > 307	7.47	9: M2-4:2FTS	

#	Analyte	Transition	RT	IS	Type
9	M2-4:2FTS	329 > 81	7.47	29:M4PFOS	EIS
10	PFHxA	303 > 269	7.57	10: M5PFHxA	
11	M5PFHxA	318 > 273	7.57	19:M2PFOA	EIS
12	PFPeS	349 > 80	7.88	18: M3PFHxS	
13	PFHpA	363 > 319	8.80	14: M4PFHpA	
14	M4PFHpA	367 > 322	8.80	19:M2PFOA	EIS
15	L-PFHxS	399 > 80	8.94	18: M3PFHxS	
16	br-PFHxS	399 > 80	8.72	18: M3PFHxS	
17	PFHxS Total	399 > 80	8.94	18: M3PFHxS	
18	M3PFHxS	402 > 80	8.94	29:M4PFOS	EIS
19	MPFOA	415 > 370	9.7		REC
20	PFOA	413 > 369	9.7	23: M8PFOA	
21	br-PFOA	413 > 369	9.48	23: M8PFOA	
22	PFOA Total	413 > 369	9.7	23: M8PFOA	
23	M8PFOA	421 > 376	9.7	19: M2PFOA	EIS
24	FtS 6:2	427 > 407	9.66	25: M2-6:2FTS	
25	M2-6:2FTS	429 > 409	9.66	29:M4PFOS	EIS
26	PFHpS	449 > 80	9.78	33: M8PFOS	
27	PFNA	463 > 419	10.41	33: M8PFOS	
28	M9PFNA	472 > 427	10.41	19: M2PFOA	EIS
29	M4PFOS	501 > 80	10.45		REC
30	PFOS	499 > 80	10.45	33: M8PFOS	
31	br-PFOS	499 > 80	10.27	33: M8PFOS	
32	PFOS Total	499 > 80	10.45	33: M8PFOS	
33	M8PFOS	507 > 80	10.45	29: M4PFOS	EIS
34	FtS 8:2	527 > 507	10.99	38: M2-8:2FTS	
35	M2-8:2FTS	529 > 509	10.99	29:M4PFOS	EIS
36	M2PFDA	515 > 470	11.00		REC
37	PFDA	513 > 469	11.00	38: M6PFDA	
38	M6PFDA	519 > 474	11.00	36: M2PFDA	EIS
39	PFNS	549 > 80	11.02	33:M8PFOS	
40	NMeFOSAA	570 > 419	11.41	41: D3-NMeFOSAA	
41	d3-NMeFOSAA	573 > 419	11.41	36: M2PFDA	EIS
42	PFOSA	498 > 78	11.48	29: M8FOSA	
43	M8FOSA	506 > 78	11.48	19: M2PFOA	EIS
44	PFUnDA	563 > 519	11.51	41: M7-PFUDA	
45	M7-PFUDA	570 > 525	11.51	36: M2PFDA	EIS
46	PFDS	599 > 80	11.51	33:M8PFOS	
47	NEtFOSAA	584 > 419	11.68	48: d5-NEtFOSAA	

#	Analyte	Transition	RT	IS	Type
48	d5-NEtFOSAA	589 > 419	11.68	36: M2PFDA	EIS
49	PFDoA	613 > 569	11.96	50: MPFDOA	
50	MPFDOA	615 > 570	11.96	36: M2PFDA	EIS
51	PFTriA	663 > 619	12.34	50: MPFDOA	
52	PFTeA	713 > 669	12.6	53: M2PFTEDA	
53	M2PFTEDA	715 > 670	12.6	36: M2PFDA	EIS
54	M3HFPO-DA	329>285	7.97	19: M2PFOA	EIS
55	HFPO-DA	332>287	7.97	54: M3HFPO-DA	
56	ADONA	377>251	8.00	23: M8PFOA	
57	PFHxDA	813>769	13.20	59: M2PFHxDA	
58	PFODA	913>869	13.50	59: M2PFHxDA	
59	M2PFHxDA	815>770	13.20	36:M2PFDA	EIS
60	NEtFOSA	526>169	11.00	61: NMeFOSA	
61	NMeFOSA	512>169	10.50	63: d3-NMeFOSA	
62	d3-NMeFOSA	515>169	10.50	29: M4PFOS	EIS
63	d5-NEtFOSA	531>169	11.00	29: M4PFOS	EIS
64	NMeFOSE	556>122	11.25	66: d7-NMeFOSE	
65	NEtFOSE	570>136	10.75	67: d9-NEtFOSE	
66	d7-NMeFOSE	563>126	11.25	29: M4PFOS	EIS
67	d9-NEtFOSE	579>142	10.75	29: M4PFOS	EIS
68	FtS 10:2	627>607	11.50	25: M2-6:2FTS	
69	PFDoS	699>99	12.50	33: M8PFOS	

ATTACHMENT C

RESUMES

Jason J. Hayes, PE, LEED AP

Principal/Vice President
Environmental Engineering



18 years in the industry

Mr. Hayes has experience in New York, New Jersey, Washington D.C., California, Washington, Oregon, Alaska, and Internationally. His experience includes Environmental Protection Agency (EPA), New York State (NYS) Brownfields applications, investigation, and remediation; New York City Department of Environmental Protection (NYCDEP) and New York City Office of Environmental Remediation (OER) E-designated site applications, investigations, and remediation. His expertise also includes Phase I and II Environmental Site Investigations and Assessments; contaminated building cleanup and demolition; Underground Storage Tank (UST) permitting, removal specifications, and closure reporting; soil vapor intrusion investigation and mitigation system design (depressurization systems, etc.); development of groundwater contaminant plume migration models; environmental analysis; and oversight, design and specification generation for remediation operations with contaminants of concern to include polychlorinated biphenyls (PCBs), solvents, mercury, arsenic, petroleum products, asbestos, mold and lead.

Selected Projects

- Confidential Location (Remediation for Mercury-Contaminated Site), New York, NY
- Confidential Location (Phase II ESI and Remedial Design for Mercury Impacted Site), Brooklyn, NY
- NYC School Construction Authority (PCB Remediation), Various Locations, New York, NY
- 28-29 High Line (Phase I ESA, Phase II ESI, and Environmental Remediation), New York, NY
- Georgetown Heating Plant (Phase II ESI and Remedial Design for Mercury Impacted Site), Washington D.C.
- 268 West Street (BCP Application, RI and RIWP), New York, NY
- Confidential Multiple Mixed-Use Tower Location (BCP Application, RI, Phase I ESA, and Phase II ESI), New York, NY
- Dock 72 at Brooklyn Navy Yard, (NYS Voluntary Cleanup Program), Brooklyn, NY
- 27-21 44th Drive (BCP Application, Remedial Investigation Phase I ESA, and Phase II ESI), Long Island City, NY
- Purves Street Development, BCP Application, RAWP, and Phase II ESI, Long Island City, NY
- 267-273 West 87th Street (BCP Application, Remedial Investigation, RIWP, RAWP), New York, NY
- New York Aquarium, Shark Tank and Animal Care Facility (Environmental Remediation), Coney Island, NY
- International Leadership Charter School (Environmental Remediation), Bronx, NY
- West & Watts (BCP Application), New York, NY

Education

M.S., Environmental Engineering
Columbia University

B.S., Chemistry, Environmental Toxicology
Humboldt State University

Business Administration (minor)
Humboldt State University

Professional Registration

Professional Engineer (PE) in NY

LEED Accredited Professional (LEED AP)

Troxler Certification for Nuclear Densometer Training

CPR and First Aid Certification

OSHA 40-Hour HAZWOPER

OSHA HAZWOPER Site Supervisor

Affiliations

US Green Building Council, NYC Chapter (USGBC), Communications Committee

Urban Land Institute (ULI), member

Commercial Real Estate Development Association (NAIOP), member

NYC Brownfield Partnership, member

- Hudson Yards Redevelopment (Phase I ESA and Phase II ESI), New York, NY
- 627 Smith Street (RI and Report), Brooklyn, NY
- Gateway Center II Retail (Phase I ESA and Phase II ESI), Brooklyn, NY
- 261 Hudson Street (Phase I ESA, Phase II ESI, BCP, and RAWP), New York, NY
- Riverside Center, Building 2 (BCP, Phase I ESA and Phase II ESI), New York, NY
- New York Police Academy, (Sub-Slab Depressurization and Vapor Barrier System), College Point, NY
- Bronx Terminal Market (BCP, RIWP, RAWP, Phase I ESA and Phase II ESI), Bronx, NY
- Jacob Javits Convention Center (Phase I ESA and Phase II ESI), New York, NY
- Yankee Stadium Development Waterfront Park (NYSDEC Spill Sites), Bronx, NY
- Bushwick Inlet Park (Phase I ESA, Approvals for NYC E-Designation), Brooklyn, NY
- Silvercup West (BCP, RIWP, RIR, RAWP, and RAA), Long Island City, NY
- 29 Flatbush, Tall Residential Building (Groundwater Studies, RIR and RAWP), Brooklyn, NY
- Gowanus Village I (BCP, RIWP and RIR), Brooklyn, NY
- Sullivan Street Hotel (Site Characterization Study and Owner Representation), New York, NY
- Riker's Island Co-Generation Plant (Soil and Soil Vapor Quality Investigations), Bronx, NY
- The Shops at Atlas Park (Sub-Slab Depressurization and Vapor Barrier Design), Glendale, NY
- Memorial Sloan-Kettering Cancer Center (Subsurface and Soil Vapor Intrusion Investigations), New York, NY
- Element West 59th Street (Oversight and Monitoring of Sub-Slab Depressurization and Vapor Barrier Systems), New York, NY
- Teterboro Airport (Delineation and Remedial Oversight of Petroleum-Contaminated Soils), Teterboro, NJ
- Proposed New York JETS Stadium (Phase I ESA), New York, NY
- Former Con Edison Manufactured Gas Plant Sites (Research Reports), New York, NY
- 7 World Trade Center (Endpoint Sampling and Final Closure Report), New York, NY
- Peter Cooper Village, Environmental Subsurface Investigations, New York, NY

Selected Publications, Reports, and Presentations

NYC Mayor's Office of Environmental Remediation – Big Apple Brownfield Workshop – Presented on Soil Vapor Intrusion Remedies (e.g., SSD Systems, Vapor Barriers, Modified HVAC)

New York City Brownfield Partnership – Presented on environmental considerations and complications of the Hudson Yards Development

Waterfront Development Technical Course – Presented on Impacted Waterfront Planning Considerations

STUART KNOOP, PG, LEED AP

SENIOR PROJECT MANAGER

REMEDIAL AND GEOLOGICAL INVESTIGATIONS

Mr. Knoop is a geologist with experience at sites in New York, Connecticut, North Carolina, South Carolina, and Georgia. He has managed high profile, multi-disciplinary projects and worked extensively on projects under City and State regulatory oversight in New York City. Mr. Knoop has developed remedial action and waste management plans and executed remedial investigations, remedial actions, closures at brownfield sites, and former MGP and commercial development sites throughout New York City. He has conducted numerous Phase I and Phase II Environmental Site Assessments, and coordinated remedial action programs at commercial, residential, industrial, telecommunication, and undeveloped sites. He has also coordinated an on-call environmental contract with the New York City School Construction Authority and managed sites under the New York State Brownfield Cleanup Program, and the New York City Voluntary Cleanup Program.

Mr. Knoop's experience includes coordination of free product recovery, development of soil vapor mitigation systems, and implementation of soil and groundwater remediation programs utilizing soil vapor extraction, air sparging, chemical injection, and contaminant removal. He has also supervised the assessment and removal of petroleum underground storage tanks in accordance with state regulatory standards. Additional experience includes extensive geologic mapping, stable isotope reaction and transport modeling, geotechnical analysis of soil and rock for highway, and utility construction projects.

SELECTED PROJECTS

- Queens Plaza Park, Long Island City, NY
- Red Hook Development Sites, Brooklyn, NY
- 173-177 Harrison Avenue, Brooklyn, NY
- Gotham West Development (Studio City), New York, NY
- NYCHA, On-Call Environmental Contract, New York, NY
- Kingsbridge Armory Redevelopment, Bronx, NY
- 54 Rutledge Street Property, Brooklyn, NY
- Peter Cooper Village/Stuyvesant Town Utility Replacement Project, New York, NY
- Former Linen Cleaning Facility, Bronx, NY
- New York Sports Complex and Convention Center, New York, NY
- West Side Site, New York, NY
- Rikers Island Correctional Facility, East Elmhurst, NY
- Macon County School Bus Garage, Franklin, NC
- Skyland Distributing Facility, Asheville, NC
- Rental Uniform Facilities, Various Locations, Nationwide
- Interstate Brands Corporation, Winston-Salem, NC



EDUCATION

M.S., Geology
University of British Columbia

B.A., Economics and Environmental
Oberlin College

Hydrogeology and Geology Coursework
University of Texas

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY, NC

LEED Accredited Professional (LEED AP)

10-Hour OSHA

CPR and First Adi Certified

AFFILIATIONS

Geological Society of America

Geological Association of New Jersey

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

"*Small Site, Big Challenges: Negotiating Overlapping Regulatory Commitments for a Private School Development in Emergent, Post-Industrial Brooklyn, NY*", Poster Session, 2012 Langan Environmental Workshop, New Brunswick, NJ.

An Introduction to Phase I Environmental Site Assessments, Co-Presenter for Langan Training Webinar, November 2011.

"New Evidence for Syn-Tectonic Fluid Migration across the Hinterland-Foreland Transition of the Canadian Cordillera", Journal of Geophysical Research, *v. 107,* Knoop, S., Kennedy, L., and Dipple, G. 2002.

"Were the Hinterland and Foreland Hydrologically Coupled during Mesozoic Contraction?", Abstracts with Programs, Geological Society of America, Annual Meeting, Knoop, S., Kennedy, L., and Dipple, G. 1999. Presented at October 1999 meeting in Denver, CO.

"New Evidence for the Flow of Hinterland-Derived Fluids Into the Canadian Rockies During Mesozoic Contraction.", Abstracts with Programs, Geological Association of Canada, Annual Meeting, 2000. Presented as poster at May 2000 meeting in Calgary, AB. Knoop, S., Kennedy, L., and Dipple, G.

MARLA MILLER, PE, BCEE

SENIOR PROJECT ENGINEER

ENVIRONMENTAL ENGINEERING

Ms. Miller has over 19 years of experience managing site characterization and remediation projects. She is a senior environmental engineer experienced in environmental permitting, industrial pretreatment, compliance monitoring, and water quality evaluation. She has a strong background in data validation, laboratory analyses, and sampling procedures for soil, water, and air matrices. Her expertise in data interpretation includes natural attenuation monitoring, petroleum hydrocarbon chromatography, and aqueous geochemistry.



SELECTED PROJECTS

Data Validation

- St. Joseph's Parish Redevelopment Data Quality Assessment (DQA) and Data Usability (DUE) preparation, New York, NY
- 175 – 225 3rd Street Data Usability Summary Report (DUSR), Brooklyn, NY
- 805 – 825 Atlantic Ave DUSR, Brooklyn, NY
- John Evans Superfund Site DUSR, Lansdale, PA
- 50 North Road (Nokia Chester), DQA and DUE preparation, Chester, NJ
- Data Validation/Data Management for Brownfields Site Assessment, Port St. Joe, FL*

Industrial Wastewater Pretreatment

- Industrial Wastewater Discharge Limit Development, Inland Empire Utilities Agency (IEUA), CA*
- Local Limits Study, Hopewell, VA*
- Local Limits Study, Mesa, AZ*
- Local Limits Development and Sewer Use Ordinance Development, Prescott, AZ*
- Implementation of Industrial Pretreatment Program, Prescott, AZ*
- Industrial Pretreatment Development, Queen Creek, AZ*
- Selenium Wastewater Treatment Options for Meat Packing Facility, Tolleson, AZ*
- Arizona Pollutant Discharge Elimination System (AZPDES) Permit Application Preparation, Phoenix, AZ
- Preparation of Sampling and Analysis Plan for Sub-Regional Operating Group (SROG) Local Limits Development, Phoenix and Surrounding Cities, AZ

EDUCATION

M.S., Environmental Engineering
University of California, Berkeley

B.S., Biology
Loyola Marymount University

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in AZ

Board Certified Environmental Engineer (BCEE) – Hazardous Waste Management (09-10019)

CERTIFICATIONS

The Wastewater Treatment, Wastewater Collection, and Water Distribution Operator Certification

Grade 2
Water Treatment Operator Certification Grade 1

Backflow Tester Certification (AABP)

*Denotes projects performed prior to employment at Langan

Site Investigation/Remediation/Compliance

- Arizona Electric Power Cooperative (AEPCO) Apache Generating Station Arizona Protection Permit (APP), Wilcox, AZ
- Arizona Department of Environmental Quality (ADEQ) Water Quality Assurance Revolving Fund (WQARF) Projects, Phoenix and Gilbert, AZ
- Long-Term Monitoring Program and 5-Year CERCLA Review, Luke Air Force Base (AFB), Glendale, AZ*
- Development of Stormwater Prevention Pollution Plan (SWPPP) and Stormwater Flow Modeling, Luke AFB, Glendale, AZ*
- Site Investigation and Clean Closure for Confidential Industrial Client, Tempe, AZ*
- RCRA Facility Investigation/Corrective Measures Assessment, San Jose, CA*
- Technical Resource for X-Ray Fluorescence (XRF) Field Screening Program for Former Small Arms Firing Range, Nogales, AZ*
- Designed and Implemented Sampling Procedures for Volatile Emissions from Tailings Impoundment Using Flux Chambers, Henderson, CO*
- Conceptual Site Model and Statistical Evaluation for Water Treatment Plant, Denver, CO*

Mining Project

- Third-Party Construction Quality Assurance (CQA) for Geotextile-Lined Tailings Repository, Casa Grande, AZ*
- CQA For Reclamation at Smelter, Miami, AZ*
- XRF Field Screening for Excavation at Former Smelter Site, El Paso, TX*
- CQA for Reclamation Projects at Active Smelter, Miami, AZ

ATTACHMENT D

SAMPLE NOMENCLATURE

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SAMPLE NOMENCLATURE

The sample nomenclature outlined below provides consistency between sample events and projects but, most importantly, establish unique sample IDs that will avoid confusion months or years after the sample has been collected. Furthermore, unique sample IDs are required for any data submitted to the NYSDEC in EDD format or being uploaded to an EQuIS database.

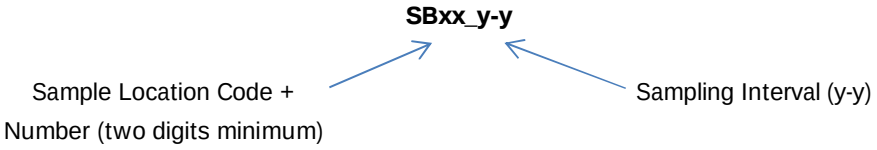
1.0 INVESTIGATION LOCATION CODES

SB	Soil Boring	SV	Soil Vapor Point
WC	Waste Characterization Boring	IA	Indoor Air
TP	Test Pit	AA	Ambient Air
EPSW	Endpoint Location (Sidewall)	SVE	Vapor Extraction Well
EPB	Endpoint Location (Bottom)	DS	Drum
MW	Monitoring Well	IDW	Investigation Derived Waste
TMW	Temporary Monitoring Well	SL	Sludge
SW	Surface Water	FP	Free Product

2.0 SAMPLE NOMENCLATURE

Each sample at a site must have a unique value.

- **Soil/Sediment Samples:**

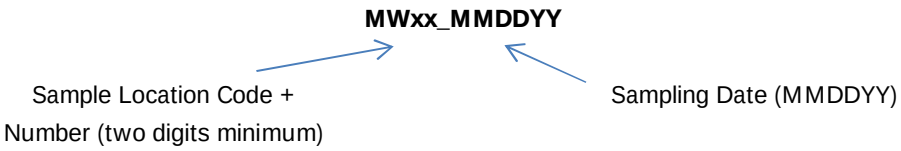


Sample Type	Sample Location Code	Sampling Depth or Interval (feet bgs or approx. elevation)	Sample Name
Phase II/Remedial Investigation			
Grab Soil Sample	SB01	2 to 4	SB01_2-4
	SB02	4	SB02_4
Waste Characterization			
Grab Soil Sample	WC01	2 to 4	WC01_2-4
	WC02	4	WC02_4
Composite Soil Sample from one or more locations	COMP01 or COMP02 + COMP03	0 to 10 (Fill)	COMP01_0-10

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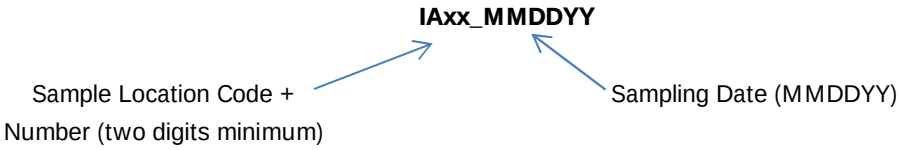
Sample Type	Sample Location Code	Sampling Depth or Interval (feet bgs or approx. elevation)	Sample Name
Endpoint Sampling			
Grab Soil Sample	EPSW01_N	5	EPSW01_N_5
	EPSW01_S	5	EPSW01_S_5
	EPSW01_E	5	EPSW01_E_5
	EPSW01_W	5	EPSW01_W_5
	EPB01	6	EPB01_6

- **Groundwater/Surface Water Samples:**



Sample Type	Sample Location Code	Sampling Date	Sample Name
Groundwater Sample	MW01	02/21/2013	MW01_022113

- **Air/Soil Vapor Samples:**



Sample Type	Sample Location Code	Date	Sample Name
Air Sample	IA01	02/21/2013	IA01_022113
Soil Vapor Sample	SV01	02/21/2013	SV01_022113
Vapor Extraction Well Sample	SVE01 (INLET/MIDPOINT/OUTLET)	02/21/2013	SVE01_IN_022113 SVE01_ MID_022113 SVE01_ OUT_022113

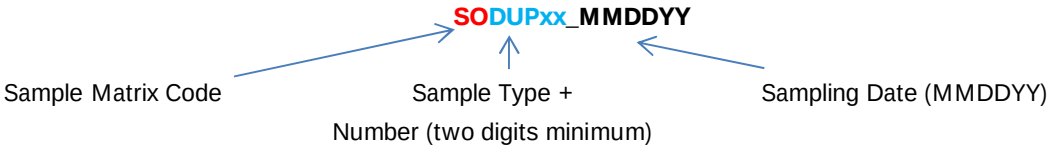
- **QA/QC Samples:**

Sample Matrix Codes

SO	Soil	AS	Air
SE	Sediment	SV	Soil Vapor
GW	Groundwater	SL	Sludge
SW	Surface Water	FP	Free Product

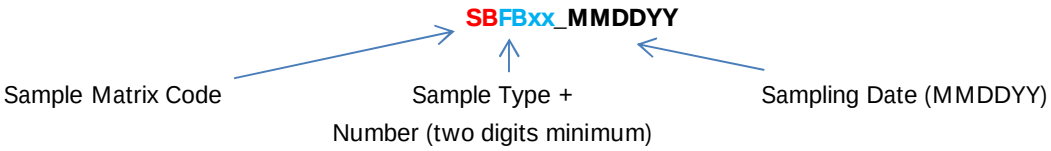
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- Duplicates Samples



Sample Type	Parent Sample Code	Date	Sample Name
Groundwater Duplicate Sample (DUP)	MW01_022113	02/21/2013	GWDUP01_022113
Soil boring Duplicate Sample (DUP)	SBP01_022113	02/21/2013	SODUP01_022113
Grab Waste Characterization	WC01	02/21/2013	WCDUP01_022113
Composite Waste Characterization	COMP01	02/21/2013	COMPDUP01_022113

- Field Blanks and Trip Blanks



Sample Type	Date	Sample Name
Groundwater Field Blank (FB)	02/21/2013	GWFB01_022113
Groundwater Trip Blank (TB)	02/21/2013	GWTB01_022113
Soil Field Blank	02/21/2013	SOFB01_022113
Soil Trip Blank	02/21/2013	SOTB01_022113

- Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Parent Sample Name_MS or MSD

Sample Type	Sample Location	Parent Sample Name	Sample Name
Matrix Spike Soil (MS)	SB01	SB01_2-4	SB01_2-4_MS
Matrix Spike Soil Duplicate (MSD)	SB01	SB01_2-4	SB01_2-4_MSD
Matrix Spike GW (MS)	MW01	MW01	MW01_MS
Matrix Spike GW Duplicate (MSD)	MW01	MW01	MW01_MSD

3.0 NOTES

1. The sample location code should not exceed 20 characters and the sample name should not exceed 40 characters.
2. Sample location code (**SB01, MW01, etc.)** is a sequential number (starting with 01) and should be a minimum of two digits.
3. Sample Interval (SB01_**0-5**) is separated from the sample location code with an underscore, and the top and bottom interval with a dash. Soil and sediment sample intervals should always be in

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feet. Soil and sediment sample intervals should contain no "/" or "()" or unit.

4. Sample date (MW01_**022113**) is separated from the sample location code with an underscore and should be provided in MMDDYY format [the date should contain no "/" or "-"].
5. If groundwater samples are collected from multiple intervals within one well, you may assign a letter designation (in lower case) to the well ID to differentiate between intervals (i.e., MW01a_022113, MW01b_022113, and MW01c_022113). The letter "a" would indicate the shallowest interval and "c" the deepest. The actual depth intervals should be documented in the project field book or field sheets and the letter designations should be used consistently between sampling events.
6. According to USEPA's Contract Laboratory Program (CLP) Guidance for Field Samplers (January 2011), field duplicate samples should remain "blind" to the laboratory (i.e., they should have separate CLP Sample numbers). Assign two separate (unique) CLP sample numbers (i.e., one number to the field sample and one to the duplicate). Submit blind to the laboratory. (http://www.epa.gov/superfund/programs/clp/download/sampler/CLPSamp-01-2011.pdf)

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Appendix C

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

FOR

261 WALTON AVENUE
BRONX, NY 10451

Prepared for:

Tuck-It-Away Associates – Deegan, LLC
555 Madison Avenue
New York, NY 10022

Prepared by:

Langan Engineering, Environmental, Surveying,
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January 2020
Langan Project No. 170601701

LANGAN

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Attachment B Decontamination Procedures

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Attachment D Calibration Log

Attachment E Material Data Safety Sheets / Safety Data Sheets*

Attachment F Jobsite Safety Inspection Checklist

Attachment G Job Safety Analysis Forms

Attachment H Tailgate Safety Meeting Log

***** Items to be posted prominently on site, or made readily available to personnel.

1.0 INTRODUCTION

1.1 General

This health and safety plan (HASP) was developed to address disturbance of known and reasonably anticipated subsurface contaminants and comply with Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.120(b) (4), *Hazardous Waste Operations and Emergency Response* during anticipated site work on portions of 261 Walton Avenue in the Bronx, New York (Tax Map Block 2344, Lot 60) ("the Site). This HASP provides the minimum requirements for implementing site operations during environmental investigation activities. All contractors performing work on this Site shall implement their own Health and Safety Plans that, at a minimum, adhere to this HASP. The contractor is solely responsible for their own health and safety and that of their subcontractors. Langan personnel will implement this HASP while on-site.

The management of the day-to-day site activities and implementation of this HASP in the field is the responsibility of the site Langan Field Team Leader (FTL). Assistance in the implementation of this HASP can also be obtained from the site Langan Health and Safety Officer (HSO) and the Langan Health and Safety Manager (HSM). Contractors operating on the Site shall designate their own FTL, HSO and HSM. The content of this HASP may change or undergo revision based upon additional information made available to health and safety personnel, monitoring results, or changes in the work plan.

1.2 Site Location and Background

The site is located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York. The site is about 27,454 square feet (0.63 acres) in area and is identified on the Bronx Borough Tax Map as Block 2344, Lot 60. The site is bound by an industrial/manufacturing building to the north, Walton Avenue followed by industrial buildings to the east, a gas station to the south, and Gerard Avenue followed by the Major Deegan Expressway to the west. A site location map is attached as Figure 1.

The site is improved with a vacant six-story building, with associated garages and an asphalt-paved lot spanning the remainder of the lot.

1.3 Summary of Work Tasks

The general categories of work tasks being performed during implementation of the work plan include:

1.3.1 Geotechnical Soil Boring

Langan will retain a geotechnical drilling contractor to advance geotechnical soil borings to a depth below grade surface (bgs) specified in the work plan. Borings locations will be based on the results of site inspection and document review. The drilling contractor will contact the appropriate utility mark-out authority and make available to their drilling staff the verification number and effective dates.

Langan will observe the borehole advancement and record appropriate geotechnical data including the results of Standard Penetration Tests (SPT), soil and stratigraphic identification and other data as required by the work plan. One or more borings may be completed as temporary observation wells to be completed as specified in the work plan. All borings and temporary observations wells will be filled with clean soil cuttings after the subsurface exploration is completed.

1.3.2 Geophysical Investigation

Prior to the commencement of intrusive field activities (i.e., soil borings); a geophysical consultant will conduct a geophysical survey using ground penetrating radar (GPR) and electromagnetic detection equipment. Langan personnel will coordinate the geophysical survey. The objective of the survey will be to identify any underground storage tank (UST) structures and/or associated piping and subsurface utilities that may be encountered during the investigation. During this time Langan personnel will inspect the Site and confirm sample locations.

1.3.3 Soil Investigation and Sampling

Langan will retain a drilling contractor to advance soil borings to a depth below grade surface (bgs) specified in the work plan. Borings locations will be based on the results of the geophysical survey and the site inspection and document review. The drilling contractor will contact the appropriate utility mark-out authority and make available to their drilling staff the verification number and effective dates.

Langan personnel will screen soil for visual, olfactory, and instrumental indicators suggestive of a potential petroleum release. Instrument screening for the presence of volatile organic compounds (VOCs) may be performed with a calibrated photoionization detector (PID). Langan personnel will collect soil samples from the two-foot interval exhibiting the greatest degree of visual, olfactory, instrumental impact, or as otherwise specified in the work. The borings will be filled with clean soil cuttings after samples are collected.

Soil samples will be submitted to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory and analyzed in accordance with work plan specifications.

1.3.4 Groundwater Investigation and Sampling

One or more soil borings will be converted into temporary groundwater monitoring wells and sampled to evaluate groundwater quality. Groundwater samples will be collected from one or more of the temporary monitoring wells in accordance with the Langan Low Flow Groundwater Sampling SOP (SOP #12). Groundwater samples will be submitted to an NYSDOH ELAP-certified laboratory and analyzed for constituents as specified in the work plan. The temporary monitoring wells will be backfilled and abandoned in accordance with State and Local regulations.

1.3.5 Soil Vapor Point Installation and Sampling

The drilling contractor will install soil vapor points to a depth specified by the work plan. Vapor samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (New York State Department of Health [NYSDOH] October 2006) and Langan's Soil Vapor Sampling SOP (SOP #13). Conditions in the field may require adjustment of sampling locations.

Ambient air sample may be collected for use as a comparison sample. The subsurface soil vapor samples will be collected using a soil vapor implant and tubing or similar method. The annulus around the probe and tubing will be filled with sand to two inches above the probe. Bentonite slurry will be applied to the top of the sand up to seal the sampling points.

1.3.6 Drum Sampling

Excess or impacted soil and water drummed during the remedial action activities must be labeled in accordance with the Langan Drum Labeling Standard Operating Procedure (SOP-#9). Langan personnel will collect drum samples, as required, prior to off-site drum disposal. Samples will be placed into laboratory-supplied batch-certified clean glassware and submitted to a NYSDOH ELAP-certified laboratory.

2.0 IDENTIFICATION OF KEY PERSONNEL/HEALTH AND SAFETY PERSONNEL

The following briefly describes the health and safety (H&S) designations and general responsibilities that may be employed for this site. The titles have been established to accommodate the project needs and requirements and ensure the safe conduct of site activities. The H&S personnel requirements for a given work location are based upon the proposed site activities.

2.1 Langan Project Manager

The Langan Environmental Project Manager (PM) is Ilkay Cam-Spanos. Their responsibilities include:

- Ensuring that this HASP is developed and approved prior to on-site activities.
- Ensuring that all the tasks in the project are performed in a manner consistent with

Langan's comprehensive *Health and Safety Program for Hazardous Waste Operations* and this HASP.

2.2 Langan Corporate Health and Safety Manager

The Langan Corporate Health and Safety Manager (HSM) is Tony Moffa. His responsibilities include:

- Updating the *Health and Safety Program for Hazardous Waste Operations*.
- Assisting the site Health and Safety Officer (HSO) with development of the HASP, updating HASP as dictated by changing conditions, jobsite inspection results, etc. and approving changes to this HASP.
- Assisting the HSO in the implementation of this HASP and conducting Jobsite Safety Inspections and assisting with communication of results and correction of shortcomings found.
- Maintaining records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).

2.3 Langan Site Health & Safety Officer

The Langan site HSO is William Bohrer. His responsibilities include:

- Participating in the development and implementation of this HASP.
- When on-site, assisting the Langan Field Team Leader in conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- Ensuring that proper PPE is available, worn by employees and properly stored and maintained.
- Controlling entry into and exit from the site contaminated areas or zones.
- Monitoring employees for signs of stress, such as heat stress, fatigue, and cold exposure.
- Monitoring site hazards and conditions.
- Knowing (and ensuring that all site personnel also know) emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- Resolving conflicts that may arise concerning safety requirements and working conditions.
- Reporting all incidents, injuries and near misses to the Langan Incident/Injury Hotline immediately and the client representative.

2.4 Langan Field Team Leader Responsibilities

The Langan Field Team Leader (FTL) is to be determined prior to the start of site activities. The

Field Team Leader's responsibilities include:

- The management of the day-to-day site activities and implementation of this HASP in the field.
- Participating in and/or conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- When a Community Air Monitoring Operating Program (CAMP) is part of the scope, the FTL will set up and maintaining community air monitoring activities and instructing the responsible contractor to implement organic vapor or dust mitigation when necessary.
- Overseeing the implementation of activities specified in the work plan.

2.5 Contractor Responsibilities

The contractor shall develop and implement their own HASP for their employees, lower-tier subcontractors, and consultants. The contractor is solely responsible for their own health and safety and that of their subcontractors. Contractors operating on the Site shall designate their own FTL, HSO and HSM. The contractor's HASP will be at least as stringent as this Langan HASP. The contractor must be familiar with and abide by the requirements outlined in their own HASP. A contractor may elect to adopt Langan's HASP as its own provided that it has given written notification to Langan, but where Langan's HASP excludes provisions pertinent to the contractor's work (i.e., confined space entry); the contractor must provide written addendums to this HASP. Additionally, the contractor must:

- Ensure their employees are trained in the use of all appropriate PPE for the tasks involved;
- Notify Langan of any hazardous material brought onto the job site or site related area, the hazards associated with the material, and must provide a material safety data sheet (MSDS) or safety data sheet (SDS) for the material;
- Have knowledge of, understand, and abide by all current federal, state, and local health and safety regulations pertinent to the work;
- Ensure their employees handling hazardous materials, if identified at the Site, have received current training in the appropriate levels of 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response* (HAZWOPER) if hazardous waste is identified at the Site;
- Ensure their employees handling hazardous materials, if identified at the Site, have been fit-tested within the year on the type respirator they will wear;
- Ensure all air monitoring is in place pertaining to the health and safety of their employees as required by OSHA 1910.120; and
- All contractors must adherer to all federal, state, and local regulatory requirements.

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSES

A Task-Hazard Analysis (Table 1) was completed for general construction hazards that may be encountered at the Site. Known and suspected chemical contaminant hazards that could be encountered during site operations are included in Table 2. A complete inventory of MSDS/SDS for chemical products used on site is included as Attachment E.

3.1 Specific Task Safety Analysis

3.1.1 Excavation of Debris and Shoreline Stabilization

Working near the water will pose potential drowning hazards due to slipping or falling into the Harlem River. Potential adverse health effects are similar to slips, trips, and falls, and may also result in drowning. Good housekeeping at the site must be maintained at all times. Employees must be aware of the location of the water's edge and must either stay at least 5 feet away from the embankment to the Harlem River, or wear a personal floatation device approved by the US Coast Guard.

3.1.2 Geophysical Survey

Langan personnel are not permitted to operate or otherwise handle the geophysical equipment including any downhole geophysical equipment subsequently used to survey boreholes. When soil, groundwater or soil vapor points are surveyed with surface geophysical equipment, the locations of the point as well as possible utilities and other artifacts that may interfere with the subsurface investigation are to be marked with indelible paint, flags, or color tape (when marking indoor locations that the client has specifically requested not be marked with indelible paint). When applying paint, proper PPE including at a minimum hand protections should be used.

3.1.3 Soil Investigation and Sampling

Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate drilling or excavation equipment nor open sampling devices (acetate liners, sonic sample bags, etc.). These tasks are to be completed by the driller or excavation contractor.

3.1.4 Groundwater Investigation and Sampling

Sampling groundwater requires the donning of chemical resistant gloves in addition to the standard PPE and cut resistant gloves when cutting sampling-tubing to length. Langan personnel are not to operate drilling equipment nor assemble or install monitoring well equipment. These tasks are to be completed by the driller contractor.

3.1.5 Soil Vapor Investigation and Sampling

Sampling soil vapor requires the donning of work gloves in addition to the standard PPE when

assembling the Summa™ canister with the regulator and cut resistant gloves when cutting sampling- or silicone-tubing to length. Langan personnel are not to operate drilling equipment nor assemble or install soil vapor point equipment. These tasks are to be completed by the driller contractor.

3.1.6 Drum Sampling

Drilling fluid, rinse water, grossly-contaminated soil samples and cuttings will be containerized in 55-gallon drums for disposed off-site. Each drum must be labeled in accordance with the Langan Drum Labeling Standard Operating Procedure (SOP-#9). Sampling drums requires the donning of work gloves when opening the drums and chemical resistant gloves when sampling in addition to standard PPE.

Langan personnel and contractors are not to move or opened any orphaned (unlabeled) drum found on the site without approval of the project manager.

3.2 Radiation Hazards

No radiation hazards are known or expected at the site.

3.3 Physical Hazards

Physical hazards, which may be encountered during site operations for this project, are detailed in Table 1.

3.3.1 Explosion

No explosion hazards are expected for the scope of work at this site.

3.3.2 Heat Stress

The use of Level C protective equipment, or greater, may create heat stress. Monitoring of personnel wearing personal protective clothing should commence when the ambient temperature is 72^{O}F or above. Table 6 presents the suggested frequency for such monitoring. Monitoring frequency should increase as ambient temperature increases or as slow recovery rates are observed. Refer to the Table 7 to assist in assessing when the risk for heat related illness is likely. To use this table, the ambient temperature and relative humidity must be obtained (a regional weather report should suffice). Heat stress monitoring should be performed by the HSO or the FTL, who shall be able to recognize symptoms related to heat stress.

To monitor the workers, be familiar with the following heat-related disorders and their symptoms:

- **Heat Cramps:** Painful spasm of arm, leg or abdominal muscles, during or after work

- **Heat Exhaustion:** Headache, nausea, dizziness; cool, clammy, moist skin; heavy sweating; weak, fast pulse; shallow respiration, normal temperature
- **Heat Stroke**: Headache, nausea, weakness, hot dry skin, fever, rapid strong pulse, rapid deep respirations, loss of consciousness, convulsions, coma. *This is a life threatening condition***.**

Do not permit a worker to wear a semi-permeable or impermeable garment when they are showing signs or symptoms of heat-related illness.

To monitor the worker, measure:

- **Heart rate:** Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 100 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 100 beats per minute at the next rest period, shorten the following work cycle by one-third. A worker cannot return to work after a rest period until their heart rate is below 100 beats per minute.
- **Oral temperature:** Use a clinical thermometer (3 minutes under the tongue) or similar device to measure the oral temperature at the end of the work period (before drinking). If oral temperature exceeds 99.6^{o}F (37.6^{o}C), shorten the next work cycle by one-third without changing the rest period. A worker cannot return to work after a rest period until their oral temperature is below 99.6^{o}F. If oral temperature still exceeds 99.6^{o}F (37.6^{o}C) at the beginning of the next rest period, shorten the following cycle by one-third. Do not permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6^{o}F (38.1^{o}C).

Prevention of Heat Stress - Proper training and preventative measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat related illness. To avoid heat stress the following steps should be taken:

- Adjust work schedules.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, id., eight fluid ounces (0.23 liters) of water must be ingested for approximately every eight ounces (0.23 kg) of weight lost. The normal

thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:

- Maintain water temperature 50^{O} to 60^{O}F (10^{O} to 16.6^{O}C).
- Provide small disposal cups that hold about four ounces (0.1 liter).
- Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
- Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
- Train workers to recognize the symptoms of heat related illness.

3.3.3 Cold-Related Illness

If work on this project begins in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia. Local cold exposure is generally called frostbite.

- **Hypothermia -** Hypothermia is defined as a decrease in the patient core temperature below 96^{O}F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a "cold" ambient temperature. Symptoms of hypothermia include: shivering, apathy, listlessness, sleepiness, and unconsciousness.
- **Frostbite -** Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 20^{O}F. Symptoms of frostbite are: a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

Prevention of Cold-Related Illness - To prevent cold-related illness:

- Educate workers to recognize the symptoms of frostbite and hypothermia
- Identify and limit known risk factors:
- Assure the availability of enclosed, heated environment on or adjacent to the site.
- Assure the availability of dry changes of clothing.
- Assure the availability of warm drinks.
- Start (oral) temperature recording at the job site:
- At the FSO or Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status.
- At a worker's request.
- As a screening measure, two times per shift, under unusually hazardous conditions

(e.g., wind-chill less than 20^{O}F, or wind-chill less than 30^{O}F with precipitation).

- As a screening measure whenever anyone worker on the site develops hypothermia.

Any person developing moderate hypothermia (a core temperature of 92^{O}F) cannot return to work for 48 hours.

3.3.4 Noise

Work activities during the proposed activities may be conducted at locations with high noise levels from the operation of equipment. Hearing protection will be used as necessary.

3.3.5 Hand and Power Tools

The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. All hand and power tools should be inspected for health and safety hazards prior to use. If deemed unserviceable/un-operable, notify supervisor and tag equipment out of service. Ground Fault Circuit Interrupters (GFCIs) are required for all power tools requiring direct electrical service.

3.3.6 Slips, Trips and Fall Hazards

Care should be exercised when walking at the site, especially when carrying equipment. The presence of surface debris, uneven surfaces, pits, facility equipment, and soil piles contribute to tripping hazards and fall hazards. To the extent possible, all hazards should be identified and marked on the Site, with hazards communicated to all workers in the area.

3.3.7 Utilities (Electrocution and Fire Hazards)

The possibility of encountering underground utilities poses fire, explosion, and electrocution hazards. All excavation work will be preceded by review of available utility drawings and by notification of the subsurface work to the N.Y. One –Call–Center. Potential adverse effects of electrical hazards include burns and electrocution, which could result in death.

3.4 Biological Hazards

3.4.1 Animals

No animals are expected to be encountered during site operations.

3.4.2 Insects

Insects are not expected to be encountered during site operations.

3.5 Additional Safety Analysis

3.5.1 Presence of Non-Aqueous Phase Liquids (NAPL)

There is potential for exposure to NAPL at this site. Special care and PPE should be considered when NAPL is observed as NAPL is a typically flammable fluid and releases VOCs known to be toxic and/or carcinogenic. If NAPL is present in a monitoring well, vapors from the well casing may contaminate the work area breathing zone with concentrations of VOCs potentially exceeding health and safety action levels. In addition, all equipment used to monitor or sample NAPL (or groundwater from wells containing NAPL) must be intrinsically safe. Equipment that directly contacts NAPL must also be resistant to organic solvents.

At a minimum, a PID should be used to monitor for VOCs when NAPL is observed. If NAPL is expected to be observed in an excavation or enclosed area, air monitoring must be started using calibrated air monitoring equipment designed to sound an audio alarm when atmospheric concentrations of VOC are within 10% of the LEL. In normal atmospheric oxygen concentrations, the LEL monitoring may be done with a Wheatstone bridge/catalytic bead type sensor (i.e. MultiRAE). However in oxygen depleted atmospheres (confined space), only an LEL designed to work in low oxygen environments may be used. Best practices require that the LEL monitoring unit be equipped with a long sniffer tube to allow the LEL unit to remain outside the UST excavation.

When NAPL is present, Langan personnel are required to use disposable nitrile gloves at all times to prevent skin contact with contaminated materials. They should also consider having available a respirator and protective clothing (Tyvek® overalls), especially if NAPL is in abundance and there are high concentrations of VOCs.

All contaminated disposables including PPE and sampling equipment must be properly disposed of in labeled 55-gallon drums.

3.6 Job Safety Analysis

A Job Safety Analysis (JSA) is a process to identify existing and potential hazards associated with each job or task so these hazards can be eliminated, controlled or minimized. A JSA will be performed at the beginning of each work day, and additionally whenever an employee begins a new task or moves to a new location. All JSAs must be developed and reviewed by all parties involved. A blank JSA form and documentation of completed JSAs are in Attachment G.

4.0 PERSONNEL TRAINING

4.1 Basic Training

Completion of an initial 40-hour HAZWOPER training program as detailed in OSHA's 29 CFR 1910.120(e) is required for all employees working on a site engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances, health hazards, or safety hazards as defined by 29 CFR 1910.120(a). Annual 8-hour

refresher training is also required to maintain competencies to ensure a safe work environment. In addition to these training requirements, all employees must complete the OSHA 10 hour Construction Safety and Health training and supervisory personnel must also receive eight additional hours of specialized management training. Training records are maintained by the HSM.

4.2 Initial Site-Specific Training

Training will be provided to specifically address the activities, procedures, monitoring, and equipment for site operations at the beginning of each field mobilization and the beginning of each discrete phase of work. The training will include the site and facility layout, hazards, and emergency services at the site, and will detail all the provisions contained within this HASP. For a HAZWOPER operation, training on the site must be for a minimum of 3 days. Specific issues that will be addressed include the hazards described in Section 3.0.

4.3 Tailgate Safety Briefings

Before starting work each day or as needed, the Langan HSO will conduct a brief tailgate safety meeting to assist site personnel in conducting their activities safely. Tailgate meetings will be documented in Attachment H. Briefings will include the following:

- Work plan for the day;
- Review of safety information relevant to planned tasks and environmental conditions;
- New activities/task being conducted;
- Results of Jobsite Safety Inspection Checklist;
- Changes in work practices;
- Safe work practices; and
- Discussion and remedies for noted or observed deficiencies.

5.0 MEDICAL SURVEILLANCE

All personnel who will be performing field work involving potential exposure to toxic and hazardous substances (defined by 29 CFR 1910.120(a)) will be required to have passed an initial baseline medical examination, with follow-up medical exams thereafter, consistent with 29 CFR 1910.120(f). Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine.

Additionally, personnel who may be required to perform work while wearing a respirator must receive medical clearance as required under CFR 1910.134(e), *Respiratory Protection*. Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine. Results of medical evaluations are maintained by the HSM.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 Levels of Protection

Langan will provide PPE to Langan employees to protect them from the specific hazards they are likely to encounter on-site. Direct hired contractors will provide their employees with equivalent PPE to protect them from the specific hazards likely to be encountered on-site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and, (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards.

Based on anticipated site conditions and the proposed work activities to be performed at the site, Level D protection will be used. The upgrading/downgrading of the level of protection will be based on continuous air monitoring results as described in Section 6.0 (when applicable). The decision to modify standard PPE will be made by the site HSO or FTL after conferring with the PM. The levels of protection are described below.

Level D Protection (as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes
- Coveralls (Tyvek® or equivalent)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection
- Reflective safety vest

Level D Protection (Modified, as needed)

- Safety glasses with sideshields or chemical splash goggles
- Safety boots/shoes (toe-protected)
- Disposable chemical-resistant boot covers
- Coveralls (polycoated Tyvek or equivalent to be worn when contact with wet contaminated soil, groundwater, or non-aqueous phase liquids is anticipated)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection (as needed)
- Personal floatation device (for work within 5 ft of the water)
- Reflective traffic vest

Level C Protection (as needed)

- Full or Half face, air-purifying respirator, with NIOSH approved HEPA filter
- Inner (latex) and outer (nitrile) chemical-resistant gloves
- Safety glasses with side shields or chemical splash goggles
- Chemical-resistant safety boots/shoes
- Hard hat
- Long sleeve work shirt and work pants
- Coveralls (Tyvek® or equivalent)
- Hearing protection (as needed)
- Reflective safety vest

The action levels used in determining the necessary levels of respiratory protection and upgrading to Level C are summarized in Table 4. The written Respiratory Protection Program is maintained by the HSM and is available if needed. The monitoring procedures and equipment are outlined in Section 6.0 (when applicable).

6.2 Respirator Fit-Test

All Langan employees who may be exposed to hazardous substances at the work site are in possession of a full or half face-piece, air-purifying respirator and have been successfully fit-tested within the past year. Fit-test records are maintained by the HSM.

6.3 Respirator Cartridge Change-Out Schedule

Respiratory protection is required to be worn when certain action levels (table 2) are reached. A respirator cartridge change-out schedule has been developed in order to comply with 29 CFR 1910.134. The respirator cartridge change-out schedule for this project is as follows:

- Cartridges shall be removed and disposed of at the end of each shift, when cartridges become wet or wearer experiences breakthrough, whichever occurs first.
- If the humidity exceeds 85%, then cartridges shall be removed and disposed of after 4 hours of use.

Respirators shall not be stored at the end of the shift with contaminated cartridges left on. Cartridges shall not be worn on the second day, no matter how short the time period was the previous day they were used.

7.0 AIR QUALITY MONITORING AND ACTIONS LEVELS

7.1 Monitoring During Site Operations

Atmospheric air monitoring results are used to provide data to determine when exclusion zones need to be established and when certain levels of personal protective equipment are required. For all instruments there are Site-specific action level criteria which are used in making field

health and safety determinations. Other data, such as the visible presence of contamination or the steady state nature of air contaminant concentration, are also used in making field health and safety decisions. Therefore, the HSO may establish an exclusion zone or require a person to wear a respirator even though atmospheric air contaminant concentrations are below established HASP action levels.

During site work involving disturbance of petroleum-impacted or fill material, real time air monitoring will be conducted for volatile organic compounds (VOCs). A photoionization detector (PID) and/or flame ionization detector (FID) will be used to monitor concentrations of VOCs at personnel breathing-zone height. Air monitoring will be the responsibility of the HSO or designee. Air monitoring will be conducted during intrusive activities associated with the completion of excavation, debris removal, and soil grading. All manufacturers' instructions for instrumentation and calibration will be available onsite.

Subcontractors' air monitoring plans must be equal or more stringent as the Langan plan.

An air monitoring calibration log is provided in Attachment D of this HASP.

7.1.1 Volatile Organic Compounds

Monitoring with a PID, such as a MiniRAE 2000 (10.6v) or equivalent will occur during intrusive work in the AOCs. Colormetric Indicator Tubes for benzene may be used as backup for the PID, if measurements remain above background monitor every 2 hours. The HSO will monitor the employee breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (odors, visible gases, etc.) since the last measurement. If VOC levels are observed above 5 ppm for longer than 5 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for monitored gases are provided in Table 4.

7.1.2 Metals

Based upon the site historical fill, there is a potential for the soils to contain PAHs and metals. During invasive procedures which have the potential for creating airborne dust, such as excavation of dry soils, a real time airborne dust monitor such as a Mini-Ram should be used to monitor for air particulates. The HSO will monitor the employee breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (appearance of visible dust) since the last measurement. If dust levels are observed to be greater than 0.100 mg/m^3 or visible dust is observed for longer than 15 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location

downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for dust monitoring are provided in Table 4.

7.2 Monitoring Equipment Calibration and Maintenance

Instrument calibration shall be documented and included in a dedicated safety and health logbook or on separate calibration pages of the field book. All instruments shall be calibrated before and after each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

All instruments shall be operated in accordance with the manufacturers' specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on site by the HSO for reference.

7.3 Determination of Background Levels

Background (BKD) levels for VOCs and dust will be established prior to intrusive activities within the AOC at an upwind location. A notation of BKD levels will be referenced in the daily monitoring log. BKD levels are a function of prevailing conditions. BKD levels will be taken in an appropriate upwind location as determined by the HSO.

Table 4 lists the instrument action levels.

8.0 COMMUNITY AIR MONITORING PROGRAM

Community air monitoring may be conducted in compliance with the NYSDOH Generic CAMP outlined below:

Monitoring for dust and odors will be conducted during all ground intrusive activities by the FTL. Continuous monitoring on the perimeter of the work zones for odor, VOCs, and dust may be required for all ground intrusive activities such as soil excavation and handling activities. The work zone is defined as the general area in which machinery is operating in support of remediation activities. A portable PID will be used to monitor the work zone and for periodic monitoring for VOCs during activities such as soil and groundwater sampling and .soil excavation. The site perimeter will be monitored for fugitive dust emissions by visual observations as well as instrumentation measurements (if required). When required, particulate or dust will be monitored continuously with real-time field instrumentation that will meet, at a minimum, the performance standards from DER-10 Appendix 1B.

If VOC monitoring is required, the following actions will be taken based on VOC levels measured:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the hot zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps work activities will resume provided that the total organic vapor level 200 feet downwind of the hot zone 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 above background for the 15-minute average.
- If the total VOC level is above 25 ppm at the perimeter of the hot zone, activities will be shutdown.

If dust monitoring with field instrumentation is required, the following actions will be taken based on instrumentation measurements:

- If the downwind particulate level is 100 micrograms per cubic meter (µg/m³) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression must be employed. Work may continue with dust suppression techniques provided that downwind PM10 levels do not exceed 150 µg/m³ above the background level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than 150 µg/m³ above the background level, work must 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 PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

8.1 Vapor Emission Response Plan

This section applies if VOC monitoring is required. If the ambient air concentration of organic vapors exceeds 5 ppm above background at the perimeter of the hot zone, boring and well installation, and excavation activities will be halted or odor controls will be employed, and monitoring continued. When work shut-down occurs, downwind air monitoring as directed by the HSO or FTL 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.

If the organic vapor level decreases below 5 ppm above background, sampling and boring and well installation can resume, provided:

- The organic vapor level 200 feet downwind of the hot zone or half the distance to the nearest residential or commercial structure, whichever is less, is below 1 ppm over background, and
- More frequent intervals of monitoring, as directed by the HSO or FTL, are conducted.

8.2 Major Vapor Emission

This section applies if VOC monitoring is required. 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 hot zone, 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 5 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.

8.3 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

- The local police authorities will immediately be contacted by the HSO or FTL 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 or FTL; and
- All Emergency contacts will go into effect as appropriate.

8.4 Dust Suppression Techniques

Preventative measures for dust generation may include wetting site fill and soil, construction of an engineered construction entrance with gravel pad, a truck wash area, covering soils with tarps, and limiting vehicle speeds to five miles per hour.

Work practices to minimize odors and vapors include limiting the time that the excavations remain open, minimizing stockpiling of contaminated-source soil, and minimizing the handling of contaminated material. Offending odor and organic vapor controls may include the

application of foam suppressants or tarps over the odor or VOC source areas. Foam suppressants may include biodegradable foams applied over the source material for short-term control of the odor and VOCs.

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: direct load-out of soils to trucks for off-Site disposal; use of chemical odorants in spray or misting systems; and, 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.

9.0 WORK ZONES AND DECONTAMINATION

9.1 Site Control

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the HSO with proper training and medical documentation.

Exclusion Zone (EZ) - All activities which may involve exposure to site contaminants, hazardous materials and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be clearly delineated by cones, tapes or other means. The HSO may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ shall be determined by the HSO allowing adequate space for the activity to be completed, field members and emergency equipment.

9.2 Contamination Zone

9.2.1 Personnel Decontamination Station

Personal hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure.

9.2.2 Minimization of Contact with Contaminants

During completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination as PPE is intended to minimize accidental contact. This may ultimately minimize the degree of decontamination required and the generation of waste materials from site operations.

Field procedures will be developed to control over spray and runoff and to ensure that unprotected personnel working nearby are not affected.

9.2.3 Personnel Decontamination Sequence

Decontamination will be performed by removing all PPE used in EZ and placing it in drums/trash cans at the CRZ. Baby wipes shall be available for wiping hands and face. Drums/trash cans-will be labeled by the field crews in accordance with all local, state, and federal requirements. Management plans for contaminated PPE, and tools are provided below.

9.2.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment. If the injured person can be moved, he/she will be decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions shall be made to ensure that emergency response personnel will be able to respond to the victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with polyethylene sheeting to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent data.

9.2.5 Hand-Held Equipment Decontamination

Hand-held equipment includes all monitoring instruments as stated earlier, samples, hand tools, and notebooks. The hand-held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the CRZ.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident. Sampling equipment, hand tools, etc. will be cleaned with non-phosphorous soap to remove any

potentially contaminated soil, and rinsed with deionized water. All decontamination fluids will be containerized and stored on-site pending waste characterization sampling and appropriate off-site disposal.

9.2.6 Heavy Equipment Decontamination

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the HSO or his designee.

9.3 Support Zone

The support zone or cold zone will include the remaining areas of the job site. Break areas and support facilities (include equipment storage and maintenance areas) will be located in this zone. No equipment or personnel will be permitted to enter the cold zone from the hot zone without passing through the decontamination station in the warm zone (if necessitated). Eating, smoking, and drinking will be allowed only in this area.

9.4 Communications

The following communications equipment will be utilized as appropriate.

- Telephones - A cellular telephone will be located with the HSO for communication with the HSM and emergency support services/facilities.
- Hand Signals - Hand signals shall be used by field teams, along with the buddy system. The entire field team shall know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

Hand Signal	Meaning
Hand gripping throat	Out of air; cannot breathe
Grip partners wrists or place both hands around waist	Leave immediately without debate
Hands on top of head	Need assistance
Thumbs up	OK; I'm alright; I understand
Thumbs down	No; negative
Simulated "stick" break with fists	Take a break; stop work

9.5 The Buddy System

When working in teams of two or more, workers will use the "buddy system" for all work activities to ensure that rapid assistance can be provided in the event of an emergency. This requires work groups to be organized such that workers can remain close together and maintain visual contact with one another. Workers using the "buddy system" have the following responsibilities:

- Provide his/her partner with assistance.
- Observe his/her partner for signs of chemical or heat exposure.
- Periodically check the integrity of his/her partner's PPE.
- Notify the HSO or other site personnel if emergency service is needed.

10.0 NEAREST MEDICAL ASSISTANCE

The address and telephone number of the nearest hospital:

Lincoln Medical and Mental Health Center
234 East 149th Street
Bronx, NY
718-579-5700

Map with directions to the hospital are shown in Figure 2. This information will either be posted prominently at the site or will be available to all personnel all of the time. Further, all field personnel, including the HSO & FTL, will know the directions to the hospital.

11.0 STANDING ORDERS/SAFE WORK PRACTICES

The standing orders, which consist of a description of safe work practices that must always be followed while on-site by Langan employees and contractors, are shown in Attachment A. The site HSO and FTL each have the responsibility for enforcing these practices. The standing orders will be posted prominently at the site, or are made available to all personnel at all times. Those who do not abide by these safe work practices will be removed from the site.

12.0 SITE SECURITY

No unauthorized personnel shall be permitted access to the work areas.

13.0 UNDERGROUND UTILITIES

As provided in Langan's Underground Utility Clearance Guidelines, the following safe work practices should be followed by Langan personnel and the contractor before and during subsurface work in accordance with federal, state and local regulations:

- Obtain available utility drawings from the property owner/client or operator.
- Provide utility drawings to the project team.

- In the field, mark the proposed area of subsurface disturbance (when possible).
- Ensure that the utility clearance system has been notified.
- Ensure that utilities are marked before beginning subsurface work.
- Discuss subsurface work locations with the owner/client and contractors.
- Obtain approval from the owner/client and operators for proposed subsurface work locations.
- Use safe digging procedures when applicable.
- Stay at least 10 feet from all equipment performing subsurface work.

14.0 SITE SAFETY INSPECTION

The Langan HSO or alternate will check the work area daily, at the beginning and end of each work shift or more frequently to ensure safe work conditions. The HSO or alternate must complete the Jobsite Safety Inspection Checklist, found in Attachment F. Any deficiencies shall be shared with the FTL, HSM and PM and will be discussed at the daily tailgate meeting.

15.0 HAND AND POWER TOOLS

All hand- and electric-power tools and similar equipment shall be maintained in a safe operating condition. All electric-power tools must be inspected before initial use. Damaged tools shall be removed immediately from service or repaired. Tools shall be used only for the purpose for which they were designed. All users must be properly trained in their safe operation.

16.0 EMERGENCY RESPONSE

16.1 General

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures. In case of emergency, in addition to 911 the Langan Incident/Injury Hotline ***(800) 9-LANGAN*** (800-952-6426) extension 4699 should be called as soon as possible.

16.2 Responsibilities

16.2.1 Health and Safety Officer (HSO)

The HSO is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The HSO is responsible for ensuring the HSM are notified of all incidents, all injuries, near misses,

fires, spills, releases or equipment damage. The HSO is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSM can notify OSHA within the required time frame.

16.2.2 Emergency Coordinator

The HSO or their designated alternate will serve as the Emergency Coordinator. The Emergency Coordinator is responsible for ensuring that all personnel are evacuated safely and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. They are also responsible for ensuring the HSM are notified of all incidents, all injuries, near misses, fires, spills, releases or equipment damage. The Emergency Coordinator is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized.

The Emergency Coordinator shall locate emergency phone numbers and identify hospital routes prior to beginning work on the sites. The Emergency Coordinator shall make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator is responsible for implementing the Emergency Response Plan.

16.2.3 Site Personnel

Project site personnel are responsible for knowing the Emergency Response Plan and the procedures contained herein. Personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors will be trained in the Emergency Response Plan.

16.3 Communications

Once an emergency situation has been stabilized, or as soon as practically possible, the HSO will contact the Langan Incident/Injury Hotline (1-800-952-6426) or (973-560-4699) and Project Manager of identify any emergency situation.

16.4 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during investigative activities at the site, the Emergency Notification Numbers (Table 5) will be posted and provided to all personnel conducting work within the EZ.

Figure 2 shows the hospital route map. Outside emergency number 911 and local ambulance should be relied on for response to medical emergencies and transport to emergency rooms.

Always contact first responders when there are serious or life threatening emergencies on the site. Project personnel are instructed not to drive injured personnel to the Hospital. In the event of an injury, provide first aid and keep the injured party calm and protected from the elements and treat for shock when necessary.

16.5 Pre-Emergency Planning

Langan will communicate directly with administrative personnel from the emergency room at the hospital in order to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and in each site vehicle.

16.6 Emergency Medical Treatment

The procedures and rules in this HASP are designed to prevent employee injury. However, should an injury occur, no matter how slight, it will be reported to the HSO immediately. First-aid equipment will be available on site at the following locations:

- First Aid Kit: Contractor Mobile Office and Vehicles
- Emergency Eye Wash: Contractor Mobile office and Vehicles

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first aid instructions that can be obtained from doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

16.7 Personnel with current first aid and CPR certification will be identified.

Only in non-emergency situations may an injured person be transported to an urgent care facility. Due to hazards that may be present at the site and the conditions under which operations are conducted, it is possible that an emergency situation may develop. Emergency situations can be characterized as injury or acute chemical exposure to personnel, fire or explosion, environmental release, or hazardous weather conditions.

16.8 Emergency Site Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site investigation activities, including but not limited to fire,

explosion or significant release of toxic gas into the atmosphere, the Langan Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

16.9 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Langan Project Manager of the investigation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

16.9.1 Fire Prevention

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.
- Shutting off engines to refuel.
- Grounding and bonding metal containers during transfer of flammable liquids.
- Use of UL approved flammable storage cans.
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the HSO.

16.10 Significant Vapor Release

Based on the proposed tasks, the potential for a significant vapor release is low. However, if a release occurs, the following steps will be taken:

- Move all personnel to an upwind location. All non-essential personnel shall evacuate.
- Upgrade to Level C Respiratory Protection.
- Downwind perimeter locations shall be monitored for volatile organics.
- If the release poses a potential threat to human health or the environment in the community, the Emergency Coordinator shall notify the Langan Project Manager.
- Local emergency response coordinators will be notified.

16.11 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet (MSDS) will be followed, when necessary.

SKIN AND EYE: Use copious amounts of soap and water from eye-wash kits and portable hand wash stations.

CONTACT: Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Skin shall also be rinsed for 15 minutes if contact with caustics, acids or hydrogen peroxide occurs. Affected items of clothing shall also be removed from contact with skin.

Providing wash water and soap will be the responsibility of each individual contractor or subcontractor on-site.

16.12 Decontamination During Medical Emergencies

If emergency life-saving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The HSO or designee will accompany contaminated victims to the medical facility to advise on matters involving decontamination when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening, unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, the normal decontamination procedures will be followed.

16.13 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work will continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).

- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The HSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

16.14 Spill Control and Response

All small spills/environmental releases shall be contained as close to the source as possible. Whenever possible, the MSDS will be consulted to assist in determining proper waste characterization and the best means of containment and cleanup. For small spills, sorbent materials such as sand, sawdust or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. All spill containment materials will be properly disposed. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill.

All contractor vehicles shall have spill kits on them with enough material to contain and absorb the worst-case spill from that vehicle. All vehicles and equipment shall be inspected prior to be admitted on site. Any vehicle or piece of equipment that develops a leak will be taken out of service and removed from the job site.

The following seven steps shall be taken by the Emergency Coordinator:

1. Determine the nature, identity and amounts of major spills.
2. Make sure all unnecessary persons are removed from the spill area.
3. Notify the HSO immediately.
4. Use proper PPE in consultation with the HSO.
5. If a flammable liquid, gas or vapor is involved, remove all ignition sources and use non-sparking and/or explosion-proof equipment to contain or clean up the spill (diesel-only vehicles, air-operated pumps, etc.)
6. If possible, try to stop the leak with appropriate material.
7. Remove all surrounding materials that can react or compound with the spill.

In addition to the spill control and response procedures described in this HASP, Langan personnel will coordinate with the designated project manager relative to spill response and

control actions. Notification to the Project Manager must be immediate and, to the extent possible, include the following information:

- Time and location of the spill.
- Type and nature of the material spilled.
- Amount spilled.
- Whether the spill has affected or has a potential to affect a waterway or sewer.
- A brief description of affected areas/equipment.
- Whether the spill has been contained.
- Expected time of cleanup completion. If spill cleanup cannot be handled by Langan's on-site personnel alone, such fact must be conveyed to the Project Manager immediately.

Langan shall not make any notification of spills to outside agencies. The client will notify regulatory agencies as per their reporting procedures.

16.15 Emergency Equipment

The following minimum emergency equipment shall be kept and maintained on site:

- Industrial first aid kit.
- Fire extinguishers (one per site).

16.16 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.
- Replenishing spill control supplies.

16.17 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan Incident/Injury Hotline at 1-(800)-9-LANGAN (ext. #4699) and the client representative to report the incident or near miss. For emergencies involving personnel injury and/or exposure, the HSO and affected employee will complete and submit an Employee Exposure/Injury Incident Report (Attachment C) to the Langan Corporate Health and Safety Manager as soon as possible following the incident.

17.0 RECORDKEEPING

The following is a summary of required health and safety logs, reports and recordkeeping.

17.1 Field Change Authorization Request

Any changes to the work to be performed that is not included in the HASP will require an addendum that is approved by the Langan project manager and Langan HSM to be prepared. Approved changes will be reviewed with all field personnel at a safety briefing.

17.2 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training, documentation of three-day OJT, and respirator fit-test records) and medical clearance for site work and respirator use will be maintained in the office and available upon request. Records for all subcontractor employees must also be available upon request. All employee medical records will be maintained by the HSM.

17.3 Onsite Log

A log of personnel on site each day will be kept by the HSO or designee.

17.4 Daily Safety Meetings ("Tailgate Talks")

Completed safety briefing forms will be maintained by the HSO.

17.5 Exposure Records

All personal monitoring results, laboratory reports, calculations and air sampling data sheets are part of an employee exposure record. These records will be maintained by the HSO during site work. At the end of the project they will be maintained according to 29 CFR 1910.1020.

17.6 Hazard Communication Program/MSDS-SDS

Material safety data sheets (MSDS) of Safety Data Sheets (SDS) have been obtained for applicable substances and are included in this HASP (Attachment E). Langan's written hazard communication program, in compliance with 29 CFR 1910.1200, is maintained by the HSM.

17.7 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan incident/injury hotline at 1-800-952-6426, extension 4699 and the Project Manager to report the incident or near miss. The Project Manager will contact the client or client representative. A written report must be completed and submitted HSM within 24 hours of the incident. For emergencies involving personnel injury and/or exposure, employee will complete and submit the Langan

incident/injury report to the Langan corporate health and safety manager as soon as possible following the incident. Accidents will be investigated in-depth to identify all causes and to recommend hazard control measures.

18.0 CONFINED SPACE ENTRY

Confined spaces are not anticipated at the Site during planned construction activities. If confined spaces are identified, the contractor must implement their own confined space program that all applicable federal, state and local regulations. Confined spaces **will not** be entered by Langan personnel.

19.0 HASP ACKNOWLEDGEMENT FORM

All Langan personnel and contractors will sign this HASP Compliance Agreement indicating that they have become familiar with this HASP and that they understand it and agree to abide by it.

Printed Name	Signature	Company	Date

TABLES

TABLE 1
TASK HAZARD ANALYSES

Task	Hazard	Description	Control Measures	First Aid
1.3.1 – 1.3.6	Contaminated Soil or Groundwater-Dermal Contact	Contaminated water spills on skin, splashes in eyes; contact with contaminated soil/fill during construction activities or sampling.	Wear proper PPE; follow safe practices, maintain safe distance from construction activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.6	Lacerations, abrasions, punctures	Cutting bailer twine, pump tubing, acetate liners, etc. with knife; cuts from sharp site objects or previously cut piles, tanks, etc.; Using tools in tight spaces	Wear proper PPE; follow safe practices	Clean wound, apply pressure and/or bandages; seek medical attention as required.
1.3.1 – 1.3.6	Contaminated Media Inhalation	Opening drums, tanks, wells; vapors for non-aqueous phase liquids or other contaminated site media; dust inhalation during excavation; vapor accumulation in excavation	Follow air monitoring plan; have quick access to respirator, do not move or open unlabeled drums found at the site, maintain safe distance from construction activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.6	Lifting	Improper lifting/carrying of equipment and materials causing strains	Follow safe lifting techniques; Langan employees are not to carry contractor equipment or materials	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.6	Slips, trips, and falls	Slips, trips and falls due to uneven surfaces, cords, steep slopes, debris and equipment in work areas	Good housekeeping at site; constant awareness and focus on the task; avoid climbing on stockpiles; maintain safe distance from construction activities and excavations; avoid elevated areas over six feet unless fully accredited in fall protection and wearing an approved fall protection safety apparatus	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.6	Noise	Excavation equipment, hand tools, drilling equipment.	Wear hearing protection; maintain safe distance from construction activities	Seek medical attention as required
1.3.1 – 1.3.6	Falling objects	Soil material, tools, etc. dropping from drill rigs, front-end loaders, etc.	Hard hats to be worn at all times while in work zones; maintain safe distance from construction activities and excavations	Seek medical attention as required
1.3.1 – 1.3.6	Underground/ overhead utilities	Excavation equipment, drill rig auger makes contact with underground object; boom touches overhead utility	"One Call" before dig; follow safe practices; confirm utility locations with contractor; wear proper PPE; maintain safe distance from construction activities and excavations	Seek medical attention as required
1.3.1 – 1.3.6	Insects (bees, wasps, hornet, mosquitoes, and spider)	Sings, bites	Insect Repellent; wear proper protective clothing (work boots, socks and light colored pants);field personnel who may have insect allergies (e.g., bee sting) should provide this information to the HSO or FSO prior to commencing work, and will have allergy medication on Site.	Seek medical attention as required
1.3.1 – 1.3.6	Vehicle traffic / Heavy Equipment Operation	Vehicles unable to see workers on site, operation of heavy equipment in tight spaces, equipment failure, malfunctioning alarms	Wear proper PPE, especially visibility vest; use a buddy system to look for traffic; rope off area of work with cones and caution tape or devices at points of hazard, maintain safe distance from construction activities and equipment	Seek medical attention as required

TABLE 2
CONTAMINANT HAZARDS OF CONCERN

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	1,1′-Biphenyl Biphenyl Phenyl benzene Diphenyl	92-52-4	None	1 mg/m^3 100 mg/m^3	Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, throat; headache, nausea, lassitude (weakness, exhaustion), numb limbs; liver damage	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	1,2,4-Trimethylbenzene	95-63-6	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	1,2-Dichloroethylene 1,2-DCE cis-1,2-Dichloroethylene mixture of cis and trans Acetylene dichloride cis-Acetylene dichloride trans-Acetylene dichloride sym-Dichloroethylene cis- 1,2-Dichloroethene Trans-1,2-Dichloroethylene, tDCE cDCE cis-1,2-Dichloroethene Trans-1,2-Dichloroethene	540-59-0	PID	200 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, respiratory system; central nervous system depression	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	1,3,5-Trimethylbenzene Mesitylene sym-Trimethylbenzene	108-67-8	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	1,3-Butadiene Biethylene Bivinyl Butadiene Divinyl Erythrene Vinylethylene	106-99-0	PID	1 ppm 2000 ppm	Vapor	inhalation, skin and/or eye contact (liquid)	irritation to the eyes, nose, throat; drowsiness, dizziness; liquid: frostbite; teratogenic, reproductive effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.6	2-Butanone Ethyl methyl ketone MEK Methyl acetone Methyl ethyl ketone	78-93-3	PID	200 ppm 3000 ppm	Soil Groundwater Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eye: Irrigate immediately Skin: Water wash immediately Breathing: Fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	2-Hexanone Butyl methyl ketone MBK Methyl butyl ketone Methyl n-butyl ketone	591-78-6	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose; peripheral neuropathy: lassitude (weakness, exhaustion), paresthesia; dermatitis; headache, drowsiness	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	2-Methylnaphthalene β-methylnaphthalene	91-57-6	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion or skin absorption, eye contact	irritation to the skin, eyes, mucous membranes and upper respiratory tract. It may also cause headaches, nausea, vomiting, diarrhea, anemia, jaundice, euphoria, dermatitis, visual disturbances, convulsions and comatose	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	4-Methyl-2-pentanone Hexone Isobutyl methyl ketone Methyl isobutyl ketone MIBK	108-10-1	PID	100 ppm 500 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; headache, narcosis, coma; dermatitis; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Acenaphthene 1,2-Dihydroacenaphthylene 1,8-Ethylenenaphthalene peri-Ethylenenaphthalene Naphthyleneethylene Tricyclododecapentaene	83-32-9	PID	NA NA	Soil	inhalation, ingestion, skin and/or eye contact,	irritation to the skin, eyes, mucous membranes and upper respiratory tract; If ingested, it can cause vomiting	Eye: Irrigate immediately Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Acenaphthylene Cycopental(de)naphthalene, Acenaphthalene	208-96-8	PID	NA NA	Soil	inhalation, ingestion, skin and/or eye contact	irritation to the skin, eyes, mucous membranes and upper respiratory tract	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately
1.3.1 – 1.3.6	Acetone Dimethyl ketone Ketone propane 2-Propanone	67-64-1	PID	1000 ppm 2500 ppm	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Aluminum	7429-90-5	None	0.5 mg/m3 50 mg/m3	Soil	inhalation, skin and/or eye contact	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Anthracene	120-12-7	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to the skin, eyes, mucous membranes and upper respiratory tract, abdominal pain if ingested.	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, Breathing: Move to fresh air, refer to medical attention; Swallow: refer to medical attention
1.3.1 – 1.3.6	Antimony	7440-36-0	None	0.5 mg/m^3 50 mg/m^3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation skin, possible dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Arsenic	NA	None	0.5 mg/m^3 NA	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation skin, possible dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Barium	10022-31-8	None	0.5 mg/m^3 50 mg/m^3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Benzene Benzol Phenyl hydride	71-43-2	PID	3.19 mg/m^3 1,595 mg/mg^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; lassitude (weakness, exhaustion) [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Benzo(a)anthracene Benzanthracene Benzanthrene 1,2-Benzanthracene Benzo[b]phenanthrene Tetraphene	56-55-3	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Benzo(a)pyrene	50-32-8	PID	0.2 mg/m³ 80 mg/m³ (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately, seek medical attention Skin: Soap wash immediately; Breathing: move to fresh air; Swallow: Induce vomiting if conscious, seek medical attention immediately
1.3.1 – 1.3.6	Benzo(b)fluoranthene	205-99-2	PID	0.2 mg/m³ 80 mg/m³ (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Benzo(g,h,i)perylene Benzo(ghi)perylene	191-24-2	PID	0.2 mg/m³ 80 mg/m³ (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	NA	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Benzo(k)fluoranthene	207-08-9	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Benzyl butyl phthalate Butyl benzyl phthalate	86-66-7	None	NA NA	Groundwater Soil Vapor	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Beryllium	7440-41-7	None	0.002 mg/m^3 4 mg/m^3	Soil	inhalation, skin and/or eye contact	berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation to the eyes; dermatitis; [potential occupational carcinogen]	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Bis(2-ethylhexyl)phthalate Di-sec octyl phthalate DEHP Di(2-ethylhexyl)phthalate Octyl phthalate	117-81-7	None	5 mg/m^3 5000 mg/m^3	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, mucous membrane; in animals: liver damage; teratogenic effects; [potential occupational carcinogen	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Cadmium	7440-43-9	None	0.005 mg/m^3 9 mg/m^3	Soil	inhalation, ingestion	pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Calcium	7440-70-2	None	NA	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, upper resp tract; ulcer, perforation nasal septum; pneumonitis; dermatitis	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Carbazole 9-azafluorene Dibenzopyrrole Diphenylenimine diphenyleneimide	86-74-8	None	NA NA	Soil	inhalation, skin absorption (liquid), skin and/or eye contact	irritation to eyes and skin, respiratory irritation	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Carbon disulfide	75-15-0	PID	20 ppm 500 ppm	Soil Groundwater Vapor	inhalation, skin or eye contact, ingestion	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately (liquid) Skin: Water flush immediately (liquid) Breathing: Respiratory support
1.3.1 – 1.3.6	Chloroform Methane trichloride Trichloromethane	67-66-3	None	50 ppm 500 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Chromium Hexavalent- Trivalent-	7440-47-3	None	1.0 mg/m^3 250 mg/m^3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Chrysene Benzo[a]phenanthrene 1,2-Benzphenanthrene	218-01-9	PID	0.2 mg/m³ 80 mg/m³ (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eye, skin, and respiratory, gastrointestinal irritation nausea, vomit, diarrhea [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Cis-Chlordane a-Chlordane alpha Chlordane cis-Chlordan CIS-CHLORDANE Chlordane cis-;Chlordane cis;ALPHA-CHLORDAN Chlordan, cis-ALPHA-CHLORDANE alpha(cis)-chlordane α-chlordane solution	5102-71-9	None	0.5 mg/m³ 100 mg/m³	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Cobalt	7440-48-4	None	0.1mg/m³ 20 mg/m³	Soil	inhalation, ingestion, skin and/or eye contact	Cough, dyspnea (breathing difficulty), wheezing, decreased pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis; resp hypersensitivity, asthma	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Copper	7440-50-8	None	1.0 mg/m³ 100 mg/m³	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose, metallic taste; dermatitis; anemia	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Cyclohexane Benzene hexahydride Hexahydrobenzene Hexamethylene Hexanaphthene	110-82-7	PID	300 ppm 1300 ppm	Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, respiratory system; drowsiness; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Dibenzo(a,h)anthracene	53-70-3	PID	0.2 mg/m³ 80 mg/m³ (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support PID Swallow: Medical attention immediately
1.3.1 – 1.3.6	Dibenzofuran	132-64-9	None	NA NA	Soil	inhalation, absorption	irritation to eyes, and skin	Eyes: Irrigate immediately Skin: Soap wash promptly.
1.3.1 – 1.3.6	Dichlorodifluoromethane Difluorodichloromethane, Fluorocarbon 12, Freon® 12, Genetron® 12, Halon® 122, Propellant 12, Refrigerant 12	75-71-8	None	1000 pp, 15,000 ppm	Groundwater Soil Vapor	inhalation, skin and/or eye contact (liquid)	dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Diesel Fuel automotive diesel fuel oil No. 2 distillate diesoline diesel oil diesel oil light diesel oil No. 1-D summer diesel	68334-30-5	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Ethanol Absolute alcohol Alcohol cologne spirit drinking alcohol ethane monoxide ethylic alcohol EtOH ethyl alcohol ethyl hydrate ethyl hydroxide ethylol grain alcohol hydroxyethane methylcarbinol	64-17-5	PID	1000 ppm 3300 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose; headache, drowsiness, lassitude (weakness, exhaustion), narcosis; cough; liver damage; anemia; reproductive, teratogenic effects	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Ethyl benzene Ethylbenzene Ethylbenzol Phenylethane	100-40-4	PID	435 mg/m^3 3,472 mg/m^3	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Ethyl chloride Chloroethane Hydrochloric ether Monochloroethane Muriatic ether	75-00-3	PID	1000 ppm 3800 ppm	Groundwater Soil Vapor	inhalation, skin absorption (liquid), ingestion (liquid), skin and/or eye contact	incoordination, inebriation; abdominal cramps; cardiac arrhythmias, cardiac arrest; liver, kidney damage	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Fluoranthene Benzo(j, k)fluorene	206-44-0	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Fluorene	86-73-7	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Fuel Oil No. 2	68476-30-2	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Gasoline	8006-61-9	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Helium	7440-59-7	Helium Detector	NA NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.6	Heptane n-Heptane	142-82-5	PID	500 ppm 750 ppm	Goundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	dizziness, stupor, incoordination; loss of appetite, nausea; dermatitis; chemical pneumonitis (aspiration liquid); unconsciousness	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Indeno(1,2,3-cd)pyrene	193-39-5	None	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately, wash mouth with water
1.3.1 – 1.3.6	Iron	7439-89-6	None	10 mg/m^3 NA	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; abdominal pain, diarrhea, vomiting	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Isopropyl alcohol Iso-Propyl Alcohol Carbinol IPA Isopropanol 2-Propanol sec-Propyl alcohol Rubbing alcohol	67-63-0	PID	400 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose, throat; drowsiness, dizziness, headache; dry cracking skin; in animals: narcosis	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Lead	7439-92-1	None	0.050 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation to the eyes; hypertension	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Magnesium	7439-95-4	None	15 mg/m^3 NA	Soil	inhalation, skin and/or eye contact	irritation to the eyes, skin, respiratory system; cough	Eye: Irrigate immediately Breathing: Fresh air
1.3.1 – 1.3.6	Manganese	7439-96-5	None	5 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation, ingestion	aerosol is irritating to the respiratory tract	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Mercury	7439-97-6	None	0.1 mg/m^3 10 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Methyl Acetate	79-20-9	PID	200 ppm 3100 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; headache, drowsiness; optic nerve atrophy; chest tightness; in animals: narcosis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Methyl Chloride Chloromethane Monochloromethane	74-87-3	NA	100 ppm 2000 ppm	Groundwater Soil	inhalation, skin and/or eye contact	dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.6	Methyl *tert*-butyl ether MTBE Methyl tertiary-butyl ether Methyl t-butyl ether tert-Butyl methyl ether tBME tert-BuOMe	1634-04-4	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	m-Xylenes 1,3-Dimethylbenzene m-Xylol Metaxylene	108-38-3	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Naphthalene Naphthalin Tar camphor White tar	91-20-3	PID	50 mg/m^3 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; hematuria (blood in the urine); dermatitis, optical neuritis	Eye: Irrigate immediately Skin: Molten flush immediately/solid-liquid soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	n-Hexane Hexane, Hexyl hydride, normal-Hexane	110-54-3	PID	500 ppm 1100 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose; nausea, headache; peripheral neuropathy: numb extremities, muscle weak; dermatitis; dizziness; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Nickel	7440-02-0	None	NA 10 mg/m^3	Groundwater Soil	ion, ingestion, skin and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Methane Hydrogen Sulfide Carbon Monoxide Nitrogen	 7782-44-7 74-82-8 7783-08-4 830-08-0 7727-37-9	Multi-Gas PID	 NA/NA NA/NA 10/100 ppm 50/1200 ppm NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.6	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Isobutylene Nitrogen	 7782-44-7 115-11-7 7727-37-9	PID	 NA/NA NA/NA NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.6	o-Xylenes 1,2-Dimethylbenzene ortho-Xylene o-Xylol	95-47-6	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	p-Ethyltoluene 4-Ethyltoluene 1-ethyl-4-methyl-benzene	622-96-8	NA	NA NA	Soil	ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Phenanthrene	85-01-8	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Potassium	7440-09-7	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin and/or eye contact inhalation, ingestion, skin and/or eye contact	eye: Causes eye burns. Skin: Causes skin burns. Reacts with moisture in the skin to form potassium hydroxide and hydrogen with much heat. ingestion: Causes gastrointestinal tract burns. inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.	Eyes: Get medical aid immediately Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. ingestion: If victim is conscious and alert, give 2-4 full cups of milk or water. Get medical aid immediately. inhalation: Get medical aid immediately.

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	p-Xylenes 1,4-Dimethylbenzene para-Xylene p-Xylol	106-42-3	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Pyrene benzo[def]phenanthrene	129-00-0	PID	0.2 mg/m³ 80 mg/m³ (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.6	Selenium	7782-49-2	None	1 mg/m³ 0.2 mg/m³	Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Sodium	7440-23-5	None	NA NA	Groundwater Soil	ion, ingestion, skin and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Styrene Ethenyl benzene Phenylethylene Styrene monomer Styrol Vinyl benzene	100-42-5	PID	100 ppm 700 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; possible liver injury; reproductive effects	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Tert-Butyl Alcohol Tertiary Butyl Alcohol 2-Methyl-2-propanol Trimethyl carbinol TBA	75-65-0	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; drowsiness, narcosis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Tetrachloroethylene Perchlorethylene Perchloroethylene PCE Perk Tetrachlorethylene Tetrachloroethene	127-18-4	PID	100 ppm 150 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Tetrahydrofuran Diethylene oxide 1,4-Epoxybutane Tetramethylene oxide THF	109-99-9	PID	200 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, skin and/or eye contact, ingestion	irritation to the eyes, upper respiratory system; nausea, dizziness, headache, central nervous system depression	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immedi
1.3.1 – 1.3.6	Thallium	7440-28-0	None	0.1 mg/m^3 15 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Toluene Methyl benzene Methyl benzol Phenyl methane Toluol	108-88-3	PID	200 ppm 500 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, paresthesia; dermatitis	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Total Xylenes Dimethylbenzene Xylol	1330-20-7	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Trans-Chlordane gamma-Chlordane	5103-74-2	None	0.5 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Trichlorofluoromethane Fluorotrichloromethane Freon® 11 Monofluorotrichloromethane Refrigerant 11 Trichloromonofluoromethane	75-69-4	PID	1000 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.6	Vanadium	7440-62-2	None	0.1 mg/m3 15 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.6	Zinc	7440-62-2	None	15 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation	chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Breathing: Respiratory support

EXPLANATION OF ABBREVIATIONS

PID = Photoionization Detector
PEL = Permissible Exposure Limit (8-hour Time Weighted Average
IDLH = Immediately Dangerous to Life and Health
ppm = part per million
mg/m^3 = milligrams per cubic meter
500 mg/m3

TABLE 3
Summary of Monitoring Equipment

Instrument	Operation Parameters
Photoionization Detector (PID)	**Hazard Monitored:** Many organic and some inorganic gases and vapors. **Application:** Detects total concentration of many organic and some inorganic gases and vapors. Some identification of compounds is possible if more than one probe is measured. **Detection Method:** Ionizes molecules using UV radiation; produces a current that is proportional to the number of ions. **General Care/Maintenance:** Recharge or replace battery. Regularly clean lamp window. Regularly clean and maintain the instrument and accessories. **Typical Operating Time:** 10 hours. 5 hours with strip chart recorder.
Oxygen Meter	**Hazard Monitored:** Oxygen (O_2). **Application:** Measures the percentage of O_2 in the air. **Detection Method:** Uses an electrochemical sensor to measure the partial pressure of O_2 in the air, and converts the reading to O_2 concentration. **General Care/Maintenance:** Replace detector cell according to manufacturer's recommendations. Recharge or replace batteries prior to explanation of the specified interval. If the ambient air is less than 0.5% C O_2, replace the detector cell frequently. **Typical Operating Time:** 8 – 12 hours.
Additional equipment (if needed, based on site conditions)	
Combustible Gas Indicator (CGI)	**Hazard Monitored:** Combustible gases and vapors. **Application:** Measures the concentration of combustible gas or vapor. **Detection Method:** A filament, usually made of platinum, is heated by burning the combustible gas or vapor. The increase in heat is measured. Gases and vapors are ionized in a flame. A current is produced in proportion to the number of carbon atoms present. **General Care/Maintenance:** Recharge or replace battery. Calibrate immediately before use. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.
Flame Ionization Detector (FID) with Gas Chromatography Option *(i.e., Foxboro Organic Vapor Analyzer (OVA))*	**Hazard Monitored:** Many organic gases and vapors (approved areas only). **Application:** In survey mode, detects the concentration of many organic gases and vapors. In gas chromatography (GC) mode, identifies and measures specific compounds. In survey mode, all the organic compounds are ionized and detected at the same time. In GC mode, volatile species are separated. **General Care/Maintenance:** Recharge or replace battery. Monitor fuel and/or combustion air supply gauges. Perform routine maintenance as described in the manual. Check for leaks. **Typical Operating Time:** 8 hours; 3 hours with strip chart recorder.
Potable Infrared (IR) Spectrophotometer	**Hazard Monitored:** Many gases and vapors. **Application:** Measures concentration of many gases and vapors in air. Designed to quantify one or two component mixtures. **Detection Method:** Passes different frequencies of IR through the sample. The frequencies absorbed are specific for each compound. **General Care/Maintenance:** As specified by the manufacturer.

Instrument	Operation Parameters
Direct Reading Colorimetric Indicator Tube	**Hazard Monitored:** Specific gas and vapors. **Application:** Measures concentration of specific gases and vapors. **Detection Method:** The compound reacts with the indicator chemical in the tube, producing a stain whose length or color change is proportional to the compound's concentration. **General Care/Maintenance:** Do not use a previously opened tube even if the indicator chemical is not stained. Check pump for leaks before and after use. Refrigerate before use to maintain a shelf life of about 2 years. Check expiration dates of tubes. Calibrate pump volume at least quarterly. Avoid rough handling which may cause channeling.
Aerosol Monitor	**Hazard Monitored:** Airborne particulate (dust, mist, fume) concentrations **Application:** Measures total concentration of semi-volatile organic compounds, PCBs, and metals. **Detection Method:** Based on light-scattering properties of particulate matter. Using an internal pump, air sample is drawn into the sensing volume where near infrared light scattering is used to detect particles. **General Care/Maintenance:** As specified by the mfr. Also, the instrument must be calibrated with particulates of a size and refractive index similar to those to be measured in the ambient air.
Monitox	**Hazard Monitored:** Gases and vapors. **Application:** Measures specific gases and vapors. **Detection Method:** Electrochemical sensor relatively specific for the chemical species in question. **General Care/Maintenance:** Moisten sponge before use; check the function switch; change the battery when needed.
Gamma Radiation Survey Instrument	**Hazard Monitored:** Gamma Radiation. **Application:** Environmental radiation monitor. **Detection Method:** Scintillation detector. **General Care/Maintenance:** Must be calibrated annually at a specialized facility. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.

TABLE 4
INSTRUMENTATION ACTION LEVELS

Photoionization Detector Action Levels	**Action Required**
Background to 5 ppm	No respirator; no further action required
> 1 ppm but < 5 ppm for > 5 minutes	1. Temporarily discontinue all activities and evaluate potential causes of the excessive readings. If these levels persist and cannot be mitigated (i.e., by slowing drilling or excavation activities), contact HSO to review conditions and determine source and appropriate response action. 2. If PID readings remain above 1 ppm, temporarily discontinue work and upgrade to Level C protection. 3. If sustained PID readings fall below 1 ppm, downgrading to Level D protection may be permitted.
> 5 ppm but < 150 ppm for > 5 minutes	1. Discontinue all work; all workers shall move to an area upwind of the jobsite. 2. Evaluate potential causes of the excessive readings and allow work area to vent until VOC concentrations fall below 5 ppm. 3. Level C protection will continue to be used until PID readings fall below 1 ppm.
> 150 ppm	Evacuate the work area

Notes:
1. 1 ppm level based on OSHA Permissible Exposure Limit (PEL) for benzene.
2. 5 ppm level based on OSHA Short Term Exposure Limit (STEL) maximum exposure for benzene for any 15 minute period.
3. 150 ppm level based on NIOSH Immediately Dangerous to Life and Health (IDLH) for tetrachloroethylene.

TABLE 5
EMERGENCY NOTIFICATION LIST

ORGANIZATION	CONTACT	TELEPHONE
Local Police Department	NYPD	911
Local Fire Department	NYFD	911
Ambulance/Rescue Squad	NYFD	911
Hospital	Lincoln Medical and Mental Health Center	911 or 718-579-5700
Langan Incident / Injury Hotline		800-952-6426 ex 4699
Langan Project Manager	Ilkay Cam-Spanos	917-892-3222 (cell)
Langan Health and Safety Manager (HSM)	Tony Moffa	215-756-2523 (cell)
Langan Health & Safety Officer (HSO)	William Bohrer	410-984-3068 (cell)
Langan Field Team Leader (FTL)	Julia Leung	212-479-5452
Client's Representative	Matthew Sprayregen	860-598-0382
National Response Center (NRC)		800-424-8802
Chemical Transportation Emergency Center (Chemtrec)		800-424-9300
Center for Disease Control (CDC)		404-639-3534
EPA (RCRA Superfund Hotline)		800-424-9346
TSCA Hotline		202-554-1404
Poison Control Center		800-222-1222

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan Incident/Injury Hotline at 1-(800)-9-LANGAN (ext. #4699).

TABLE 6
SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORING FOR FIT AND ACCLIMATED WORKERS[A]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble
90°F or above (32.2°C) or above	After each 45 min. of work	After each 15 min. of work
87.5°F (30.8°-32.2°C)	After each 60 min. of work	After each 30 min. of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 min. of work	After each 60 min. of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 min. of work	After each 90 min. of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 min. of work	After each 120 min. of work

a For work levels of 250 kilocalories/hour.

b Calculate the adjusted air temperature (ta adj) by using this equation: ta adj ^{o}F = ta ^{o}F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

TABLE 7

HEAT INDEX

	ENVIRONMENTAL TEMPERATURE (Fahrenheit)										
	70	**75**	**80**	**85**	**90**	**95**	**100**	**105**	**110**	**115**	**120**
RELATIVE HUMIDITY	**APPARENT TEMPERATURE***										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	**130**
30%	67	73	78	84	90	96	104	113	123	**135**	**148**
40%	68	74	79	86	93	101	110	123	**137**	**151**	
50%	69	75	81	88	96	107	120	**135**	**150**		
60%	70	76	82	90	100	114	**132**	**149**			
70%	70	77	85	93	106	124	**144**				
80%	71	78	86	97	113	**136**					
90%	71	79	88	102	122						
100%	72	80	91	108							

*Combined Index of Heat and Humidity...what it "feels like" to the body
Source: National Oceanic and Atmospheric Administration

How to use Heat Index:
1. Across top locate Environmental Temperature
2. Down left side locate Relative Humidity
3. Follow across and down to find Apparent Temperature
4. Determine Heat Stress Risk on chart at right

Note: Exposure to full sunshine can increase Heat Index values by up to 15 degrees F.

Apparent Temperature	**Heat Stress Risk with Physical Activity and/or Prolonged Exposure**
90-105	Heat Cramps or Heat Exhaustion Possible
105-130	Heat Cramps or Heat Exhaustion Likely, Heat Stroke Possible
>130	Heatstroke Highly Likely

FIGURES

FIGURE 1

Site Location Map



NOTES:
1. BASE MAP REFERENCED FROM THE UNITED STATE GEOLOGICAL SURVEY 7.5 MINUTE SERIES CENTRAL PARK QUADRANGLE
2. ALL LOCATIONS APPROXIMATE

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

LANGAN Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. 21 Penn Plaza, 360 West 31st Street, 8th Floor New York, NY 10001 T: 212.479.5400 F: 212.479.5444 www.langan.com	Project **261 WALTON AVENUE** BLOCK No. 2344, LOT No. 60 BRONX NEW YORK	Figure Title **SITE LOCATION MAP**	Project No. 170601701 Date 10/29/2019 Drawn By KW Checked By JL	Figure No. **1** Sheet 1 of 4

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FIGURE 2

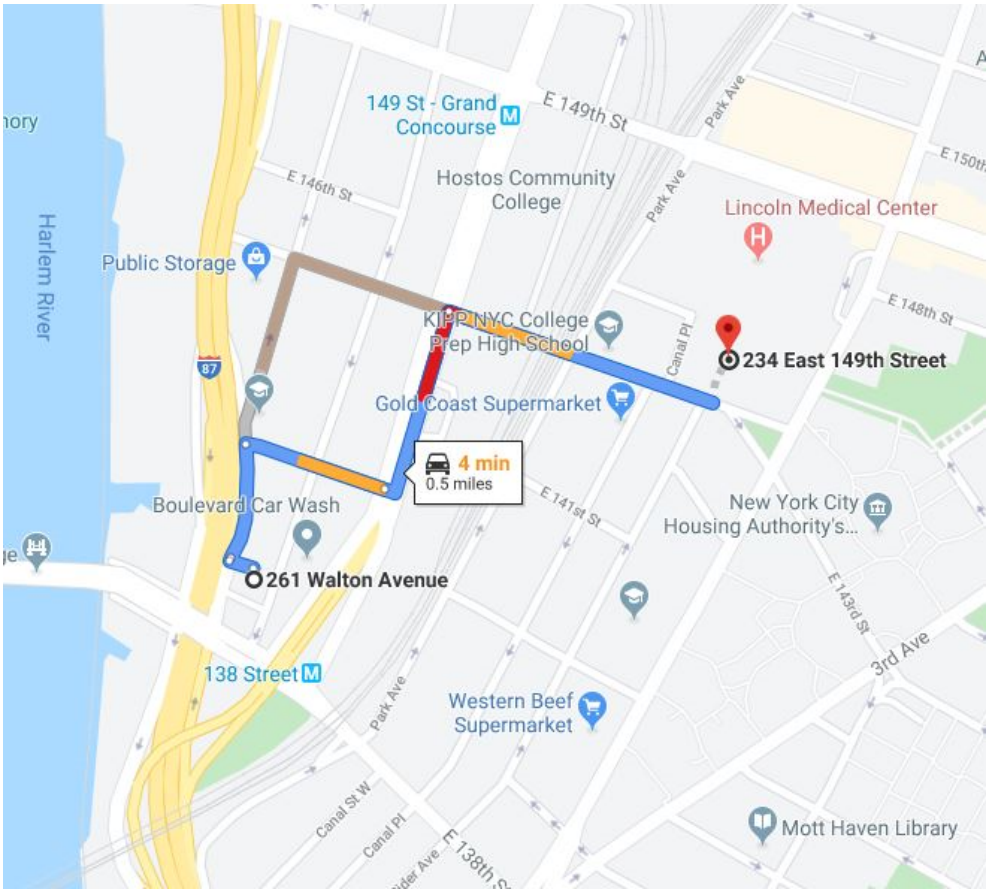
HOSPITAL ROUTE PLAN

Hospital Location: **Lincoln Medical and Mental Health Center**
234 East 149th Street
Bronx, New York
718-579-5700

START: 2671 Walton Avenue, Bronx, NY

1. Head west towards Gerard Avenue
2. Turn right onto Gerard Avenue
3. Keep right to stay on Gerard Avenue
4. Turn right onto East 140th Street
5. Turn left onto Grand Concourse
6. Turn right onto East 144th street, destination will be on the left.

END: Lincoln Medical and Mental Health Center, 234 East 149th Street, Bronx, New York



ATTACHMENT A

STANDING ORDERS

STANDING ORDERS

GENERAL

- No smoking, eating, or drinking in this work zone.
- Upon leaving the work zone, personnel will thoroughly wash their hands and face.
- Minimize contact with contaminated materials through proper planning of work areas and decontamination areas, and by following proper procedures. Do not place equipment on the ground. Do not sit on contaminated materials.
- No open flames in the work zone.
- Only properly trained and equipped personnel are permitted to work in potentially contaminated areas.
- Always use the appropriate level of personal protective equipment (PPE).
- Maintain close contact with your buddy in the work zone
- Contaminated material will be contained in the Exclusion Zone (EZ).
- Report any unusual conditions.
- Work areas will be kept clear and uncluttered. Debris and other slip, trip, and fall hazards will be removed as frequently as possible.
- The number of personnel and equipment in the work zone will be kept to an essential minimum.
- Be alert to the symptoms of fatigue and heat/cold stress, and their effects on the normal caution and judgment of personnel.
- Conflicting situations which may arise concerning safety requirements and working conditions must be addressed and resolved quickly by the site HSO.

TOOLS AND HEAVY EQUIPMENT

- Do not, under any circumstances, enter or ride in or on any backhoe bucket, materials hoist, or any other device not specifically designed to carrying passengers.
- Loose-fitting clothing or loose long hair is prohibited around moving machinery.
- Ensure that heavy equipment operators and all other personnel in the work zone are using the same hand signals to communicate.
- Drilling/excavating within 10 feet in any direction of overhead power lines is prohibited.
- The locations of all underground utilities must be identified and marked out prior to initiating any subsurface activities.
- Check to insure that the equipment operator has lowered all blades and buckets to the ground before shutting off the vehicle.
- If the equipment has an emergency stop device, have the operator show all personnel its location and how to activate it.
- Help the operator ensure adequate clearances when the equipment must negotiate in tight quarters; serve as a signalman to direct backing as necessary.
- Ensure that all heavy equipment that is used in the Exclusion Zone is kept in that zone until the job is done, and that such equipment is completely decontaminated before moving it into the clean area of the work zone.
- Samplers must not reach into or get near rotating equipment such as the drill rig. If personnel must work near any tools that could rotate, the equipment operator must completely shut down the rig prior to initiating such work. It may be necessary to use a remote sampling device.

ATTACHMENT B

DECONTAMINATION PROCEDURES

PERSONNEL DECONTAMINATION

LEVEL C DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Canister or Mask Change	4. If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
Station 5:	Boot, Gloves and Outer Garment Removal	5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 6:	Face piece Removal	6. Face piece is removed (avoid touching face with fingers). Face piece deposited on plastic sheets.
Station 7:	Field Wash	7. Hands and face are thoroughly washed. Shower as soon as possible.

LEVEL D DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Boot, Gloves and Outer Garment Removal	4. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 5:	Field Wash	5. Hands and face are thoroughly washed. Shower as soon as possible.

EQUIPMENT DECONTAMINATION

GENERAL:

Equipment to be decontaminated during the project may include tools, monitoring equipment, respirators, sampling containers, laboratory equipment and drilling equipment.

All decontamination will be done by personnel in protective gear, appropriate for the level of decontamination, as determined by the site HSO. The decontamination work tasks will be split or rotated among support and work crews.

Depending on site conditions, backhoe and pumps may be decontaminated over a portable decontamination pad to contain wash water; or, wash water may be allowed to run off into a storm sewer system. Equipment needed may include a steam generator with high-pressure water, empty drums, screens, screen support structures, and shovels. Drums will be used to hold contaminated wash water pumped from the lined pit. These drums will be labeled as such.

Miscellaneous tools and equipment will be dropped into a plastic pail, tub, or other container. They will be brushed off and rinsed with a detergent solution, and finally rinsed with clean water.

MONITORING EQUIPMENT:

Monitoring equipment will be protected as much as possible from contamination by draping, masking, or otherwise covering as much of the instruments as possible with plastic without hindering the operation of the unit. The PID, HNu or OVA meter, for example, can be placed in a clear plastic bag, which allows reading of the scale and operation of knobs. The probes can be partially wrapped keeping the sensor tip and discharge port clear.

The contaminated equipment will be taken from the drop area and the protective coverings removed and disposed in the appropriate containers. Any dirt or obvious contamination will be brushed or wiped with a disposable paper wipe.

RESPIRATORS:

Respirators will be cleaned and disinfected after every use. Taken from the drop area, the masks (with the cartridges removed and disposed of with other used disposable gear) will be immersed in a cleaning solution and scrubbed gently with a soft brush, followed by a rinse in plain warm water, and then allowed to air dry. In the morning, new cartridges will be installed. Personnel will inspect their own masks for serviceability prior to donning them. And, once the mask is on, the wearer will check the respirator for leakage using the negative and positive pressure fit check techniques.

ATTACHMENT C

EMPLOYEE EXPOSURE/ INJURY INCIDENT REPORT

EMPLOYEE INCIDENT/INJURY REPORT
LANGAN ENGINEERING & ENVIRONMENTAL SERVICES

(Complete and return to Tony Moffa in the Doylestown Office)

Affected Employee Name: _____ Date: _____

Incident type: ☐ Injury ☐ Report Only/No Injury
☐ Near Miss ☐ Other: _____

EMPLOYEE INFORMATION (Person completing Form)

Employee Name: _____ Employee No: _____

Title: _____ Office Location: _____

Length of time employed or date of hire: _____

Mailing address: _____

_____

Sex: M ☐ F ☐ Birth date: _____

Business phone & extension: _____ Residence/cell phone: _____

ACCIDENT INFORMATION

Project: _____ Project #: _____

Date & time of incident: _____ Time work started & ended: _____

Site location: _____

Incident Type: Possible Exposure ☐ Exposure ☐ Physical Injury ☐

Names of person(s) who witnessed the incident: _____

_____

Exact location incident occurred: _____

_____

Describe work being done: _____

Describe what affected employee was doing prior to the incident occurring: _____

Describe in detail how the incident occurred: _____

Nature of the incident (List the parts of the body affected): _____

Person(s) to whom incident was reported (Time and Date): _____

List the names of other persons affected during this incident: _____

Possible causes of the incident (equipment, unsafe work practices, lack of PPE, etc.): _____

Weather conditions during incident: _____

MEDICAL CARE INFORMATION

Did affected employee receive medical care? Yes ☐ No ☐

If Yes, when and where was medical care received: _____

Provide name of facility (hospital, clinic, etc.): _____

Length of stay at the facility? _____

Did the employee miss any work time? Yes ☐ No ☐ Undetermined ☐

Date employee last worked: _____ Date employee returned to work: _____

Has the employee returned to work? Yes ☐ No ☐

Does the employee have any work limitations or restrictions from the injury? : Yes ☐ No ☐

If Yes, please describe: _____

_____

Did the exposure/injury result in permanent disability? Yes ☐ No ☐ Unknown ☐

If Yes, please describe: _____

HEALTH & SAFETY INFORMATION

Was the operation being conducted under an established site specific CONSTRUCTION HEALTH AND SAFETY PLAN?
Yes ☐ No ☐ Not Applicable: ☐

Describe protective equipment and clothing used by the employee:

_____

_____

_____

Did any limitations in safety equipment or protective clothing contribute to or affect exposure / injury? If so, explain:

_____

_____

_____

_____ _____
Employee Signature Date

_____ _____
Langan Representative Date

ATTACHMENT D

CALIBRATION LOG

DATE:_____ **PROJECT:**_____

CALIBRATION LOG

Date & Time	Inst Type	Inst #	Media	Initial Reading	Span #	Calibrat. Reading	Performed By:

ATTACHMENT E

MATERIAL SAFETY DATA SHEETS

SAFETY DATA SHEETS

All Langan Field Personnel Completing This Work Plan Are To Have Real Time Accessibility To Material Safety Data Sheet (MSDs) or Safety Data Sheet (SDSs) Through Their Smart Phone.

The link is http://www.msds.com/
The login name is "drapehead"
The password is "2angan987"

If You Are Unable To Use the Smart Phone App, You Are To Bring Printed Copies of the MSDs/SDSs to The Site

ATTACHMENT F

JOBSITE SAFETY INSPECTION CHECKLIST

Jobsite Safety Inspection Checklist

Date: _____ **Inspected By:** _____

Location: _____ **Project #:** _____

Check one of the following: **A:** Acceptable **NA**: Not Applicable **D**: Deficiency

	A	NA	D	Remark
1. HASP available onsite for inspection?				
2. Health & Safety Compliance agreement (in HASP) appropriately signed by Langan employees and contractors?				
3. Hospital route map with directions posted on site?				
4. Emergency Notification List posted on site?				
5. First Aid kit available and properly stocked?				
6. Personnel trained in CPR/First Aid on site?				
7. MSDSs readily available, and all workers knowledgeable about the specific chemicals and compounds to which they may be exposed?				
8 Appropriate PPE being worn by Langan employees and contractors?				
9. Project site safe practices ("Standing Orders") posted?				
10. Project staff have 40-hr./8-hr./Supervisor HAZWOPER training?				
11. Project staff medically cleared to work in hazardous waste sites and fit-tested to wear respirators, if needed?				
12. Respiratory protection readily available?				
13. Health & Safety Incident Report forms available?				
14. Air monitoring instruments calibrated daily and results recorded on the Daily Instrument Calibration check sheet?				
15. Air monitoring readings recorded on the air monitoring data sheet/field log book?				
16. Subcontract workers have received 40-hr./8-hr./Spvsr. HAZWOPER training, as appropriate?				
17. Subcontract workers medically cleared to work on site, and fit-tested for respirator wear?				
18. Subcontract workers have respirators readily available?				
19. Mark outs of underground utilities done prior to initiating any subsurface activities?				
20. Decontamination procedures being followed as outlined in HASP?				
21. Are tools in good condition and properly used?				
22. Drilling performed in areas free from underground objects including utilities?				

23. Adequate size/type fire extinguisher supplied?				
24. Equipment at least 20 feet from overhead powerlines?				
25. Evidence that drilling operator is responsible for the safety of his rig.				
26. Trench sides shored, layer back, or boxed?				
27. Underground utilities located and authorities contacted before digging?				
28. Ladders in trench (25-foot spacing)?				
29. Excavated material placed more than 2 feet away from excavation edge?				
30. Public protected from exposure to open excavation?				
31. People entering the excavation regarding it as a permit-required confined space and following appropriate procedures?				
32. Confined space entry permit is completed and posted?				
33. All persons knowledgeable about the conditions and characteristics of the confined space?				
34. All persons engaged in confined space operations have been trained in safe entry and rescue (non-entry)?				
35. Full body harnesses, lifelines, and hoisting apparatus available for rescue needs?				
36. Attendant and/or supervisor certified in basic first aid and CPR?				
37. Confined space atmosphere checked before entry and continuously while the work is going on?				
38. Results of confined space atmosphere testing recorded?				
39. Evidence of coordination with off-site rescue services to perform entry rescue, if needed?				
40. Are extension cords rated for this work being used and are they properly maintained?				
41. Are GFCIs provided and being used?				

Unsafe Acts: _____

_____

_____

_____

Notes: _____

_____

_____

_____

ATTACHMENT G

JOB SAFETY ANALYSIS FORM

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA TITLE: **JSA NUMBER:**	**DATE CREATED:** **CREATED BY**: **REVISION DATE:** **REVISED BY:**

Langan employees must review and revise the Job Safety Analysis (JSA) as needed to address the any site specific hazards not identified. Employees must provide their signatures on the last page of the JSA indicating they have review the JSA and are aware the potential hazards associated with this work and will follow the provided preventive or corrective measures.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED: (PPE): ■ Required ☒ As Needed		
☐ Steel-toed boots	☐ Nitrile gloves	☐ Dermal Protection (Specify)
☐ Long-sleeved shirt	☐ Leather/ Cut-resistant gloves	☐ High visibility vest/clothing
☐ Safety glasses	☐Face Shield	☐ Hard hat
ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT NEEDED (Provide specific type(s) or descriptions)		
☐ Air Monitoring:	☐ Respirators:	☐ Other:

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE OR CORRECTIVE ACTION
1.	1. 2.	1a. 1b. 2a. 2b.
2.	1.	1
Additional items identified in the field.		
Additional Items.		

If additional items are identified during daily work activities, please notify all relevant personnel about the change and document on this JSA.

LANGAN	Job Safety Analysis (JSA) Health and Safety

JSA Title: Subsurface Investigation

JSA Number: JSA030-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):

☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Dielectric Overshoes, Sun Block				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. Transport equipment to work area	1. Back/strain 2. Slip/Trip/Falls 3. Traffic 4. Cuts/abrasions/contusions from equipment 5. Accidents due to vehicle operations	1. Use proper lifting techniques/Use wheeled transport 2. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes) 5. Observe posted speed limits/ Wear seat belts at all times
2. Traffic	1. Hit by moving vehicle	1. Use traffic cones and signage/ Use High visibility traffic vests and clothing/ Caution tape when working near active roadways.
3. Field Work (drilling, resistivity testing, and inspection)	1. Biological Hazards: insects, rats, snakes, poisonous plants, and other animals 2. Heat stress/injuries 3. Cold Stress/injuries 4. High Energy Transmission Lines 5. Underground Utilities 6. Electrical (soil resistivity testing)	1. Inspect work area to identify biological hazards. Wear light colored long sleeve shirt and long pants/ Use insect repellant as necessary/ Beware of tall grass, bushes, woods and other areas where ticks may live/ Avoid leaving garbage on site to prevent attracting animals/ Identify and avoid contact with poisonous plants/Beware of rats, snakes, or stray animals. 2. Wear proper clothing (light colored)/ drink plenty of water/ take regular breaks/use sun block 3. Wear proper clothing/ dress in layers/ take regular breaks. 4. Avoid direct contact with high energy transmission lines/ position equipment at least 15 feet or as required by PSE&G from the transmission lines/ wear proper PPE (dielectric overshoes 15 kV minimum rating). 5. Call one-call service before performing intrusive field work/ Review utility mark-outs and available utility drawings (with respect to proposed work locations)/ Follow Underground Utility Guidelines 6. See AGI Sting R1 operating manual for specific concerns during operating instrument
4. All activities	1. Slips/ Trips/ Falls	7. Be aware of potential trip hazards / Follow good housekeeping

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	procedures/ Mark significant hazards 8. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 9. Wear Langan approved safety shoes 10. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 11. Wear high visibility clothing & vest / Use cones or signs to designate work area 12. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 13. Wear proper hearing protection 14. Wear hard hat / Avoid areas were overhead hazards exist. 15. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 16. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety

JSA Title: Sub-slab soil gas temporary point installation and sampling

JSA Number: JSA037-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):

☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☒ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Transport equipment to work site	6. Back injuries 7. Slips/Trips/Falls 8. Traffic 9. Hand injuries	6. Use proper lifting techniques/ Use wheeled transport/ Get assistance when need with moving equipment/ Minimize distance from vehicle 7. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures. 8. Wear proper PPE (High Visibility vest and clothing)/ Exercise caution (stay alert-stay alive) 9. Wear proper PPE (leather gloves)/ Keep finger and hands clear of pinch points.
6. Mark area for drilling	1. Slips/Trips/Falls	1. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
7. Drill sampling points with hammer drill	1. Eye injuries 2. Dust exposure 3. Hand injuries 4. Catch items (clothing) 5. Electric shock 6. Chemical atmosphere hazard (vapor) 7. Slips/Trips/Falls	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (dust mask) 3. Wear proper PPE (leather gloves)/ Keep hands and fingers out of pinch points/ Avoid drill catching on ground and twisting wrist or hand/ Release drill grip if drill becomes caught/ Ensure drill is unplugged prior to inserting bit. 4. Tie up or tuck-in all loose clothing/ Maintain distance from drill 5. Inspect power cable for cuts or nicks before use/ Use GFCI outlet on power cord/ Do not use in wet conditions 6. Monitor air, vapors with Photo-ionization detector (PID) 7. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
8. Measure vapor content and depth to bottom of hole	1. Chemical atmosphere hazard (vapors)	1. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from opening of hole while collecting measurements

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
9. Set-up of shroud and sampling canister system	1. Hand injuries 2. Chemical atmosphere hazard (vapors) 3. Slips/Trips/Falls	1. Wear proper PPE (leather gloves, nitrile gloves)/ Keep fingers away from pinch points when installing pump/ Do not use open blades, use tubing cutter 2. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from opening of hole while collecting measurements 3. Minimize distance from vehicle/ Have unobstructed pathway to vehicle and collection points/ Mark tripping hazards with spray paint, cones, or caution tape/ Observe good housekeeping procedures
10.Purge soil gas	1. Chemical atmosphere hazard (vapors)	1. Monitor air, vapors with Photo-ionization detector (PID)/ Keep face away from exhaust port of pump
11.Sample collection (opening and closing valves)	1. Hand injuries	1. Wear proper PPE (leather gloves)/ Keep fingers away from pinch points
12.Sealing sampling holes	1. Back injuries 2. Concrete dust 3. Eye injuries	1. Use proper lifting techniques for lifting of cement bags 2. Wear proper PPE (dust mask) 3. Wear proper PPE (safety glasses)
13. All activities	11. Slips/ Trips/ Falls 12. Hand injuries, cuts or lacerations during manual handling of materials 13. Foot injuries 14. Back injuries 15. Traffic 16. Wildlife: Stray animals, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat or cold injuries 20. Eye Injuries	17. Be aware of potential trip hazards/ Follow good housekeeping procedures/ Mark significant hazards 18. Inspect for jagged/sharp edges, and rough or slippery surfaces/ Keep fingers away from pinch points/ Wipe off greasy, wet, slippery or dirty objects before handling/ Wear leather/ cut-resistant gloves 19. Wear proper PPE (Langan approved safety shoes) 20. Use proper lifting techniques/ Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift/ Obtain assistance when possible 21. Wear high visibility clothing & vest/ Use cones or signs to designate work area 22. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray animals/ Carry and use animal repellant when needed/ Use bug spray when needed 23. Wear hearing protection 24. Wear hard hat/ Avoid areas were overhead hazards exist. 25. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather)/ Drink plenty of fluids to avoid dehydration/ Takes breaks as necessary to avoid heat/cold stress 26. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date

Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety

JSA Title: Monitoring Well Development

JSA Number: JSA026-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):

☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
14. Transport equipment to work area	10. Back Strains 11. Slips/Trips/Falls 12. Traffic 13. Cuts/Abrasions/Contusions from equipment	10. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 11. Minimize distance from work area/ unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 12. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 13. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
15. Measure depth of water	2. Exposure to hazardous substances 3. Pinched fingers	2. Wear proper PPE (Nitrile gloves, Safety glasses/Face shield). 3. Wear proper PPE (cut-resistant gloves).
16. Install Tremie pipe in the monitoring well and connect to water source.	8. Hand injuries during installation (pinched fingers/hands). 9. Back strain from holding Tremie pipe. 10. High pressure water spray.	8. Wear proper PPE (Nitrile gloves/cut-resistant gloves). 9. Use proper lifting techniques/ Use two personnel when lowering pump greater than 80 feet. 10. Ensure all hose connections are tight and secure/ Use proper PPE (face shield and safety glasses).
17. Install pump in to well a. Connect pump to sample tubing. b. Lower pump to desired depth in well. c. Connect sample tubing to flow cell d. Connect pump to power source (generator) e. Turn on power source (generator)	1. Hand injuries during pump installation and sample tubing cutting. 2. Back strain 3. Electric shock 4. Exhaust gases from generator 5. Burns from hot equipment	1. Wear proper PPE when installing pump and cutting sample tubing (Nitrile and cut-resistant gloves)/ Use tubing cutter. 2. Proper lifting techniques/ Two personnel when installing pump at depths greater than 80 feet/ Use buddy when lifting heavy loads (pump, generator)/Use wheeled transport. 3. Ensure equipment is (LO/TO: locked out/tagged out) prior to preforming any electrical connections/ Inspect wires for frays or cuts/Ensure generator is properly grounded prior to starting. 4. Position generator so that exhaust is flowing away from work area. 5. Do not touch exhaust or any hot part of generator/ Allow equipment time to cool down prior to carrying/ Use proper PPE (long sleeves, leather gloves)
18. Develop monitoring well	21. Hand injuries	27. Wear proper PPE (cut-resistant gloves and nitrile gloves).

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
a. Jet water into well using Tremie pipe b. Turn pump on and adjust to desired flow rate. c. Surge pump up and down well to remove sediment from screen d. Containerize all purge water from well.	22. Face injuries 23. Contaminated spray from water	28. Wear proper PPE (face shield and safety glasses)/do not stand over well opening. 29. Wear proper PPE (Face shield and safety goggles)/Tyvek over garments/ Ensure all connections are secure and tight/ Tubing outlet is contained in an overflow container.
19. Drum staging area.	1. Back, Arm, and shoulder strain. 2. Pinch points 3. Cross contamination 4. Slip/Trips/Falls	1. Use proper lifting techniques/ Use drum carts when moving drums/ use buddy system for moving of drums if needed/Move drums shortest distance needed. 2. Keep fingers and feet away from pinch points/ Use proper PPE (cut-resistant gloves, Langan approved safety shoes) 3. Use proper PPE (Nitrile gloves, Tyvek sleeves) 4. Ensure pathway is clear prior to moving equipment/ Mark all hazards/ Use additional person as a spotter if needed.
20. Equipment pack-up	1. Back Strains 2. Slips/Trips/Falls 3. Traffic 4. Cuts/Abrasions/Contusions from equipment.	1. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 2. Minimize distance from work area/ Unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 3. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 30. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
21. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 24. Back injuries 25. Traffic 26. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 27. High Noise levels 28. Overhead hazards 29. Heat Stress/ Cold Stress 30. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas were overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses.
Additional items.		

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Direct-Push Soil Borings
JSA Number: JSA004-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Half-face respirator, dust cartridges, PID (if applicable)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
22. Move equipment to work site	14. Back strain when lifting equipment 15. Slips/ Trips/ Falls while moving equipment 16. Traffic (if applicable) 17. Pinched fingers or running over toes during geoprobe set-up 18. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	14. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 15. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 16. Wear high visibility safety vests or clothing / Exercise caution 17. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 18. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
23. Calibration of monitoring equipment	4. Skin or eye contact with calibration chemicals 5. Pinch fingers in monitoring equipment	4. Wear proper PPE (safety glasses/ goggles) 5. Wear proper PPE (leather gloves)
24. Set-up geoprobe rig	11. Geoprobe rig movement	11. All field personnel should stay clear of the geoprobe rig while moving / Use a spotter when backing up the geoprobe
25. Advance geoprobe rods below ground surface to desired depth	6. Underground utilities 7. High noise levels	6. Clean all subsurface soil borings to a minimum of 5 feet below grade 7. Wear proper PPE (hearing protection)
26. Remove and open acetate liner	31. Pinched fingers while removing macrocore 32. Cuts/lacerations when cutting acetate liner open 33. Exposure to hazardous vapors	1. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 2. Wear proper PPE (cut-resistant or leather gloves) 3. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Health and Safety Plan

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Remove and open acetate liner (cont'd)	34. Skin contact with contaminated soil	4. Wear proper PPE (nitrile gloves)
27. Sample Collections a) Monitor parameters b) Prepare sample containers and labels	1. Contact with potentially contaminated soil 2. Lacerations from broken sample bottles 3. Back strain while transporting full coolers 4. Internal exposure to contaminants and metals through inhalation of dust 5. Slips/ Trips/ Falls	1. Use monitoring devices / Wear proper PPE (safety glasses, nitrile gloves) 2. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage 8. Use proper lifting techniques / Do not lift heavy loads without assistance 9. Avoid creating dust / If necessary, wear a half mask respirator with applicable dust cartridge / Inspect respirator for damage and cleanliness prior to use / Clean respirator after each use and store in a clean, secure location 10. Be alert / Follow good housekeeping procedures
28. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Cuts/lacerations from acetate liner 2. Pinched fingers/hand while opening/closing drum 3. Skin contact with contaminated soil 4. Soil debris in eyes	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (nitrile gloves) 4. Wear proper PPE (safety glasses)
8. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Back, arm or shoulder strain from moving drums 2. Pinch fingers/hand in drum cart when moving drums 3. Pinch fingers/hand when operating lift-gate on vehicle 4. Contact with potentially contaminated groundwater when moving improperly sealed drums 5. Slips when moving drums 6. Drop drum on feet/toes	31. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance 32. Wear proper PPE (cut-resistant or leather gloves) 33. Wear proper PPE (cut-resistant or leather gloves) 34. Wear proper PPE (nitrile gloves underneath work gloves) 35. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions 36. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum
9. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas were overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
9. All activities (cont'd)	10. Eye Injuries	10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Groundwater Sampling

JSA Number: JSA008-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):

☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☒ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
29. Transport equipment to work area	1. Back Strain 2. Slips/ Trips/ Falls 3. Traffic 4. Cuts/abrasions from equipment 5. Contusions from dropped equipment	1. Use proper lifting techniques / Use wheeled transport 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
30. Remove well cover	6. Scrape knuckles/hand 7. Strain wrist/bruise palm 8. Pinch fingers or hand	1. Wear proper PPE (leather gloves) 2. Using a hammer, tap the end of the wrench to loosen grip of bolts 3. Wear proper PPE (leather gloves)
31. Remove well cap and lock	12. Well can pops from pressure 13. Exposure to hazardous substances through inhalation or dermal exposure 14. Scrape knuckles/hand 15. Strain write/bruise palm	1. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses) 2. Use direct air monitoring/reading instrument (i.e. PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 3. Wear proper PPE (leather gloves) 4. Using hammer, tap the end of the wrench to loosen grip
32. Measure head-space vapor levels	1. Exposure to hazardous substances through inhalation	1. Do not place face over well when collecting measurement
33. Remove dedicated tubing (if necessary)	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Tubing swings around after removal	1. Wear proper PPE (nitrile gloves, Tyvek sleeves) 2. Wear proper PPE (safety glasses)
34. Set-up plastic sheeting for work site around the well	1. Lacerations when cutting plastic sheeting	1. Use scissors to cut plastic sheeting / Cut motions should always be away from body and body parts
35. Measure depth to water	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Pinch fingers or hand in water level instrument	1. Wear proper PPE (nitrile gloves) 2. Wear proper PPE (leather gloves)
36. Calibrate monitoring	1. Skin or eye contact with calibration chemicals	1. Wear proper PPE (safety glasses, nitrile gloves)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
equipment	2. Pinch fingers or hand in monitoring equipment	2. Wear proper PPE (leather gloves) / Avoid pinch points
37. Install sampling pump in well	1. Hand injuries during installation of pump 2. Lacerations when cutting tubing 3. Back strain during installation of pump 4. Physical hazards associated with manual lifting of heavy equipment 5. Back strain from starting generator 6. Burns from hot exhaust from generator 7. Electrical shock from improper use of generator and pump 8. Contaminated water spray from loose connections	1. Wear proper PPE (leather gloves, nitrile gloves) 2. Use safety tubing cutter 3. Use proper lifting techniques 4. Use proper lifting techniques / Use wheeled transport for heavy equipment 5. Use arm when starting generator / Do not over-strain if generator does not start 6. Do not touch generator near exhaust / Use proper handle to carry / Allow generator to cool down before moving 7. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord 8. Check all tubing connections to ensure they are tight and secure
10. Purge water	1. Contact with potentially contaminated groundwater 2. Back strain from lifting buckets of water 3. Tripping potential on sample discharge lines and pump electric line	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Use proper lifting techniques / Use wheeled transport 3. Organize discharge of electric line to keep out of way as much as possible / Mark potential tripping hazards with caution tape or safety cones
11. Sample water collection	1. Contact with potentially contaminated groundwater through dermal exposure 2. Contact with and burns from acid used for sample preservation 3. Tripping potential on sample discharge lines and pump electric line 4. Lacerations from broken sample bottles 5. Back strain when transporting coolers full of collected samples 6. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (safety glasses, nitrile gloves) / Ensure sample bottle lids are secure before use and after sample collection 3. Organize line to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones 4. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 5. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle 6. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
12. Remove pump and pack up equipment	1. Back strain when removing pump or lifting heavy equipment	1. Use proper lifting technique / Use wheeled transport for heavy equipment
13. Replace well cap and lock	1. Scrape fingers/hand 2. Strain wrist/bruise palm	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the well cap to tighten grip
14. Replace well cover	1. Scrape knuckles/hand 2. Strain write/bruise palm 3. Pinch fingers or hand	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the wrench to tighten the grip of the bolts 3. Wear proper PPE (leather gloves)
15. Transport drums to disposal staging location	1. Back, arm or shoulder strain from moving drums 2. Pinch hazard 3. Contact with potentially contaminated groundwater when moving improperly sealed drums 4. Slips/ Trips/ Falls when moving drum 5. Drop drum on feet/toes	1. Use drum cart for moving drums / Use proper lifting techniques / Obtain assistance, if needed 2. Wear proper PPE (leather gloves) 3. Wear proper PPE (nitrile gloves under leather gloves) / Properly seal drum to prevent leak 4. Ensure route to move drum to storage space is dry and free from obstructions 5. Wear proper PPE (safety shoes)
16. Place used PPE in	1. Pressure build-up inside drum	1. Remove cap from bung hole in drum to relieve pressure

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
designated disposal drum	2. Pinch hazard	2. Wear proper PPE (leather gloves)
17. Decontaminate equipment	1. Splashing water/soap from decontamination 2. Contact with potentially contaminated groundwater through dermal exposure 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
18. All activities	35. Slips/ Trips/ Falls 36. Hand injuries, cuts or lacerations during manual handling of materials 37. Foot injuries 38. Back injuries 39. Traffic 40. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 41. High Noise levels 42. Overhead hazards 43. Heat Stress/ Cold Stress 44. Eye Injuries	37. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 38. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 39. Wear Langan approved safety shoes 40. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 41. Wear high visibility clothing & vest / Use cones or signs to designate work area 42. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 43. Wear hearing protection 44. Wear hard hat / Avoid areas were overhead hazards exist. 45. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 46. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date

Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Field Sampling

JSA Number: JSA022-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):

☒ Safety Shoes	☒ Long Sleeves	☐ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
38. Unpack/Transport equipment to work area.	19. Back Strains 20. Slip/Trips/Falls 21. Cuts/Abrasions from equipment 22. Contusions from dropped equipment	19. Use proper lifting techniques/Use wheeled transport 20. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 21. Wear proper PPE (leather gloves, long sleeves). 22. Wear proper PPE (Langan approved safety shoes).
39. Initial Site Arrival-Site Assessment	9. Traffic	6. Situational awareness (be alert of your surroundings). Secure area from through traffic.
40. Surface Water Sampling	16. Contaminated media. Skin/eye contact with biological agents and/or chemicals.	12. Wear appropriate PPE (Safety glasses, appropriate gloves). Review (M)SDS for all chemicals being.
41. Sampling from bridges	8. Struck by vehicles	11. Wear appropriate PPE (Safety Vest). Use buddy system and orange safety cones.
42. Icing of Samples/ Transporting coolers/equipment from work area.	45. Back Strains 46. Slips/Trips/Falls 47. Cuts/Abrasions from equipment 48. Pinch/Crushing Hazards.	47. Drain coolers of water. Use proper lifting techniques. Use wheeled transport. 48. Have unobstructed path from work area. Aware of surroundings. 49. Wear proper PPE (Leather gloves, long sleeves) 50. Wear proper PPE (Leather gloves, long sleeves)
43. Site Departure	1. Contaminated PPE/Vehicle	1. Contaminated PPE should be disposed of on-site. Remove boots and soiled clothing for secure storage in trunk. Wash hands promptly.
44. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 49. Traffic 50. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.)	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	51. High Noise levels 52. Overhead hazards 53. Heat Stress/ Cold Stress 54. Eye Injuries	when possible 51. Wear high visibility clothing & vest / Use cones or signs to designate work area 52. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 53. Wear hearing protection 54. Wear hard hat / Avoid areas were overhead hazards exist. 55. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 56. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Geophysical Investigation

JSA Number: JSA023-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions.

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):

☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
45. Transport equipment to work area	23. Back/strain 24. Slip/Trip/Falls 25. Traffic 26. Cuts/abrasions/contusions from equipment	23. Use proper lifting techniques/Use wheeled transport 24. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 25. Wear proper PPE (high visibility vest or clothing) 26. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes)
46. Supervision of subcontractor and all other activities	10. Slip/Trips/Falls 11. Hand injuries 12. Foot injuries 13. Back injuries/Strains 14. Traffic 15. Wildlife a. Wildlife b. Mice/rats c. Vectors (i.e. mosquitoes, bees, etc.) 7. Heat/Cold Stress	7. Be aware of potential trip hazards/follow good housekeeping procedures/mark significant below-grade hazards (i.e. holes, trenches, wires, ropes) with safety cones or spray paint. 8. Wear proper PPE (leather gloves)/watch wear you place your hands/inspect material or equipment for jagged, rough or slippery surfaces/ watch for pinch points/ wipe off slippery, wet, or dirty items prior to handling. 9. Wear proper PPE (Langan approved safety shoes)/ Be aware of uneven terrain) 10. Use proper lifting techniques/ Buddy system when lifting/ use wheeled transport. 11. Wear proper PPE (high-visibility shirts and vests)/ use cones if appropriate/ notify equipment operators of work area. 12. Be aware of surroundings at all times for the presence of wildlife. a. Do not approach stray animals b. Carry animal repellant/ use if situation arises. c. Use bug spray when needed. 7. Wear proper attire for weather conditions (sunscreen, protective clothing in sunlight or layer clothing in cold weather)/ drink plenty of fluids/ take regular breaks.
47. All activities	55. Slips/ Trips/ Falls	57. Be aware of potential trip hazards / Follow good housekeeping

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	56. Hand injuries, cuts or lacerations during manual handling of materials 57. Foot injuries 58. Back injuries 59. Traffic 60. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 61. High Noise levels 62. Overhead hazards 63. Heat Stress/ Cold Stress 64. Eye Injuries	procedures/ Mark significant hazards 58. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 59. Wear Langan approved safety shoes 60. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 61. Wear high visibility clothing & vest / Use cones or signs to designate work area 62. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 63. Wear proper hearing protection 64. Wear hard hat / Avoid areas were overhead hazards exist. 65. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 66. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

ATTACHMENT H

TAILGATE SAFETY BRIEFING FORM

LANGAN TAILGATE SAFETY BRIEFING

Date:_____ Time: _____

Leader:_____ Location:_____

Work Task: _____

SAFETY TOPICS (*provide some detail of discussion points*)

Chemical Exposure Hazards and Control:_____
_____

Physical Hazards and Control: _____

Air Monitoring: _____

PPE: _____
_____

Communications:_____

Safe Work Practices: _____
_____

Emergency Response: _____

Hospital/Medical Center Location: _____

Phone Nos.: _____

Other: _____

FOR FOLLOW-UP (the issues, responsibilities, due dates, etc.**)**

_____
_____
_____

ATTENDEES

PRINT NAME	COMPANY	SIGNATURE

Appendix D

COMMUNITY AIR MONITORING PLAN

New York State Department of Health Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area and when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent 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 directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH. Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** bases or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment

should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must 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 downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions 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 exclusion zone 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 over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should 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 action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must 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 concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations next to occupied adjoining properties to the north and south of the site exceed 1 ppm, monitoring should occur within the adjoining properties. Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work. Response levels and actions should be pre-determined for the site.

- If total particulate concentrations to occupied adjoining properties to the north and south of the site exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.

Special Requirements for Indoor Work with Co-Located Residences or Facilities

Unless a self-contained, negative-pressure enclosure with proper emission controls will encompass the work area, all individuals not directly involved with the planned work must be absent from the room in which the work will occur. Monitoring requirements shall be as stated above under “Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures” except that in this instance “nearby/occupied structures” would be adjacent occupied rooms. Additionally, the location of all exhaust vents in the room and their discharge points, as well as potential vapor pathways (openings conduits, etc.) relative to adjoining rooms, should be understood and the monitoring locations established accordingly. In these situations, it is strongly recommended that exhaust fans or other engineering controls be used to create negative air pressure within the work area during remedial activities. Additionally, it is strongly recommended that the planned work be implemented during hours (e.g. weekends or evenings) when building occupancy is at a minimum.

APPENDIX D
Citizen Participation Plan

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
261 Walton Avenue

August 2020

C203135
261 Walton Avenue
Bronx, NY 10451

Contents

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Appendix D - Brownfield Cleanup Program Process..... 26

* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **Tuck-It-Away Associates - Deegan, LLC ("Participant")**
Site Name: **261 Walton Avenue ("Site")**
Site Address: **261 Walton Avenue**
Site County: **Bronx**
Site Number: **C203135**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at: http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision-makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web-site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- Residents, owners, and occupants of the site and properties adjacent to the site;
- The public water supplier which services the area in which the site is located;
- Any person who has requested to be placed on the site contact list;
- The administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, the significant threat determination for the site had not yet been made.

To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

The following major issues of public concern were identified: air quality, health of workers and community, nuisance odors, noise, and construction-related traffic. These issues are of most concern to adjacent property owners, residents, and businesses, and site workers. These issues will be addressed in the Remedial Investigation (RI) Work Plan, Remedial Action Work Plan (RAWP), Community Air Monitoring Program (CAMP), site-specific Health and Safety Plan (HASP) and Construction HASP (CHASP) for the project. These documents will undergo public notice and are subject to approval by the NYSDEC and the New York Start Department of Health (NYSDOH) prior to work being performed.

Based on previous investigations, historical operations at the brownfield site include an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909-1965); a card and paper warehouse (1927-1956); a brick, lime and cement manufacturing company with a 550-gallon gasoline underground storage tank (1935); an automotive repair facility (1936-1976); a furniture warehouse and showroom (1977-1996), and a self-storage warehouse (1996-2017). The site is currently improved with a vacant six-story building, associated garages and an asphalt-paved parking area.

Contaminants of concern that have been identified to date include semi-volatile organic compounds (SVOCs) and metals. Contaminants are discussed in further detail in Section 4 below. The identified contaminants will be assessed, delineated and remediated in accordance with NYSDEC-approved work plans.

Site information is available through Project Contacts mentioned in Section 2 and Appendix A. The BCP Application, which includes the previous site investigations and identifies future reports that will be prepared for the NYSDEC, is available in the document repository discussed above in Section 2 and in Appendix A. The RI Work Plan is also available in the document repository and includes schedules for planned work. The RAWP will include additional schedules for planned work.

The site is located in an Environmental Justice Area. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Environmental justice efforts focus on improving the environment in communities, specifically minority and low-income communities, and addressing disproportionate adverse environmental impacts that may exist in those communities.

The site is located in an area with a large Hispanic-American population nearby. Therefore, all future fact sheets will be translated into Spanish

For additional information, visit: https://popfactfinder.planning.nyc.gov/profile/1275/demographic

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The site is located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, NY. The site is about 27,454 square feet (0.63 acres) in area and is identified on the Bronx Borough Tax Map as Block 2344, Lot 60. The site is currently improved with a vacant six-story building, associated garages and an asphalt-paved parking area. A site Location Map is provided as Appendix C.

The site is located in an area generally characterized by commercial, industrial, and institutional use. The site is bound by an industrial/manufacturing building to the north, Walton Avenue followed by industrial buildings to the east, a gas station to the south, and Gerard Avenue followed by the Major Deegan Expressway to the west.

According to the 2013 United States Geological Survey (USGS) Central Park Quadrangle 7.5-minute Series Topographic Map, the site is located at an elevation of approximately 25 feet above mean sea level (msl). The topography of the site slopes to the west, towards the Harlem River.

According to the New York City Planning Commission Zoning Map 6a, the site is located in a M1-4/R6A light manufacturing and medium-density residential district. The M1-4 light manufacturing district allows for light industrial uses like woodworking and repair shops. The R6A medium density residential district allows for development of apartment buildings with a typical height of 13-stories and floor area ratio (FAR) of 0.78 to 2.43. The site is also located in the MX-13 Special Mixed Use District. Special purpose districts are applied to areas to achieve specific planning and urban design objectives. The Special Mixed Use District was designated to “encourage investment in, and enhance the vitality of, existing neighborhoods with mixed residential and industrial uses for new mixed communities”. The site is being rezoned to residential zoning R8A to accommodate a higher FAR. The R8A high-density residential district allows for the development of apartment buildings ranging from mid-rise, eight- to ten-story buildings to taller buildings set back from the street and FAR of 0.94 to 6.02. The proposed development will be consistent with the new rezoning.

History of Site Use, Investigation, and Cleanup

The site and surrounding area are located in an urban setting historically characterized by institutional, commercial, and industrial development. Historical operations at the brownfield site include an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909 – 1965); a brick, lime and cement manufacturing company with a 550-gallon gasoline underground storage tank (1935); and an automotive

repair facility (1936 – 1976); a furniture warehouse and showroom (1977-1996), and a self-storage warehouse (1996-2017). Previously, the site was the subject of a Phase I Environmental Site Assessment and limited subsurface investigation, which are documented in the following reports:

- *December 13, 2011 Phase I Environmental Site Assessment, prepared by Airtek Environmental Corporation*

- *February 16, 2012 Limited Phase II Environmental Site Assessment, prepared by IVI Environmental, Inc.*

- *June 8, 2015 ASTM E1528-14 Transaction Screen Environmental Site Assessment Report, prepared by LCS, Inc.*

A summary of the relevant information from each report is presented below:

December 13, 2011 Phase I Environmental Site Assessment

Airtek Environmental Corporation conducted a Phase I Environmental Site Assessment (ESA) on behalf of M & T Bank in accordance with ASTM E1527-13. The site was occupied and owned by Tuck-it-away Associates and used as a self-storage at the time of the assessment. The Phase I ESA identified the following Recognized Environmental Conditions (REC):

- Previous site use included an electrical specialties and lumber storage facility (1908); an automotive wrecking yard (1909-1965); a card and paper warehouse (1927-1956); a brick, lime and cement manufacturing company with a 550-gallon gasoline underground storage tank (1935); an automotive repair facility (1936-1976); and a furniture warehouse and showroom (1977-2007).

- Current and historical use of the adjoining and surrounding properties included the following:

    - Southern adjoining property was historically occupied by a piano factory and lumber storage facility (1908-1935) and then by a fueling station (1951-present). The property is associated with two closed New York State Department of Environmental Conservation (NYSDEC) Spills (Nos. 9408104 and 0207682).

    - Northern adjoining property was historically used for furniture manufacturing, storage, and as a dyeing facility and a paint shop (1925-2007).

    - Northeastern adjoining property, across Walton Avenue, was historically used as a fueling station and automotive sales and service facility (1935-2003) and

a car wash with an automotive service station (2003-present). The site is associated with an open NYSDEC Spill (No. 9909720).

- Eastern adjoining property, across Walton Avenue, was historically used as an automotive fueling station (1935) and plastics manufacturing facility (1947-1951).

- As part of the Lower Concourse Rezoning, dated May 8, 2009, the site was assigned an E-Designation (E-227) for hazardous materials and air quality (for fuel oil/natural gas restriction and exhaust stack location limitations).

February 16, 2012 Limited Phase II Environmental Site Assessment (ESA)

IVI Environmental, Inc. conducted a Limited Phase II ESA in February 2012 to investigate the RECs identified in the Phase I ESA. The Limited Phase II ESA included a geophysical survey, advancement of ten soil borings and collection and laboratory analysis of eight soil samples. The following summarizes the findings of the Limited Phase II ESA:

- Subsurface soils encountered during the investigation consisted of historic fill material and brown silty sands and clay. The historic fill was observed to depths varying between about 10 inches and 5 feet below grade surface (bgs). Historic fill was generally underlain by silty sands, clay, and weathered rock. Refusal, on presumed bedrock, was encountered in each of the ten borings at depths ranging from approximately 10 inches below grade surface (bgs) in the northeastern part of the site to 9 feet bgs in the northwestern part of the site. Groundwater was not encountered in any of the soil borings.

- Petroleum impacts (i.e., visual, olfactory and/or photoionization detector [PID] readings) were not observed in the borings. Soil samples were collected from the bottom of each soil boring and analyzed for volatile organic compounds (VOC), SVOC and Resource Conservation and Recovery Act (RCRA) metals.

- Soil sample results were compared to the NYSDEC Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use (UU) and Restricted Use Restricted Residential (RURR) Soil Cleanup Objectives (SCO). Analytes with detections above the UU SCOs are listed below, with those above the RURR SCOs shown in bold.

    - No VOCs were detected at concentrations above UU or RURR SCO.

    - SVOCs: **benzo(a)anthracene** (maximum concentration 8.3 milligrams per kilogram [mg/kg]), **benzo(a)pyrene** (maximum concentration 10 mg/kg), **benzo(b)fluroanthene** (maximum concentration 13 mg/kg), **benzo(k)fluoranthene** (maximum concentration 6.3 mg/kg), **chrysene**

(maximum concentration 7.9 mg/kg), **dibenzo(a,h)anthracene** (maximum concentration 1.2 mg/kg), and **indeno(1,2,3-cd)pyrene** (maximum concentration 3.7 mg/kg).

- Metals: barium (maximum concentration 386 mg/kg), **cadmium** (maximum concentration 6.9 mg/kg), **lead** (maximum concentration 8,440 mg/kg), mercury (maximum concentration 0.56 mg/kg), and silver (maximum concentration 3.69 mg/kg).

June 8, 2015 ASTM E1528-14 Transaction Screen Environmental Site Assessment Report

LCS Inc. conducted an ASTM 15-28-14 Transaction Screen Environmental Site Assessment Report for M&T Bank of New York to identify potential environmental concerns (PEC) for financing purposes. The site was occupied by Tuck It Away Self Storage at the time of the site inspection, and the report identified the following PECs:

- Historic site use included an auto wrecking yard and auto repair facility. An associated 2012 investigation (the Limited Phase II ESA described above) identified elevated metal and SVOCs in soil across the site.

- The site was assigned an E-Designation for hazardous materials and air quality.

Adjacent properties, including a south adjacent gasoline station, with the potential to impact subsurface conditions on the site.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Participant. This means that the Applicant was the owner of the site at the time of the disposal or discharge of contaminants or was otherwise liable for the disposal or discharge of the contaminants. The Participant must fully characterize the nature and extent of contamination onsite, as well as the nature and extent of contamination that has migrated from the site. The Participant also must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for restricted purposes.

To achieve this goal, the Applicant will conduct investigation activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by

NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant will conduct an investigation of the site officially called a “remedial investigation” (RI). This investigation will be performed with NYSDEC oversight. A remedial investigation workplan was submitted to the NYSDEC concurrent with the BCP Application and will be subject to public comment.

The site investigation has several goals:

1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submitted a draft “Remedial Investigation Work Plan” to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a “Certificate of Completion” (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Hasan Ahmed
Project Manager
NYSDEC Region 2
Division of Environmental Remediation
Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101

New York State Department of Health (NYSDOH):
Renata Ockerby
Project Manager
NYSDOH
Empire State Plaza
Corning Tower Room 1787
Albany, NY 12237
beei@health.ny.gov

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

New York Public Library – Mott Haven Branch
321 East 140th Street
Bronx, New York
Attn: Jeanine Cross, Library Manager
Phone: (718) 665-4878
Hours: Monday through Thursday 10:00-19:00, Friday and Saturday 10:00 to 17:00, closed Sundays

Bronx Community Board 1
3024 Third Avenue
Bronx, NY, 10455
Attn: George Rodriguez
Phone: (718) 585-7117
Hours: Monday through Friday 9am-5pm (call for appointment)

Appendix B - Site Contact List

Chief Executive Officer
Mayor Bill de Blasio
City Hall
260 Broadway Avenue
New York, NY 10007

Hon. Ruben Diaz Jr.
Bronx Borough President
851 Grand Concourse, Suite 301
Bronx, NY 10451

Hon. Scott Stringer
NYC Comptroller
1 Centre Street
New York, NY 10007

Hon. Juumane Williams
Public Advocate
1 Centre Street
New York, NY 10007

Vincent Sapienza
Commissioner, NYC Dept. of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

Mark McIntyre, Director
NYC Office of Environmental Remediation
100 Gold Street - 2nd Floor
New York, NY 10038

Julie Stein
Office of Environmental Assessment & Planning
NYC Dept. of Environmental Protection
96-05 Horace Harding Expressway
Flushing, NY 11373

Hon. Diane Ayala
NYC Councilwoman
105 East 116th Street

New York, NY 10029

Hon. Jose M. Serrano
NYS Senator
1916 Park Avenue, Suite 202
New York, NY 10037

Hon. Carmen E. Arroyo
NYS Assemblywoman
384 East 149th Street, Suite 202
Bronx, NY 10455

Hon Charles Schumer
U.S. Senator
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten Gillibrand
U.S. Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Jose E. Serrano
U.S. House of Representatives
1231 Lafayette Avenue, 4th Floor
Bronx, NY 10474

New York City Planning Commission
Marisa Lago, Chairperson
Department of City Planning
22 Reade Street
New York, NY 10007-1216

Borough of Bronx, Borough President
Ruben Diaz Jr.
Office of the Bronx Borough President
851 Grand Concourse, 3rd Floor
Bronx, New York 10451

Borough of Bronx, Department of Planning and Development
James Rausse
851 Grand Concourse, 3rd Floor
Bronx, New York 10451

Bronx Community Board 1
George Rodriguez, Chairperson
3024 Third Avenue
Bronx, NY, 10455

Residents, owners, and occupants of the site and properties adjacent to the site

There are no residents at the site. The site is currently unoccupied.

A separate mailing address is listed where owners do not reside at the listed property.

287 – 289 Walton Avenue LLC
287 Walton Avenue
Bronx, NY 10451
Phone Number Not Available

Sun Walton LLC
288 Walton Avenue
Bronx, NY 10451
Phone Number Not Available
Owner Address:
31 West 34th Street, Suite 102
New York, NY 10001

John Lage
270 Walton Avenue
Bronx, NY 10451
Phone Number Not Available
Owner Address:
1785 Webster Avenue
Bronx, NY 10457

NOBR 261 LLC
261 Grand Concourse
Bronx, NY 10451
Phone Number Not Available

Seymour Ostrager
109 East 138th Street
Bronx, NY 10451
Phone Number Not Available

Mad-Bri Associates, LLC
255 Exterior Street
Bronx, NY 10451
550 Mamaroneck Avenue, Room 404
Harrison, NY 10528

Consolidated Edison Company Of New York, Inc.
281 Exterior Street
Bronx, NY 10451
Phone Number: 1-800-572-6633
Owner Address:
4 Irvington Place, Room 1875
New York, NY 10003

Local News Media

Bronx Times
3602 East Tremont Avenue, Suite 205
Bronx, NY 10465

Spectrum NY 1 News
75 Ninth Avenue
New York, NY 10011

Hoy Nueva York
1 MetroTech Center, 18th Floor
Brooklyn, NY 11201

El Diario La Prensa
1 MetroTech Center, 18th Floor
Brooklyn, NY 11201

New York Daily News
4 New York Plaza
New York, NY 10004

New York Post
1211 Avenue of the Americas
New York, NY 10036

Bronx Times Reporter
900 East 132nd Street
Bronx, NY 10454

Bronx News
135 Dreiser Loop
Bronx, NY 10475

The Bronx Community News
P.O. Box #1775
New York, NY 10027

Bronx Free Press
5030 Broadway, Suite 801
Bronx, NY 10034

Public Water Supplier

The responsibility for supplying water in New York City is shared between the NYC Department of Environmental Protection, the Municipal Water Finance Authority, and the New York City Water Board:

NYCDEP
Vincent Sapienza, Acting Commissioner
59-17 Junction Boulevard
Flushing, NY 11373

New York City Municipal Water Finance Authority
255 Greenwich Street, 6th Floor
New York, NY 10007

New York City Water Board
NYC Department of Environmental Protection
59-17 Junction Boulevard, 8th Floor
Flushing, NY 11373

Schools and Daycare Facilities

There are no schools or day care facilities located on the site. The following are schools or day care facilities located within ½ mile of the site:

Health Opportunities High School (approximately 0.08 miles north of the site)
Andrew Clayman, Principal
350 Gerard Avenue
Bronx, NY 10451
(718) 401-1826

Community School for Social Justice (approximately 0.10 miles north of the site)
Jaime Guzman, Principal
350 Gerard Ave
Bronx, NY 10451
(718) 402-8481

Family Life Academy Charter School III (approximately 0.14 miles north of the site)
Andrea Hernandez, Principal

370 Gerard Avenue
Bronx, NY 10451
(718) 585-6580

P.S. 168 (approximately 0.2 miles east of the site)
Maureen Fullerton, Principal
339 Morris Avenue
Bronx, NY 10451
(718) 585-2100

Success Academy Bronx 1 Middle School (approximately 0.24 miles east of the site)
Jackie Grindelli
339 Morris Avenue
Bronx, NY 10451
(347) 286-7950

KIPP NYC College Prep High School (approximately 0.25 miles northeast of the site)
Carlos Capellan, Principal
201 East 144th Street
Bronx, NY 10451
(212) 991-2626

Sunshine Learning Center (approximately 0.26 miles northeast of the site)
Dr. Tolaison Hooks, Administrator
253 East 142nd Street
Bronx, NY 10451
(718) 215-1188

Global Community Charter School (approximately 0.28 miles northwest of the site)
Kristan Norgrove, Chief Academic Officer
2350 5th Avenue
New York, NY 10037
(646) 360-2363

Hostos Community Children's Center (approximately 0.28 miles north of the site)
Shavon D. Ford, Executive Director
475 Grand Concourse
Bronx, NY 10451
(718) 518-4176

Family Life Academy Charter School II (approximately 0.32 miles southeast of the site)
Kathy Ortiz, Principal
296 East 140th Street
Bronx, NY 10454
(718) 665-2805

The Jewish Board: Harlem Child Development Center (approximately 0.34 miles northwest of the site)
David Rivel, Chief Executive Officer
34 West 139th Street
New York, NY 10037
(212) 690-7234

Creciendo DayCare (approximately 0.35 miles east of the site)
Administrator: NA
281 East 143rd Street, Apt. 12-F
Bronx, NY 10451
(347) 594-4040

Cuddly Bundles Childcare (approximately 0.38 miles north of the site)
Ms. Renee, Administrator
137 East 150th Street
Bronx, NY 10451
(718) 402-4801

Democracy Prep Charter Middle School (approximately 0.39 miles northwest of the site)
Nakita Green, Principal
2230 5th Avenue
New York, NY 10037
(212) 281-5359

Zeta Charter School Bronx 1 (approximately 0.41 miles southeast of the site)
Tamika Tretu, Resident Principal
222 Alexander Ave
Bronx, NY 10454
(929) 376-9987

PS 18 John Peter Zenger (approximately 0.41 miles northeast of the site)
Lauren Sewell Walker, Principal
502 Morris Avenue
Bronx, NY 10451
(718) 292-2868

St. Mark the Evangelist School (approximately 0.42 miles northwest of the site)
Dominic Fanelli, Principal
55 West 138th Street
New York, NY 10037
(212) 283-4848

New York City Housing Authority's Lincoln Day Care Center (approximately 0.42 miles west of the site)
Administrator: NA
2112 Madison Avenue
New York, NY 10037
(212) 427-8542

PS 49 Willis Avenue (approximately 0.46 miles southeast of the site)
Frank Hernandez, Principal
383 East 139th Street
Bronx, NY 10454
(718) 292-4623

South Bronx Classical Charter School II (approximately 0.48 miles southeast of the site)
Leena Gyftopoulos, School Director
333 East 135th Street
Bronx, NY 10454
(718) 292-9526

The Laboratory School of Finance and Technology (approximately 0.49 miles east of the site)
Dr. Ramon Gonzalez, Principal
360 East 145th Street
Bronx, NY 10454
(718) 292-7435

Community, Civic, Religious and Other Environmental Organizations:

Eric Soto - Director
Consolidated Edison Corporate Affairs
511 Theodore Fremd Avenue
Rye, NY 10580

Gabriel de Jesus – President
40th Police Precinct Council
257 Alexander Avenue
Bronx, NY 10454

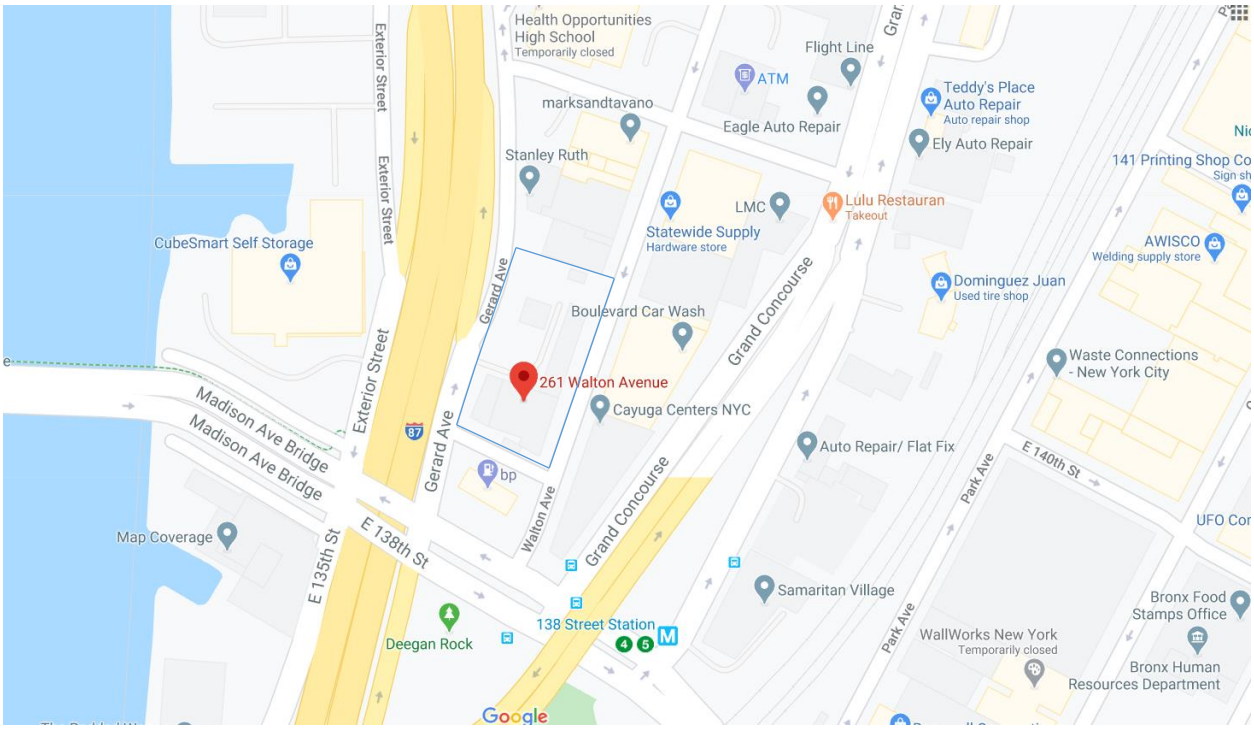
Battalion 14 Engine 60 Ladder 17
341 EAST 143 STREET
Bronx, NY 10454

South Bronx Community Congress
145 East 149th Street, 2nd Floor
Bronx, NY 10451
Tel: (917) 517-1320
Email: info@southbronxcommunityinfo.com
Website: http://www.southbronxcommunitycongress.com/

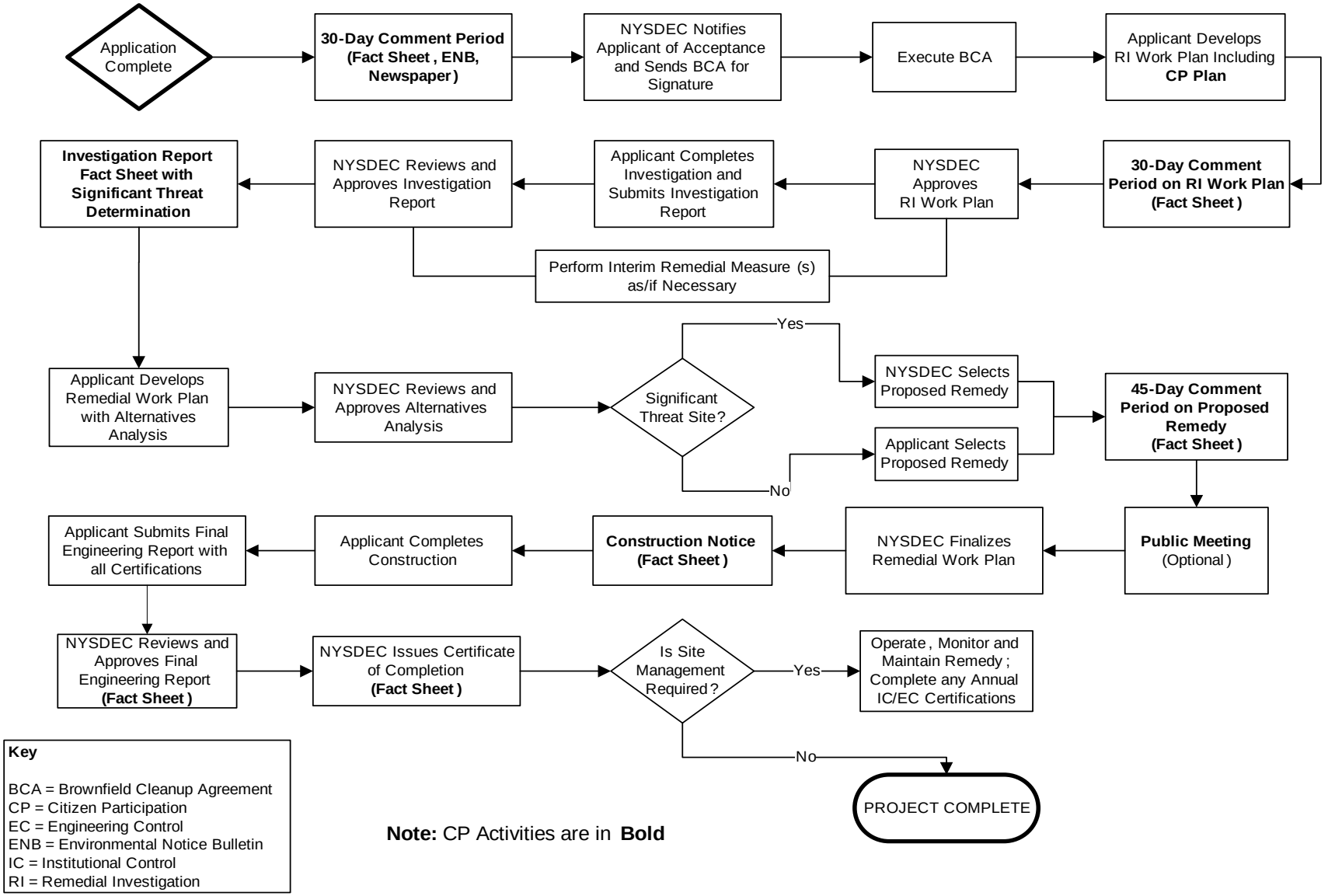
South Bronx Overall Economic Development Corporation
555 Bergen Avenue
Bronx, NY 10455
Tel: (718) 292-3113
Attn: Phillip Morrow, President
Email: info@sobro.org

We Stay / Nos Quedamos Committee Inc.
754 Melrose Avenue
Bronx, NY 10451
Tel: 718-585-2323
Fax: 718-585-8628
Email: jclemente@nosquedamos.org
Attn: Jessica Clemente, Executive Director
Website: http://www.nosquedamos.org/

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern

Instructions

This Scoping Sheet assesses major issues of public concern; impacts of the site and its remedial program on the community; community interest in the site; information the public needs; and information needed from the public.

The information generated helps to plan and conduct required citizen participation (CP) activities, and to choose and conduct additional CP activities, if appropriate. The scoping sheet can be revisited and updated as appropriate during the site's remedial process to more effectively implement the site's CP program.

Note: Use the information as an aid to prepare and update the Major Issues of Public Concern section of the site CP Plan.

General Instructions

- When to prepare: During preparation of the CP Plan for the site. It can be revisited and updated anytime during the site remedial process.
- Fill in site name and other information as appropriate.
- The Scoping Sheet may be prepared by DEC or a remedial party, but must be reviewed and approved by the DER site project manager or his/her designee.

Instructions for Numbered Parts

Consider the bulleted issues and questions below and any others that may be unique or appropriate to the site and the community to help complete the five Parts of this Scoping Sheet. Identify the issue stakeholders in Parts 1 through 3 and adjust the site's contact list accordingly.

Part 1. List Major Issues of Public Concern and Information the Community Wants.

- Is our health being impacted? (e.g. Are there problems with our drinking water or air? Are you going to test our water, yards, sumps, basements? Have health studies been done?)
- There are odors in the neighborhood. Do they come from the site and are they hazardous?
- Are there restrictions on what we may do (e.g. Can our children play outside? Can we garden? Must we avoid certain areas? Can we recreate (fish, hunt, hike, etc. on/around the site?)
- How and when were the site's contamination problems created?
- What contaminants are of concern and why? How will you look for contamination and find out where it is going? What is the schedule for doing that?
- The site is affecting our property values!
- How can we get more information (e.g. who are the project contacts?)
- How will we be kept informed and involved during the site remedial process?
- Who has been contacted in the community about site remedial activities?
- What has been done to this point? What happens next and when?
- The site is going to be cleaned up for restricted use. What does that mean? We don't want redevelopment on a "dirty" site.

Part 2. List Important Information Needed <u>from</u> the Community, if Applicable.

- Can the community supplement knowledge about past/current uses of the site?
- Does the community have knowledge that the site may be significantly impacting nearby people, properties, natural resources, etc.?
- Are activities currently taking place at the site or at nearby properties that may need to be restricted?
- Who may be interested or affected by the site that has not yet been identified?
- Are there unique community characteristics that could affect how information is exchanged?
- Does the community and/or individuals have any concerns they want monitored?
- Does the community have information about other sources in the area for the contamination?

Part 3. List Major Issues and Information that Need to be Communicated <u>to</u> the Community.

- Specific site investigation or remediation activities currently underway, or that will begin in the near future.
- The process and general schedule to investigate, remediate and, if applicable, redevelop the site.
- Current understanding about the site contamination and effects, if any, on public health and the environment.
- Site impacts on the community and any restrictions on the public's use of the site and/or nearby properties.
- Planned CP activities, their schedule, and how they relate to the site's remedial process.
- Ways for the community to obtain/provide information (document repositories, contacts, etc.).

Part 4. Community Characteristics

a. - e. Obtain information from local officials, property owners and residents, site reports, site visits, "windshield surveys," other staff, etc.

f. Has the affected community experienced other **significant** present or past environmental problems unrelated to this site? Such experiences could significantly affect public concerns and perspectives about the site; how the community will relate to project staff; the image and credibility of project staff within the community; and the ways in which project staff communicate with the community.

g. In its remedial programs, DER seeks to integrate, and be consistent with, environmental justice principles set forth in *DEC Commissioner Policy 29 on Environmental Justice* and *DER 23 – Citizen Participation Handbook for Remedial Programs*. Is the site and/or affected community wholly or partly in an Environmental Justice (EJ) Area? Use the Search feature on DEC's public web site for "environmental justice". DEC's EJ pages define an EJ area, and link to county maps to help determine if the site and/or community are in an EJ area.

h. Consider factors such as:

- Is English the primary language of the affected community? If not, provisions should be considered regarding public outreach activities such as fact sheets, meetings, door-to-door visits and other activities to ensure their effectiveness.
- The age demographics of the community. For example, is there a significant number of senior citizens in the community? It may be difficult for some to attend public meetings and use document repositories. This may suggest adopting more direct interaction with the community with activities such as door-to-door visits, additional fact sheets, visits to community and church centers, nursing homes, etc.
- How do people travel about the community? Would most people drive to a public meeting or document repository? Is there adequate public transportation?

Part 5. Affected/Interested Public.

Individuals and organizations who need or want information and input can change during the site's remedial process. This need is influenced by real, potential, or perceived impacts of the site or the remedial process. Some people may want information and input throughout the remedial process. Others may participate only during specific remedial stages, or may only be interested in particular issues.

It is important to revisit this question when reviewing this scoping sheet. Knowing who is interested in the site – and the issues that are important to them – will help to select and conduct appropriate outreach activities, and to identify their timing and the information to be exchanged.

Check all affected/interested parties that apply to the site. **Note: Adjust the site's contact list appropriately.** The following are some ways to identify affected/interested parties:

- Tax maps of adjacent property owners
- Attendees at public meetings
- Telephone discussions
- Letters and e-mails to DER, the remedial party, and other agencies
- Political jurisdictions and boundaries
- Media coverage
- Current/proposed uses of site and/or nearby properties (recreational, commercial, industrial)
- Discussions with community organizations: grass roots organizations, local environmental groups, environmental justice groups, churches, and neighborhood advisory groups

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern (see instructions)

Site Name: 261 Walton Avenue

Site Number: C203135

Site Address and County: 261 Walton Avenue, Bronx, New York

Remedial Party(ies): Tuck-It-Away Associates - Deegan, LLC

Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.

Part 1. List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs.

As of the date of preparation of this Citizen Participation Plan, no individuals, community groups, or related organizations have offered comments or demonstrated interest in this project.

The proposed investigation of soil, groundwater, and sub-slab vapor may have odor and air quality impacts. Air monitoring and site controls will be in place during investigation activities, in accordance with NYSDEC and NYSDOH regulations, to minimize impacts.

How were these issues and/or information needs identified?
The site was the subject of a Phase I Environmental Site Assessment and a Limited Phase II Site Investigation, during which past site use and site contamination were identified.

Part 2. List important information needed **from** the community, if applicable. Identify individuals, groups, organizations, businesses and/or units of government related to the information needed.

No additional information is required from the community at this time.

How were these information needs identified?
Not applicable

Part 3. List major issues and information that need to be communicated **to** the community. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and/or information.

The community will continue to be made aware of the following issues and information:

- Contaminants of concern related to historic site use,
- Project contacts and ways to get information,
- Components of the selected remedy,
- Progress and major project milestones, and
- Investigation, remediation and construction schedules

How were these issues and/or information needs identified?

These issues were identified by review of project information and experience on similar projects.

Part 4. Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

a. Land use/zoning at and around site:
☐ **Residential** ☐ **Agricultural** ☐ **Recreational** ☒ **Commercial** ☒ **Industrial**

b. Residential type around site:
☒ **Urban** ☐ **Suburban** ☐ **Rural**

c. Population density around site:
☒ **High** ☐ **Medium** ☐ **Low**

d. Water supply of nearby residences:
☒ **Public** ☐ **Private Wells** ☐ **Mixed**

e. Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Click here to enter text.

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
Not Applicable.

g. Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☒ **Yes** ☐ **No**

h. Special considerations:
☒ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

Explain any marked categories in **h:**
The site is located in an area that has a large Hispanic population. Future fact sheets will be translated into Spanish.

Part 5. The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☒ **Non-Adjacent Residents/Property Owners:** See Contact List

☒ **Local Officials:** See Contact List

☒ **Media:** See Contact List

☒ **Business/Commercial Interests:** See Contact List.

☐ **Labor Group(s)/Employees:** Click here to enter text.

☐ **Indian Nation:** Click here to enter text.

☒ **Citizens/Community Group(s):** See Contact List

☒ **Environmental Justice Group(s):** See Contact List

☒ **Environmental Group(s):** See Contact List

☒ **Civic Group(s):** See Contact List

☐ **Recreational Group(s):** Click here to enter text.

☐ **Other(s):** Click here to enter text.

Prepared/Updated By: Langan Engineering, Environmental, Survey, Landscape Architecture and Geology, D.P.C.	**Date:** July 28, 2020
ReviewedApproved By: Thomas V. Panzone	**Date:** 9-18-20

APPENDIX E
Construction Health and Safety Plan

CONSTRUCTION HEALTH AND SAFETY PLAN

FOR

261 WALTON AVENUE
BRONX, NY 10451
Bronx Borough Tax Map
Block 2344, Lot 60

Prepared For

Tuck-It-Away Associates – Deegan, LLC
555 Madison Avenue
New York, NY 10022

Prepared By:

Langan Engineering, Environmental, Surveying
Landscape Architecture and Geology, D.P.C.
21 Penn Plaza
360 West 31st Street, 8th Floor
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LANGAN

September 2024
Langan Project No. 170601701

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***** Items to be posted prominently on-site or made readily available to personnel.

1.0 INTRODUCTION

1.1 General

This Construction Health And Safety Plan (CHASP) was developed to address disturbance of known and reasonably anticipated subsurface contaminants and comply with Occupational Safety and Health Administration (OSHA) Standard 29 Code of Federal Regulation (CFR) 1910.120(b)(4), Hazardous Waste Operations and Emergency Response during anticipated site for the property located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx (the Site). The Site is defined by Block 2344, Lot 60 on the Bronx Borough Tax Map.

This CHASP provides the minimum requirements for implementing site operations during future remedial measure activities. All contractors performing work on this site must implement their own CHASP that, at a minimum, adheres to this CHASP. The contractor is responsible for their own health and safety and that of their subcontractors. Langan personnel will implement this CHASP while onsite.

The content of this CHASP may change or undergo revision based upon additional information made available to health and safety personnel, monitoring results, or changes in the work plan.

1.2 Site Location and Background

The site is located at 261 Walton Avenue in the Mott Haven neighborhood of the Bronx, New York. The site is about 27,454 square feet (0.63 acres) in area and is identified on the Bronx Borough Tax Map as Block 2344, Lot 60. The site is bound by an industrial/manufacturing building to the north, Walton Avenue followed by industrial buildings to the east, a gas station to the south, and Gerard Avenue followed by the Major Deegan Expressway to the west. A site location map is attached as Figure 1.

The site is improved with a vacant six-story building, with associated garages and an asphalt-paved lot spanning the remainder of the lot.

1.3 Summary of Work Tasks

1.3.1 Demolition of Exiting Structure(s)

Langan will observe the demolition and removal of existing structure(s) as set forth in the work plan. Langan may monitor air quality for dust and volatile organic compounds (VOCs) if specified in the work plan. Construction and demolition (C&D) debris generated during demolition will be transported as an NYSDEC Part 360 solid waste to a municipal, state, or federal permitted

processing, disposal, or recycling facility. Langan may record type and quantities of debris, as well as other information as specified in the work plan. Existing demolition will be completed by a 3rd party contractor.

1.3.2 Day Lighting Excavation and Soil Screening

Langan may retain an excavation contractor to daylight buried unidentified structures. The purpose of the daylighting is to confirm if these structures are subsurface structures of concern (underground storage tanks [USTs], utilities (sewer lines, storm water drains, electrical, gas or other utility line as well as other artifacts pertinent to the work plan). The excavation contractor will contact the appropriate utility mark-out authority and make available to their staff the verification number and effective dates.

Pursuant to these activities, Langan will screen excavated soil material for visual, olfactory, and instrumental indicators suggestive of a potential chemical or petroleum release. Instrument screening for the presence of VOCs may be performed with a duly calibrated photoionization detector (PID). Contractors will notify Langan personnel if they identify indications suggestive of a potential chemical or petroleum release. Contaminated material shall be handled, and property disposed in accordance with federal, state and city regulations, criteria, and guidelines.

1.3.3 Excavation and Soil Screening

As part of the excavation activities, Langan personnel will document excavation and installation of support of excavation (SOE). Pursuant to these activities, Langan will screen excavated soil material for visual, olfactory, and instrumental indicators suggestive of a potential chemical or petroleum release. Instrument screening for the presence of VOCs may be performed with a duly calibrated PID. Langan will observe contractors excavating for utilities, foundation components and potential grading using heavy equipment and hand tools. Contractors will notify Langan personnel if they identify indications suggestive of a potential chemical or petroleum release. Contaminated material shall be handled, and property disposed in accordance with federal, state and city regulations, criteria, and guidelines.

1.3.4 Soil Sampling

As part of the excavation activities, soil samples (waste characterization, excavation endpoint, delineation, or quality assurance/quality control [QA/QC]) may be collected during construction, as required. Langan personnel will coordinate with the contractor in sampling soil (in accordance with the work plan, where applicable).

Soil samples excavation endpoint or delineation sampling (along with QA/QC samples) may be collected and subsequently submitted to a New York State Department of Health (NYSDOH)

Environmental Laboratory Approval Program (ELAP)-certified laboratory and analyzed in accordance with work plan specifications.

1.3.5 Stockpiling

Potentially impacted soil may be stockpiled pending laboratory analysis and determining proper off-site disposal. Visibly contaminated soil, if encountered, shall be segregated and stockpiled on at least 10 millimeters of plastic sheeting; reusable soil and fill shall be segregated and stockpiled separately from unusable fill, concrete and other debris; the stockpiles shall be kept covered with 6 millimeters thick plastic sheeting; the plastic sheeting covering the stockpiles shall be anchored firmly in place by weights, stakes, or both; the Contractor shall maintain the plastic sheeting.

1.3.6 Characterization of Excavated Material

When required by the work plan, Langan personnel will characterize excavated soil or clean backfill in accordance with Langan standards.

1.3.7 Excavation Backfill

Areas of the site that were over-excavated may be backfilled to development grade (i.e., the grade required to complete construction of the foundation and sidewalk extension). Imported material should meet specifications defined in the work plan or consist of clean fill that meets the 6 New York Codes, Rules and Regulations (NYCRR) Part 375-6.8(a) Unrestricted Use Soil Cleanup Objectives (UU SCOs) or other acceptable fill material such as virgin stone from a permitted mine or quarry or recycled concrete aggregate (RCA).

1.3.8 Decommissioning and Removal of Underground Storage Tank

If an underground storage tank (UST) is encountered, a UST decommissioning and removal contractor shall furnish all labor and materials, equipment and incidentals required for the proper decontamination, removal, and closure of any UST in accordance with federal, state, and local regulations. Langan personnel will monitor VOCs with a calibrated PID downwind from the UST excavation and record the PID readings.

1.3.9 Geotechnical Soil Boring

Langan may retain a geotechnical drilling contractor to advance geotechnical soil borings to a depth bgs specified in the work plan. Soil boring locations may on shore or advanced from a barge. The locations may be based on the results of the geophysical investigation, site inspection

and document review. The drilling contractor will contact the appropriate utility mark-out authority and make available to their drilling staff the verification number and effective dates.

Langan will observe the borehole advancement and record appropriate geotechnical data including the results of Standard Penetration Tests (SPT), soil and stratigraphic identification, and other data as required by the work plan. The geotechnical boring may also be cored in accordance with the work plan if bedrock is encountered. One or more borings may be completed as observation wells to be completed as specified in the work plan. All borings will be backfilled and abandoned in accordance with work plan specifications. Observation wells may be abandoned at a future date.

Langan personnel may collect soil samples for geotechnical evaluation. Soil samples may be submitted to a geotechnical laboratory and analyzed in accordance with work plan specifications.

1.3.10 Geotechnical Test Pits

Langan may retain an excavation contractor to advance geotechnical test pits to a depth below grade surface (bgs) specified in the work plan. Locations will be based on the results of the geophysical survey, the site inspection and document review. The excavation contractor is responsible for all permits and will contact the appropriate utility mark-out authority and make available to their staff the verification number and effective dates.

The excavation contractor may be required to use a bladed equipped excavation bucket. Langan personnel will confirm this and observe the test pit excavation noting foundation and soil attributes as required by the work plan. Langan personnel may collect soil samples for geotechnical evaluation. The excavation will be filled with soil cuttings after the observations are completed and samples are collected.

Soil samples, if collected, will be submitted to a geotechnical laboratory, and analyzed in accordance with work plan specifications.

1.3.11 Support of Excavation (SOE)

Langan personnel will perform observational and inspection activities in support of excavation. These activities include drilling of soil pilings and tiebacks and other activities specified in the work plan.

1.3.12 Construction Dewatering

Construction dewatering, while not specific to the work plan, may be initiated if needed. If initiated, the dewatering contractor shall be responsible for handling contaminated dewatering

fluids in accordance with federal, state, and local regulations. Dewatering fluids are likely to be discharged to the local sanitary sewer system after treatment and under approved regulatory permit. Alternatively, the contractor may provide containerized storage to allow for testing of groundwater prior to, and after, treatment and before disposal. If required, Langan field personnel may sample dewatering treatment system liquids from either a discharge standpipe or a storage tank. Dewatering samples will be submitted to an ELAP-certified laboratory for analysis.

1.3.13 Construction Activity Inspections and Observations

Langan will observe construction activities including the general oversight, observation of landscaping activities, and other select observation project management and supervision as specified in the work plan or in accordance with the construction documents, or special inspection requirements administered by the New York City Department of Buildings. Materials used for construction will be inspected by Langan for conformance to the design documents.

1.3.14 Observation/Monitoring Well Plugging and Abandonment

At an unspecified future date, the observation/monitoring wells will be abandoned. Plugging and abandonment will be in accordance with federal and state requirements. Langan may retain a drilling contractor to complete the plugging and abandonment activities. The contractor will contact the appropriate utility mark-out authority and make available to their field staff the verification number and effective dates. Langan may observe the plugging and abandonment of one or more observation/monitoring wells to document that the plugging and abandonment activities were completed in accordance with the work plan and regulations.

1.3.15 Storm water Pollution Prevention Inspection

If required and in accordance with the SMP, Langan personnel with Storm Water Pollution Prevention (SWPPP) inspection credentials will conduct SWPPP inspections. Langan will observe the stormwater pollution prevention system install to document that the install is in accordance with the work plan and respond appropriately if impacted soil is observed during excavation.

1.3.16 QA/QC Sampling

Samples for quality assurance/quality control [QA/QC] samples may also be collected and submitted to an approved laboratory and analyzed in accordance with work plan specifications. Information regarding the QA/QC samples including required method of analysis may be included in the same COC as the soil samples unless otherwise instructed by the work plan.

1.3.17 Equipment Decontamination

Before the start of the day's sampling and after sampling each run, sampling equipment will be decontaminated by the decontamination process outlined Attachment B - Decontamination Procedures. Decontamination wastes and purge water will be temporarily stored on site pending analytical results.

1.3.18 Management of Investigative-Derived Waste

The investigative-derived waste (IDW) generated during this investigation will be contained in DOT-approved 55-gallon drums. The drums will be temporarily stored on the site or as directed by the client representative. All drums will be filled between to two-thirds full to allow easy maneuvering during drum pickup and disposal. Drum labels are to be provided by Langan (Environmental Closet). All drums will be labeled as "IDW Pending Analysis" until sample data are reported from the laboratory. Drum labels will include date filled and locations where waste was generated along with the standard information required by the labels in accordance with the Langan SOP09, Drum Labeling.

Closed top drums are to be used to store liquids. Debris, including plastic sheeting, polyethylene tubing, personal protection equipment (PPE), decontamination debris, etc. will be segregated from and disposed in large heavy duty garbage bags and disposed of at the site. Excess unused glassware should be returned to the lab along with the last day of collection samples.

1.3.19 Drum Sampling

Langan personnel may collect drum samples, as required, prior to off-site drum disposal. Samples will be placed into laboratory-supplied batch-certified clean glassware and submitted to an approved laboratory and analyzed in accordance with work plan specifications, if required.

1.3.20 Surveying

Surveying activities may be completed by Langan. Surveying will be conducted by licensed surveyors.

2.0 IDENTIFICATION OF KEY PERSONNEL/HEALTH AND SAFETY PERSONNEL

The following briefly describes the health and safety (H&S) designations and general responsibilities that may be employed for this site. The titles have been established to accommodate the project needs and requirements and ensure the safe conduct of site activities. The H&S personnel requirements for a given work location are based on the proposed site activities.

2.1 Langan Project Manager

The Langan Environmental Project Manager (PM) is Start Knoop, the Langan Geotechnical PM is Seth Vaidya, and the Langan Site/Civil PM is James Harley; their responsibilities include:

- Ensuring that this CHASP is developed, current, and approved prior to on-site activities.
- Ensuring that the tasks in the project are performed in a manner consistent with Langan's comprehensive *Health and Safety Program for Hazardous Waste Operations* and this CHASP.

2.2 Langan Corporate Health and Safety Manager

The Langan Corporate Health and Safety Manager is Tony Moffa. His responsibilities include:

- Updating the *Construction Health and Safety Program for Hazardous Waste Operations*.
- Assisting the site Health and Safety Officer (HSO) with the development of the CHASP, updating CHASP as dictated by changing conditions, job site inspection results, etc., and approving changes to this CHASP.
- Assisting the HSO in the implementation of this CHASP and conducting Jobsite Safety Inspections and assisting with communication of results and correction of shortcomings found.
- Maintaining records on personnel (medical evaluation results, training and certifications, accident investigation results, etc.).

2.3 Langan Site Health & Safety Officer

The Langan site HSO is William Bohrer. His responsibilities include:

- Participating in the development and implementation of this CHASP.
- When on-site, assisting the Langan Field Team Leader in conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- Ensuring that proper PPE is available, worn by employees, and properly stored and maintained.
- Controlling entry into and exit from the site contaminated areas or zones.
- Monitoring employees for signs of stress, such as heat stress, fatigue, and cold exposure.
- Monitoring site hazards and conditions.
- Knowing (and ensuring that all site personnel also know) emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.

- Resolving conflicts that may arise concerning safety requirements and working conditions.
- Reporting all incidents, injuries, and near misses to the Langan Incident/Injury Hotline immediately and the client representative.

2.4 Langan Field Team Leader Responsibilities

The Langan Field Team Leader (FTL) is to be determined prior to the start of field activities. The Field Team Leader's responsibilities include:

- The management of the day-to-day site activities and implementation of this CHASP in the field.
- Participating in and/or conducting Tailgate Safety Meetings and Jobsite Safety Inspections and correcting any shortcomings in a timely manner.
- When a Community Air Monitoring Operating Program (CAMP) is part of the scope, the FTL will set up and maintain community air monitoring activities and instruct the responsible contractor to implement organic vapor or dust mitigation when necessary.
- Overseeing the implementation of activities specified in the RAP.

2.5 Contractor Responsibilities

The contractor must develop and implement their own CHASP for their employees, their subcontractors, and consultants. The contractor is responsible for their own health and safety and that of their subcontractors. Contractors operating on the site must designate their own FTL, HSO, and Health and Safety Manager (HSM). The contractor's CHASP will be at least as stringent as this CHASP. The contractor must be familiar with and abide by the requirements outlined in their own CHASP. A contractor may elect to adopt Langan's CHASP as its own provided that it has given written notification to Langan, but where Langan's CHASP excludes provisions pertinent to the contractor's work (i.e., confined space entry); the contractor must provide written addendums to this CHASP. Additionally, the contractor must:

- Ensure their employees are trained in the use of all appropriate PPE for the tasks involved.
- Notify Langan of any hazardous material brought onto the job site or site-related area, the hazards associated with the material, and must provide a material safety data sheet (MSDS) or safety data sheet (SDS) for the material.
- Have knowledge of, understand, and abide by all current federal, state, and local health and safety regulations pertaining to the work.
- Ensure their employees handling hazardous materials, if identified at the Site, have received current training in the appropriate levels of 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response* (HAZWOPER) if hazardous waste is identified at

the Site.

- Ensure their employees handling hazardous materials, if identified at the Site, have been fit-tested within the year on the type of respirator they will wear; and
- Ensure all air monitoring is in place pertaining to the health and safety of their employees as required by OSHA 1910.120; and
- All contractors must adhere to all federal, state, and local regulatory requirements.

3.0 TASK/OPERATION SAFETY AND HEALTH RISK ANALYSES

A Task-Hazard Analysis (Table 1) was completed for general construction hazards that may be encountered at the Site. The potential contaminants that might be encountered during the field activities and the exposure limits are listed in Table 2 complete inventory of MSDS/SDS for chemical products used on site is included in Attachment E.

3.1 Specific Task Safety Analysis

3.1.1 Demolition of Exiting Structure(s)

The contractor will perform all demolition work under their own HASP following their own work plan. If Langan is not contracted to execute the community air monitoring plan (CAMP), Langan will, at a minimum, visually monitor air borne dust and note conditions in the field log and report to the PM when conditions warrant. When Langan is contracted to execute CAMP, Langan will follow CAMP air-borne dust limits and mitigations as specified in the work plan and this CHASP. When necessary or when working within areas of on-going demolition, Langan will don a 1/2 – face respirator with a P-100 particle filter or similar N95 respirator.

3.1.2 Daylighting Test Pit

Excavation daylighting must abide by OSHA excavation standards (Part 1926.651). Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate excavation equipment. This task is to be completed by the excavation contractor.

3.1.3 Indoor Drilling and Excavation

The work scope may require indoor excavation where there may not be adequate ventilation sufficient to safely operate any rig or excavation equipment powered by an internal combustion engine. Where possible, all such work should be done by equipment powered by electricity. If such equipment is used and must be directly wired to the buildings electrical system or to an independent system, this work must be completed by a licensed electrician in accordance with all electrical codes applicable to the work.

Indoor work which is to be completed with equipment powered by an internal combustion engine must incorporate air monitoring of carbon monoxide (CO) using calibrated air monitoring equipment (MultiRAE or equivalent). In addition, the work plan should incorporate mitigation for venting engine exhaust fumes directly to the outdoors and for circulating fresh air into the work area.

The OSHA Time Weighted Average (TWA) Permissible Exposure Limit (PEL) for CO from 50 to 35 parts per million (ppm). Langan will monitor CO with a suitable monitoring device. If CO levels exceed 5 ppm, Langan will instruct contractors to begin mitigation measures. These measures are at a minimum:

- Increase air circulation using industrial size fans to bring additional fresh air into the building or vent exhaust to the outside.
- Modify the passive exhaust method being used to increase venting circulation by using wider diameter tubing or sealing tubing connections; or
- Modify the work schedule where the rig is turned off to allow time for CO levels to fall back to background.

All work must cease if CO levels reach 35 ppm. The Langan engineer is to report to the PM and H&S officer when an action level is reached.

3.1.4 Excavation and Soil Screening

Langan personnel will observe excavation and SOE activities including the general oversight, observation of landscaping activities, and other select observation project management and supervision as specified in the work plan or in accordance with the construction documents, or special inspection requirements administered by the New York City Department of Buildings. Materials used for construction may be inspected by Langan personnel for conformance to the design documents. Prior to entering excavation, Langan personnel will ensure that excavation shoring conforms to proper shoring/benching/sloping techniques, at a minimum that soil and equipment is kept at least 2 feet from the edge of the excavation, that there is no water in the excavation, and that a competent person has inspected excavation prior to allow persons to enter.

When entering excavation via a ladder, Langan personnel will only use ladders that are properly situated in accordance with the Ladder section of the CHASP.

Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate nor direct the use of excavation equipment. These tasks are to be completed by the excavation contractor.

3.1.5 Soil Screening and Sampling

Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate drilling or excavation equipment nor open sampling devices (acetate liners, sonic sample bags, etc.). These tasks are to be completed by the driller or excavation contractor.

3.1.6 Stockpile Sampling

Langan personnel are not to scale or otherwise climb stockpiles. If the soil sampling plan requires sampling from the stockpile above ground level, samples are to be obtained using suitable excavation equipment operated by the contractor (i.e., front end loader).

3.1.7 Removal of Underground Storage Tank

If UST excavation and removal activity is initiated, Langan personnel will conduct air monitoring for lower explosion limit (LEL) conditions within the UST excavation itself. This task is to be performed using calibrated air monitoring equipment designed to sound an audio alarm when atmospheric concentrations of VOC are within 10% of the LEL. In normal atmospheric oxygen concentrations, the LEL monitoring may be done with a Wheatstone bridge/catalytic bead type sensor (i.e., MultiRAE). However, in oxygen depleted atmospheres (confined space), only an LEL designed to work in low oxygen environments may be used. Best practices require that the LEL monitoring unit be equipped with a long sniffer tube to allow the LEL unit to remain outside the UST excavation. Langan personnel are not to enter the UST excavation nor enter an excavated UST.

In addition to monitoring LEL, Langan personnel will monitor atmospheric VOC concentrations directly downwind of the UST excavation in accordance with standard CAMP procedures using calibrated air monitoring equipment.

3.1.8 Backfilling of Excavated Areas to Development Grade

The backfilling contractor will provide their employees with equivalent PPE to protect them from the specific hazards likely to be encountered on-site. Selection of the appropriate PPE must take

into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards. Langan personnel may survey backfilling material with a calibrated PID; however, as they are not permitted to climb the material delivery truck, the contractor must provide samples from each truck as required.

3.1.9 Construction Dewatering

If required, Langan may sample dewatering treatment system liquids from either the direct discharge standpipe or from a sample port or valve built into the storage tank, Langan will don the necessary PPE including nitrile gloves and if necessary, facial splash guard. Sample ports and valves may only be sampled if they are accessible at ground level. Sampling from heights over 6 feet is prohibited unless Langan field personnel are fully accredited in fall protection and is wearing approved fall protection safety apparatus. The discharge samples will be submitted to an ELAP-certified laboratory for analysis in accordance with the work plan.

3.1.10 Plugging and Abandonment of Observation/Monitoring Wells

Langan personnel are not to operate equipment nor assist in the plugging and abandonment of the observation/monitoring wells. These tasks are to be completed by the contractor.

3.1.11 Geotechnical Test Pit

Excavation geotechnical test pits must abide by OSHA excavation standards (Part 1926.651). Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection shall be conducted by the competent person prior to the start of work and as needed throughout the shift. Inspections shall also be made after every rainstorm or other hazard increasing occurrence. Sampling the soil requires the donning of chemical resistant gloves in addition to the standard PPE. Langan personnel are not to operate excavation equipment. This task is to be completed by the excavation contractor.

3.1.12 Geotechnical Soil Boring Investigation

Handling soil requires the donning of chemical resistant gloves in addition to the standard PPE. Handling cores and the core boxes requires the donning of either work gloves or puncture resistant gloves in addition to chemically resistant gloves (nitrile) which can be placed over the work or puncture resistant gloves. Langan personnel are not to operate drilling equipment nor open sampling devices (split spoons, acetate liners, sonic sample bags, etc.). These tasks are to

be completed by the drilling contractor.

3.1.13 Support of Excavation

Langan personnel will inspect elements of the SOE including tiebacks in accordance with specification in the work plan and record the data the work plan and/or contract documents require. The installation of the soil pilings, tiebacks and other SOE activities are to be done exclusively by the contractor following their own health and safety specifications outlined in their CHASPs. Other activities assigned to Langan as part of the SOE are limited to inspection and observations as specified in the work plan and/or contract documents. Langan personnel are not to operate or assist in the operation of equipment used in the SOE unless defined as part of an inspection or observation in the work plan and/or contract documents.

3.1.14 Construction Activity Inspection

The contractor will operate equipment used during site construction. Langan personnel will observe construction activities in accordance with specification in the work plan and record the data the work plan requires. Construction activities are to be done exclusively by the contractor following their own health and safety specifications outlined in their HASPs. Langan personnel are not to operate or assist in the operation of equipment used in construction activities unless defined as part of an inspection or observation in the work plan.

3.1.15 Storm water Pollution Prevention Inspection

When performing SWPPP inspections, Langan personnel will don all required PPE and maintain awareness to site traffic and site activities. If using a cell phone or tablet application to record the pertinent data, the engineer will do so in an area protected from site traffic and activities. Certain types of inspections may require additional PPE and safety training including fall protection and open water hazards.

3.1.16 Drum Sampling

Drilling fluid, rinse water, grossly contaminated soil samples and cuttings will be containerized in 55-gallon drums for disposed off-site. Each drum must be labeled in accordance with the Langan Drum Labeling Standard Operating Procedure (SOP-#9). Sampling drums requires the donning of work gloves when opening the drums and chemical resistant gloves when sampling in addition to standard PPE.

Langan personnel and contractors are not to move or opened any orphaned (unlabeled) drum found on the site without approval of the project manager.

3.2 Radiation Hazards

No radiation hazards are known or expected at the site.

3.3 Physical Hazards

Physical hazards, which may be encountered during site operations for this project, are detailed in Table 1.

3.3.1 Explosion

No explosion hazards are expected for the scope of work at this site.

3.3.2 Heat Stress

The use of Level C protective equipment, or greater, may create heat stress. Monitoring of personnel wearing personal protective clothing should commence when the ambient temperature is 72^{O}F or above. Table 6 presents the suggested frequency for such monitoring. Monitoring frequency should increase as ambient temperature increases or as slow recovery rates are observed. Refer to Table 7 to assist in assessing when the risk for heat-related illness is likely. To use this table, the ambient temperature and relative humidity must be obtained (a regional weather report should suffice). Heat stress monitoring should be performed by the HSO or the FTL, who must be able to recognize symptoms related to heat stress.

To monitor the workers, be familiar with the following heat-related disorders and their symptoms:

- **Heat Cramps:** Painful spasms of arm, leg, or abdominal muscles, during or after work
- **Heat Exhaustion:** Headache, nausea, dizziness; cool, clammy, moist skin; heavy sweating; weak, fast pulse; shallow respiration, normal temperature
- **Heat Stroke**: Headache, nausea, weakness, hot dry skin, fever, rapid strong pulse, rapid deep respirations, loss of consciousness, convulsions, coma. *This is a life-threatening condition***.**

Do not permit a worker to wear a semi-permeable or impermeable garment when they are showing signs or symptoms of heat-related illness.

To monitor the worker, measure:

- **Heart rate:** Count the radial pulse during a 30-second period as early as possible in the rest period. If the heart rate exceeds 100 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period the same. If the heart rate still exceeds 100 beats per minute at the next rest period, shorten the

following work cycle by one-third. A worker cannot return to work after a rest period until their heart rate is below 100 beats per minute.

- **Oral temperature:** Use a clinical thermometer (3 minutes under the tongue) or a similar device to measure the oral temperature at the end of the work period (before drinking). If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period. A worker cannot return to work after a rest period until their oral temperature is below 99.6°F. If oral temperature still exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following cycle by one-third. Do not permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

Prevention of Heat Stress - Proper training and preventative measures will aid in averting loss of worker productivity and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion, that person may be predisposed to additional heat-related illnesses. To avoid heat-stress the following steps should be taken:

- Adjust work schedules.
- Mandate work slowdowns as needed.
- Perform work during cooler hours of the day if possible or at night if adequate lighting can be provided.
- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must equal the amount of water lost in sweat, id., eight fluid ounces (0.23 liters) of water must be ingested for every eight ounces (0.23 kilograms [kg]) of weight lost. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, encourage the worker to drink more. The following strategies may be useful:
    - Maintain water temperature 50° to 60°F (10° to 16.6°C).
    - Provide small disposal cups that hold about four ounces (0.1 liters).
    - Have workers drink 16 ounces (0.5 liters) of fluid (preferably water or dilute drinks) before beginning work.
    - Urge workers to drink a cup or two every 15 to 20 minutes, or at each monitoring break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per day are recommended, but more may be necessary to maintain body weight.
    - Train workers to recognize the symptoms of heat-related illness.

3.3.3 Cold-Related Illness

If work on this project begins in the winter months, thermal injury due to cold exposure can become a problem for field personnel. Systemic cold exposure is referred to as hypothermia. Local cold exposure is called frostbite.

- **Hypothermia -** Hypothermia is defined as a decrease in the patient core temperature below 96^{O}F. The body temperature is normally maintained by a combination of central (brain and spinal cord) and peripheral (skin and muscle) activity. Interference with any of these mechanisms can result in hypothermia, even in the absence of what normally is considered a "cold" ambient temperature. Symptoms of hypothermia include shivering, apathy, listlessness, sleepiness, and unconsciousness.
- **Frostbite -** Frostbite is both a general and medical term given to areas of local cold injury. Unlike systemic hypothermia, frostbite rarely occurs unless the ambient temperatures are less than freezing and usually less than 20^{O}F. Symptoms of frostbite are a sudden blanching or whitening of the skin; the skin has a waxy or white appearance and is firm to the touch; tissues are cold, pale, and solid.

Prevention of Cold-Related Illness - To prevent cold-related illness:

- Educate workers to recognize the symptoms of frostbite and hypothermia.
- Identify and limit known risk factors:
- Assure the availability of an enclosed, heated environment on or adjacent to the site.
- Assure the availability of dry changes of clothing.
- Assure the availability of warm drinks.
- Start (oral) temperature recording at the job site:
- At the FSO or Field Team Leader's discretion when suspicion is based on changes in a worker's performance or mental status.
- At a worker's request.
- As a screening measure, two times per shift, under unusually hazardous conditions (e.g., wind-chill less than 20^{O}F, or wind-chill less than 30^{O}F with precipitation).
- As a screening measure whenever anyone worker on the site develops hypothermia.

Any person developing moderate hypothermia (a core temperature of 92^{O}F) cannot return to work for 48 hours.

3.3.4 Noise

Work activities during the proposed activities may be conducted at locations with high noise levels from the operation of equipment. Hearing protection will be used, as necessary.

3.3.5 Hand and Power Tools

The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut, or struck by the tool, fire, and electrocution. All hand and power tools should be inspected for health and safety hazards prior to use. If deemed unserviceable/un-operable, notify the supervisor and tag equipment out of service. Ground Fault Circuit Interrupters (GFCIs) are required for all power tools requiring direct electrical service.

3.3.6 Slips, Trips, and Fall Hazards

Care should be exercised when walking at the site, especially when carrying equipment. The presence of surface debris, uneven surfaces, pits, facility equipment, and soil piles contribute to tripping hazards and fall hazards. To the extent possible, all hazards should be identified and marked on the site, with hazards communicated to all workers in the area.

3.3.7 Utilities (Electrocution and Fire Hazards)

3.3.7.1 Utility Clearance

The possibility of encountering underground utilities poses fire, explosion, and electrocution hazards. All excavation work will be preceded by a review of available utility drawings and by notification of the subsurface work to N.Y. One –Call--Center.

3.3.7.2 Lockout-Tagout

The potential adverse effects of electrical hazards include burns, arc flashes, and electrocution, which could result in serious injury including death. Therefore, there is a procedure that establishes the requirements for the lockout/tag out (LOTO) of energy isolating devices in accordance with the OSHA electrical lockout and tagging requirements as specified in 29CFR1910.147 and 29 CFR 1926.417. This procedure will be used to ensure that all machines and equipment are isolated from potentially hazardous energy. If possible, equipment that could cause injury due to unexpected energizing, start-up, or release of stored energy will be locked/tagged, before field personnel performs work activities.

The facility owner/operator/representative is to be the authorized person that will initiate and perform the LOTO in accordance with applicable rules and practices. Inerting of electrical power sources is to be completed by an authorized and licensed electrician. Langan personnel will follow LOTO protocols and practices including adding a separate lock/signature to the LOTO chain in accordance with said protocols and practices.

SPECIAL NOTE: Project personnel will assume that all electrical equipment at the surface, subsurface, and overhead locations are energized until equipment has been designated and confirmed as de-energized by a utility company representative. Langan will notify the designated

utility representative prior to working adjacent to this equipment and will verify that the equipment is energized or de-energized in the vicinity of the work location. No project work shall be performed by Langan personnel or subcontractors near energized electrical lines or equipment.

The FTL shall accompany the designated facility owner/operator/representative or authorized/licensed electrician in surveying to locate and identify all energy-isolating devices. Langan will note which switches, valves or other isolating devices are used for inerting the equipment and how they are set assuring LOTO. The lockout/tagout procedure involves, but is not limited to, electricity, motors, steam, natural gas, compressed air, hydraulic systems, digesters, sewers, etc.

3.3.8 Adequate Lighting

Indoor or night activities must be done under adequate lighting conditions. The Langan field engineer must be able to clearly see the equipment, all controls and have sufficient lighting to detail color labels. Battery operated lights are sufficient provide they cast a wide enough field to provide the required lighting and there are back-up batteries and emergency flashlights available. Electrically powered lights are suitable provided the electrical source is equipped with a ground fault interrupt circuit (GFIC) and the extensions cords are visually inspected and not used if they show cracked or missing insulation. If a generator is supplying the electricity, it must be outdoors and properly vented.

3.3.9 Physical Hazard Considerations for Material Handling

There are moderate to severe risks associated with moving heavy objects at the Site. The following physical hazards should be considered when handling materials at the Site:

- Heavy objects will be lifted and moved by mechanical devices rather than manual effort whenever possible.
- The mechanical devices will be appropriate for the lifting of moving tasks and will be operated only by trained and authorized personnel.
- Objects that require special handling or rigging will only be moved under the guidance of a person who has been specifically trained to move such objects.
- Lifting devices will be inspected, certified, and labeled to confirm their weight capacities. Defective equipment will be taken out of service immediately and repaired or destroyed.
- The wheels of any trucks being loaded or unloaded will be choked to prevent movement. Outriggers will be fully extended on a flat, firm surface during operation.
- Personnel will not pass under a raised load, nor will a suspended load be left unattended.

- Personnel will not be carried on lifting equipment unless it is specifically designed to carry passengers.
- All reciprocating, rotating, or other moving parts will be guarded at all times.
- Accessible fire extinguishers, currently (monthly) inspected, will be available in all mechanical lifting devices.
- Verify all loads/materials are secure before transportation.

Material handling tasks that are unusual or require specific guidance will need a written addendum to this CHASP. The addendum must identify the lifting protocols before the tasks are performed. Upon approval, the plan must be reviewed with all affected employees and documented. Any deviation from a written plan will require approval by the Langan HSM.

3.3.10 Hearing Conservation

Under the construction industry standard, the maximum permissible occupational noise exposure is 90 A-weighted decibels (dbA) (8-hour TWA), and noise levels in excess of 90 dbA must be reduced through feasible administrative and engineering controls. (20 CFR 1926.52). Hearing protection is required when working within 15 feet of vacuum extraction equipment and drill rigs.

3.3.11 Open Water

Employees working over or near water, where the danger of drowning exists, must be provided with U.S. Coast Guard-approved life jackets or buoyant work vests. Prior to and after each use, the buoyant work vests or life preservers must be inspected for defects that would alter their strength or buoyancy. Defective units must not be used.

And should a worker fall into the water, OSHA requires (29 CFR 1926.106(c)) that ring buoys with at least 90 feet of the line must be provided and readily available for emergency rescue operations. The distance between ring buoys must not exceed 200 feet. Another remedial action required by OSHA (29 CFR 1926.106(d)) is the use of lifesaving skiffs.

OSHA requires that at least one lifesaving skiff must be immediately available at locations where employees are working over or adjacent to water and must include the following provisions.

- The skiff must be in the water or capable of being quickly launched by one person.
- At least one person must be present and specifically designated to respond to water emergencies and operate the skiff at all times when there are employees above water.
- When the operator is on break another operator must be designated to provide requisite coverage when there are employees above water.
- The designated operator must either have the skiff staffed at all times or have someone remain in the immediate area such that the operator can quickly reach the skiff and

perform rescue services.
- The skiff operator may be assigned other tasks provided the tasks do not interfere with the operator's ability to quickly reach the skiff.
- A communication system, such as a walkie-talkie, must be used to inform the skiff operator of an emergency and to inform the skiff operator where the skiff is needed.
- The skiff must be equipped with both a motor and oars.

With regard to the number of skiffs required and the appropriate maximum response time, the following factors must be evaluated:

- The number of work locations where there is a danger of falling into water.
- The distance to each of those locations.
- Water temperature and currents.
- Other hazards such as, but not limited to, rapids, dams, and water intakes.

Other regulations that present H&S practices and PPE for work on or near water include: 29 CFR 1910, Subpart T (401 – 440)

3.4 Biological Hazards

3.4.1 Animals

There is a possibility of encountering wildlife including reptiles, rodents, and other small and medium-size mammals. The Langan personnel is to avoid interacting with any wildlife.

3.4.2 Insects

Ticks and other biting or stinging insects may be encountered during site operations. Langan personnel should take necessary precautions including donning long sleeve shirts and insecticide to prevent bites and stings. After fieldwork, Langan personnel should perform a complete visual inspection of their clothing to insure they are not inadvertently harboring ticks. If they do observe a tick bite, they are to contact the HSM or HSO and report the event.

3.4.3 Plants

Poisonous plants may be encountered during site operations. Langan personnel should take necessary precautions including donning long sleeve shirts and applying preventative poison Ivy/Sumac lotion to prevent or limit the effects of exposure. If after fieldwork, Langan employees do observe a reaction to poisonous plant exposure, they are to contact the HSM or HSO and report the event.

3.4.4 Mold

This section is restricted to subsurface investigations where sampling soil, groundwater, soil or sub-slab vapor or ambient air in an indoor environment with slight to moderate mold impact. Mold exposure symptoms include nasal stuffiness, eye irritation, or wheezing.

The Langan field engineer is required to don a ½ face respirator with a minimum p-100 particulate filter and Tyvek™ type overclothing before entering mold impacted indoor work area. The Langan field engineer must be medically cleared and have been properly fitted for a respirator before donning one.

3.5 Additional Safety Analysis

3.5.1 Presence of Non-Aqueous Phase Liquids (NAPL)

Special care and PPE should be considered when NAPL is observed as NAPL is a typically flammable fluid and releases VOCs known to be toxic and/or carcinogenic. If NAPL is present in a monitoring well, vapors from the well casing may contaminate the work area breathing zone with concentrations of VOCs potentially exceeding health and safety action levels. In addition, all equipment used to monitor or sample NAPL (or ground water from wells containing NAPL) must be intrinsically safe. Equipment that directly contacts NAPL must also be resistant to organic solvents.

At a minimum, a PID should be used to monitor for VOCs when NAPL is observed. If NAPL is expected to be observed in an excavation or enclosed area, air monitoring must be started using calibrated air monitoring equipment designed to sound an audio alarm when atmospheric concentrations of VOC are within 10% of the LEL. In normal atmospheric oxygen concentrations, the LEL monitoring may be done with a Wheatstone bridge/catalytic bead type sensor (i.e., MultiRAE). However, in oxygen-depleted atmospheres (confined space), only an LEL designed to work in low-oxygen environments may be used. Best practices require that the LEL monitoring unit be equipped with a long sniffer tube to allow the LEL unit to remain outside the UST excavation.

When NAPL is present, Langan personnel are required to use disposable nitrile gloves at all times to prevent skin contact with contaminated materials. They should also consider having available a respirator and protective clothing (Tyvek® overalls), especially if NAPL is in abundance and there are high concentrations of VOCs.

All contaminated disposables including PPE and sampling equipment must be properly disposed of in labeled 55-gallon drums.

3.6 Job Safety Analysis

A Job Safety Analysis (JSA) is a process to identify existing and potential hazards associated with each job or task so these hazards can be eliminated, controlled, or minimized. A JSA will be performed at the beginning of each workday, and additionally whenever an employee begins a new task or moves to a new location. All JSAs must be developed and reviewed by all parties involved. A blank JSA form and documentation of completed JSAs are in Attachment G.

4.0 PERSONNEL TRAINING

4.1 Basic Training

Completion of an initial 40-hour HAZWOPER training program as detailed in OSHA's 29 CFR 1910.120(e) is required for all employees working on a site engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances, health hazards, or safety hazards as defined by 29 CFR 1910.120(a). Annual 8-hour refresher training is also required to maintain competencies to ensure a safe work environment. In addition to these training requirements, all employees must complete the OSHA 10-hour Construction Safety and Health training and supervisory personnel must also receive eight additional hours of specialized management training. Training records are maintained by the HSM.

4.2 Initial Site-Specific Training

Training will be provided to specifically address the activities, procedures, monitoring, and equipment for site operations at the beginning of each field mobilization and the beginning of each discrete phase of work. The training will include the site and facility layout, hazards, and emergency services at the site, and will detail all the provisions contained within this CHASP. For a HAZWOPER operation, training on the site must be for a minimum of 3 days. Specific issues that will be addressed include the hazards described in Section 3.0.

4.3 Tailgate Safety Briefings

Before starting work each day or as needed, the Langan HSO will conduct a brief tailgate safety meeting to assist site personnel in conducting their activities safely. Tailgate meetings will be documented in Attachment H. Briefings will include the following:

- Work plan for the day.
- Review of safety information relevant to planned tasks and environmental conditions.
- New activities/tasks being conducted.
- Results of Jobsite Safety Inspection Checklist.
- Changes in work practices.

- Safe work practices; and
- Discussion and remedies for noted or observed deficiencies.

5.0 MEDICAL SURVEILLANCE

All personnel who will be performing fieldwork involving potential exposure to toxic and hazardous substances (defined by 29 CFR 1910.120(a)) will be required to have passed an initial baseline medical examination, with follow-up medical exams thereafter, consistent with 29 CFR 1910.120(f). Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine.

Additionally, personnel who may be required to perform work while wearing a respirator must receive medical clearance as required under CFR 1910.134(e), *Respiratory Protection*. Medical evaluations will be performed by, or under the direction of, a physician board-certified in occupational medicine. Results of medical evaluations are maintained by the HSM.

5.1 Mercury Monitoring

Langan includes medical monitoring for mercury during the initial baseline and annual physical.

5.2 Coronavirus

General Preventative Measures

Field personnel must follow general proper hygiene measures while in the field including:

- Avoid touching eyes, nose, and mouth.
- Cover coughs or sneezes with tissue and throw in the trash.
- Wash hands often with soap and water for 20 seconds after going to the bathroom, before eating, after blowing nose, coughing, or sneezing.
- Use hand sanitizer with at least 60% alcohol if soap and water are not available.
- Avoid physical contact with other people (e.g., no handshakes).
- Maintain a safe distance of at least six feet from other people (social distancing).
- Wear face coverings when around other workers to minimize the spread of COVID-19. (May be required in certain states or locations.)

Construction Trailers

Employees should avoid the use of shared construction trailers or where employees cannot maintain a safe distance (minimum 6 feet) from other workers. If trailer use is needed, areas such as desks, phones, chairs, and other common areas, should be cleaned and disinfected

before and after use. Protocols should be developed to minimize trailer use to essential personnel, restrict use from any workers who are ill or showing symptoms of being ill, use face coverings and ensure a safe distance of six feet can be established between workers.

Communication

Include Coronavirus topics and prevention topics in daily tailgate meetings to ensure Coronavirus awareness is communicated daily. Discussions can focus on general topics including social distancing, prevention measures for field personnel, signs and symptoms, and recent news on the Coronavirus. Site-specific topics should include minimizing face-to-face contact, disinfecting/sterilizing field equipment, use of PPE to reduce exposure, site security, use of face coverings, and other potential exposure issues/concerns.

Sick/Ill Workers

No Langan employee is permitted to be onsite when ill and/or showing potential symptoms of the Coronavirus. Symptoms of the Coronavirus may appear 2-14 days after exposure and can range from mild to severe. The most common symptoms include fever, fatigue, dry cough, shortness of breath chills, repeated shaking with chills, muscle pain, headache, sore throat, or new loss of taste or smell. If an employee or subcontractor is observed being ill or exhibiting symptoms of Coronavirus, employees must immediately utilize their Stop Work Authority and contact their project manager to address the situation. If an employee observes another worker onsite exhibiting symptoms of Coronavirus, immediately utilize Stop Work Authority, notify their project manager, and site construction manager or safety officer. Work should resume when the safety and health of Langan and subcontractors is adequately addressed.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 Levels of Protection

Langan will provide PPE to Langan employees to protect them from the specific hazards they are likely to encounter on-site. Directly hired contractors will provide their employees with equivalent PPE to protect them from the specific hazards likely to be encountered on-site. Selection of the appropriate PPE must take into consideration: (1) identification of the hazards or suspected hazards; (2) potential exposure routes; and (3) the performance of the PPE construction (materials and seams) in providing a barrier to these hazards.

Human exposure to contaminants found in the subsurface can occur through three primary routes:

- Inhalation of gases, vapors, dust, or mists is a common route of exposure. Chemicals can

enter and irritate the airways and the lungs. They can become deposited in the airways or can be absorbed through the lungs into the bloodstream.

- Direct contact of contaminants with the skin or eyes is a common route of exposure. Some substances are absorbed through the skin and can enter the bloodstream. Broken, cut, or cracked skin will allow substances to enter the body more easily.
- Ingestion or swallowing of food, drink, or other substances is the third route of exposure. Chemicals that get in or on food, utensils, or hands can be ingested. Substances can be absorbed into the blood.

Based on anticipated site conditions and the proposed work activities to be performed at the site, Level D protection will be used. The upgrading/downgrading of the level of protection will be based on continuous air monitoring results as described in Section 6.0 (when applicable). The decision to modify standard PPE will be made by the site HSO or FTL after conferring with the PM. The levels of protection are described below.

Level D Protection (as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes
- Coveralls (Tyvek® or equivalent)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection
- Reflective safety vest

Level D Protection (Modified, as needed)

- Safety glasses with side shields or chemical splash goggles
- Safety boots/shoes (toe-protected)
- Disposable chemical-resistant boot covers.
- Coveralls (poly-coated Tyvek or equivalent to be worn when contact with wet contaminated soil, groundwater, or non-aqueous phase liquids is anticipated)
- Hard hat
- Long sleeve work shirt and work pants
- Nitrile gloves
- Hearing protection (as needed)
- Personal floatation device (for work within 5 ft of the water)
- Reflective traffic vest

Level C Protection (as needed)

- Full or Half face, air-purifying respirator, with NIOSH approved High-Efficiency Particulate Air (HEPA) filter.
- Inner (latex) and outer (nitrile) chemical-resistant gloves
- Safety glasses with side shields or chemical splash goggles
- Chemical-resistant safety boots/shoes
- Hard hat
- Long sleeve work shirt and work pants
- Coveralls (Tyvek® or equivalent)
- Hearing protection (as needed)
- Reflective safety vest

The action levels used in determining the necessary levels of respiratory protection and upgrading to Level C are summarized in Table 4. The written Respiratory Protection Program is maintained by the HSM and is available if needed. The monitoring procedures and equipment are outlined in Section 6.0 (when applicable).

6.2 Respirator Fit-Test

All Langan employees who may be exposed to hazardous substances at the work site must be in possession of a full or half face piece air-purifying respirator and have been successfully fit-tested within the past year. Fit-test records are maintained by the HSM.

6.3 Respirator Cartridge Change-Out Schedule

Respiratory protection is required to be worn when certain action levels (Table 2) are reached. A respirator cartridge change-out schedule has been developed to comply with 29 CFR 1910.134. The respirator cartridge change-out schedule for this project is as follows:

- Cartridges must be removed and disposed of at the end of each shift when cartridges become wet or the wearer experiences a breakthrough, whichever occurs first.
- If the humidity exceeds 85%, then cartridges must be removed and disposed of after 4 hours of use.

Respirators must not be stored at the end of the shift with contaminated cartridges left on. Cartridges must not be worn on the second day, no matter how short the time period was the previous day they were used.

7.0 AIR QUALITY MONITORING AND ACTIONS LEVELS

7.1 Monitoring During Site Operations

Atmospheric air monitoring results may be collected and used to provide data to determine when exclusion zones need to be established and when certain levels of personal protective equipment are required. For all instruments, there are Site-specific action-level criteria that are used in making field health and safety determinations. Other data, such as the visible presence of contamination or the steady state nature of air contaminant concentration, are also used in making field health and safety decisions. Therefore, the HSO may establish an exclusion zone or require a person to wear a respirator even though atmospheric air contaminant concentrations are below established CHASP action levels.

During site work involving disturbance of petroleum-impacted or fill material, real-time air monitoring may be conducted for methane and VOCs. A MultiRAE LEL/Oxygen (O2) meter and FID will be used to monitor the LEL of methane, and a PID and/or FID will be used to monitor concentrations of VOCs at personnel breathing-zone height. Air monitoring will be the responsibility of the HSO or designee. Air monitoring may be conducted during intrusive activities associated with the completion of excavation, debris removal, and soil grading. All manufacturers' instructions for instrumentation and calibration will be available onsite.

Subcontractors' air monitoring plans must be equal to or more stringent than the Langan plan.

An air monitoring calibration log is provided in Attachment D of this CHASP.

7.1.1 Volatile Organic Compounds

Monitoring with a PID, such as a MiniRAE 2000 (10.6v) or equivalent may occur during intrusive work in the Areas of Concern (AOCs). Colorimetric Indicator Tubes for benzene may be used as a backup for the PID if measurements remain above background monitor every 2 hours. The HSO will monitor the employee's breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (odors, visible gases, etc.) since the last measurement. If VOC levels are observed above 5 ppm for longer than 5 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for monitored gases are provided in Table 4.

7.1.2 Metals

Based upon the site historical fill, there is a potential for the soils to contain Polycyclic Aromatic Hydrocarbons (PAHs) and metals. During invasive procedures which have the potential for creating airborne dust, such as excavation of dry soils, a real-time airborne dust monitor such as

a Mini-Ram may be used to monitor for air particulates. The HSO will monitor the employee's breathing zone at least every 30 minutes, or whenever there is any indication that concentrations may have changed (appearance of visible dust) since the last measurement. If dust levels are observed to be greater than 0.100 milligrams per cubic meter (mg/m^3) or visible dust is observed for longer than 15 minutes or if the site PPE is upgraded to Level C, the HSO will begin monitoring the site perimeter at a location downwind of the AOC every 30 minutes in addition to the employee breathing zone. Instrument action levels for dust monitoring are provided in Table 4.

7.1.3 Methane

During soil excavation or other intrusive activities, direct reading air monitoring will be performed in the excavation area to determine exposure to workers. Monitoring with an LEL/O2 meter and FID may occur during intrusive work in the AOCs. The HSO will monitor the employee's breathing zone at least hourly during intrusive activities. If LEL levels are observed above 20% the professional engineer (PE) or their designee will stop work and evacuate the area; warn others; and determine source of readings and take corrective actions. The Contractor will be responsible for mitigating explosive gas levels.

7.2 Monitoring Equipment Calibration and Maintenance

Instrument calibration must be documented and included in a dedicated safety and health logbook or on separate calibration pages of the field book. All instruments must be calibrated before and after each shift. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument responses.

All instruments must be operated in accordance with the manufacturers' specifications. Manufacturers' literature, including an operation manual for each piece of monitoring equipment, will be maintained on-site by the HSO for reference.

7.3 Determination of Background Levels

Background (BKD) levels for VOCs, dust, and methane will be established prior to intrusive activities within the AOC at an upwind location. A notation of BKD levels will be referenced in the daily monitoring log. BKD levels are a function of prevailing conditions. BKD levels will be taken in an appropriate upwind location as determined by the HSO.

Table 4 lists the instrument action levels.

8.0 COMMUNITY AIR MONITORING PROGRAM

Community air monitoring provides a measure of protection for the down-wind community from potential airborne contaminant releases as a result of site activities. The CAMP describes

monitoring requirements and response action levels associated with monitoring of volatile organic compounds and particulates (i.e., dust) downwind of work zone activities. Typically, CAMP monitoring stations are located upwind, downwind and between the work zone and the nearest occupied structure. A CAMP is not intended as a replacement for work zone air monitoring. If conducted, Langan will implement the generic CAMP outlined below amended to comply with local conditions or standards:

Monitoring for dust and odors will be conducted during all ground intrusive activities by the FTL. Continuous monitoring of the perimeter of the work zones for odor, VOCs, and dust may be required for all ground intrusive activities such as soil excavation and handling activities. The work zone is defined as the general area in which machinery is operating in support of remediation activities. A portable PID will be used to monitor the work zone and for periodic monitoring for VOCs during activities such as soil and groundwater sampling and soil excavation. The site perimeter will be monitored for fugitive dust emissions by visual observations as well as instrumentation measurements (if required). When required, particulate or dust will be monitored continuously with real-time field instrumentation that will meet, at a minimum, the local standards or, default to the performance standards below:

If VOC monitoring is required, the following actions will be taken based on VOC levels measured:

- If total VOC levels exceed 5 ppm above background for the 15-minute average at the perimeter, work activities will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work activities will resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the hot zone persist at levels in excess of 5 ppm above background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps work activities will resume provided that the total organic vapor level is 200 feet downwind of the hot zone 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 above background for the 15-minute average.
- If the total VOC level is above 25 ppm at the perimeter of the hot zone, activities will be shut down.

If dust monitoring with field instrumentation is required, the following actions will be taken based on instrumentation measurements:

- If the downwind particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression must be employed. Work may continue

with dust suppression techniques provided that downwind particulate matter less than 10 microns (PM10) levels do not exceed 150 µg/m³ above the background level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM10 levels are greater than 150 µg/m³ above the background level, work must 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 PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.

Due to VOC impacts present at the site, special requirements for work within 20 feet of potentially exposed individuals or structures have been established. If work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of ECs will be considered to prevent exposures related to the work activities and to control dust and odors.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.
- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 µg/m^3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 µg/m^3 or less at the monitoring point.

8.1 Dust Suppression Techniques

Preventative measures for dust generation may include wetting site fill and soil, construction of an engineered construction entrance with a gravel pad, a truck wash area, covering soils with tarps, and limiting vehicle speeds to five miles per hour.

Work practices to minimize odors and vapors include limiting the time that the excavations remain open, minimizing stockpiling of contaminated-source soil, and minimizing the handling of contaminated material. Offending odor and organic vapor controls may include the application of foam suppressants or tarps over the odor or VOC source areas. Foam suppressants may include biodegradable foams applied over the source material for short-term control of the odor and VOCs.

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include direct load-out of soils to trucks for off-site disposal; use of chemical odorants in spray or misting systems; and 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 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.

9.0 WORK ZONES AND DECONTAMINATION

9.1 Site Control

Work zones are intended to control the potential spread of contamination throughout the site and to assure that only authorized individuals are permitted into potentially hazardous areas.

Any person working in an area where the potential for exposure to site contaminants exists will only be allowed access after providing the HSO with proper training and medical documentation.

Exclusion Zone (EZ) - All activities which may involve exposure to site contaminants, hazardous materials, and/or conditions should be considered an EZ. Decontamination of field equipment will also be conducted in the Contaminant Reduction Zone (CRZ) which will be located on the perimeter of the EZ. The EZ and the CRZ will be delineated by cones, tapes, or other means. The HSO may establish more than one EZ where different levels of protection may be employed, or different hazards exist. The size of the EZ must be determined by the HSO allowing adequate space for the activity to be completed, field members, and emergency equipment.

9.2 Contamination Zone

9.2.1 Personnel Decontamination Station

Personal hygiene, coupled with diligent decontamination, will significantly reduce the potential for exposure.

9.2.2 Minimization of Contact with Contaminants

During the completion of all site activities, personnel should attempt to minimize the chance of contact with contaminated materials. This involves a conscientious effort to keep "clean" during site activities. All personnel should minimize kneeling, splash generation, and another physical contact with contamination as PPE is intended to minimize accidental contact. This may minimize

the degree of decontamination required and the generation of waste materials from site operations.

Field procedures will be developed to control spray and runoff and to ensure that unprotected personnel working nearby are not affected.

9.2.3 Personnel Decontamination Sequence

Decontamination may be performed by removing all PPE used in EZ and placing it in drums/trash cans at the CRZ. Baby wipes should be available for wiping hands and face. Drums/trash cans-will be labeled by the field crews in accordance with all local, state, and federal requirements. Management plans for contaminated PPE, and tools are provided below.

9.2.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment. If the injured person can be moved, he/she will be decontaminated by site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions must be made to ensure that emergency response personnel will be able to respond to the victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exists, such as with open excavation, this area will be covered with polyethylene sheeting to eliminate any potential inhalation hazards. All emergency personnel should be immediately informed of the injured person's condition, and potential contaminants, and provided with all pertinent data.

9.2.5 Hand-Held Equipment Decontamination

Hand-held equipment includes all monitoring instruments as stated earlier, samples, hand tools, and notebooks. The hand-held equipment is dropped at the first decontamination station to be decontaminated by one of the decontamination team members. These items must be decontaminated or discarded as waste prior to removal from the CRZ.

To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident. Sampling equipment, hand tools, etc. will be cleaned with non-phosphorous soap to remove any potentially contaminated soil and rinsed with deionized water. All decontamination fluids will be containerized and stored on-site pending waste characterization sampling and appropriate off-site disposal.

9.2.6 Heavy Equipment Decontamination

All heavy equipment and vehicles arriving at the work site will be free from contamination from offsite sources. Any vehicles arriving to work that are suspected of being impacted will not be permitted on the work site. Potentially contaminated heavy equipment will not be permitted to leave the EZ unless it has been thoroughly decontaminated and visually inspected by the HSO or his designee.

9.3 Support Zone

The support zone or cold zone will include the remaining areas of the job site. Break areas and support facilities (including equipment storage and maintenance areas) will be located in this zone. No equipment or personnel will be permitted to enter the cold zone from the hot zone without passing through the decontamination station in the warm zone (if necessitated). Eating, smoking, and drinking will be allowed only in this area.

9.4 Communications

The following communications equipment will be utilized as appropriate.

- Telephones - A cellular telephone will be located with the HSO for communication with the HSM and emergency support services/facilities.
- Hand Signals - Hand signals must be used by field teams, along with the buddy system. The entire field team must know them before operations commence and their use covered during site-specific training. Typical hand signals are the following:

Hand Signal	Meaning
Hand gripping throat	Out of air, cannot breathe
Grip your partner's wrists or place both hands around the waist	Leave immediately without debate
Hands on top of head	Need assistance
Thumbs up	OK; I am all right; I understand
Thumbs down	No; negative
Simulated "stick" break with fists	Take a break; stop work

9.5 The Buddy System

When working in teams of two or more, workers will use the "buddy system" for all work activities to ensure that rapid assistance can be provided in the event of an emergency. This requires work groups to be organized such that workers can remain close together and maintain visual contact with one another. Workers using the "buddy system" have the following responsibilities:

- Provide his/her partner with assistance.

- Observe his/her partner for signs of chemical or heat exposure.
- Periodically check the integrity of his/her partner's PPE.
- Notify the HSO or other site personnel if emergency service is needed.

10.0 NEAREST MEDICAL ASSISTANCE

The address and telephone number of the nearest hospital:

Lincoln Medical and Mental Health Center
234 East 149th Street
Bronx, NY
718-579-5700

A map with directions to the hospital is shown in Figure 2. This information will either be posted prominently at the site or will be available to all personnel all of the time. Further, all field personnel, including the HSO & FTL, will know the directions to the hospital.

11.0 STANDING ORDERS/SAFE WORK PRACTICES

The standing orders, which consist of a description of safe work practices that must always be followed while on-site by Langan employees and contractors, are shown in Attachment A. The site HSO and FTL each have the responsibility for enforcing these practices. The standing orders will be posted prominently at the site or are made available to all personnel at all times. Those who do not abide by these safe work practices will be removed from the site.

12.0 SITE SECURITY

No unauthorized personnel must be permitted access to the work areas.

13.0 UNDERGROUND UTILITIES

As provided in Langan's Underground Utility Clearance Guidelines, the following safe work practices should be followed by Langan personnel and the contractor before and during subsurface work in accordance with federal, state, and local regulations:

- Obtain available utility drawings from the property owner/client or operator.
- Provide utility drawings to the project team.
- In the field, mark the proposed area of subsurface disturbance (when possible).
- Ensure that the utility clearance system has been notified.
- Ensure that utilities are marked before beginning subsurface work.
- Discuss subsurface work locations with the owner/client and contractors.
- Obtain approval from the owner/client and operators for proposed subsurface work

locations.
- Use safe digging procedures when applicable.
- Stay at least 10 feet from all equipment performing subsurface work.

14.0 SITE SAFETY INSPECTION

The Langan HSO or alternate will check the work area daily, at the beginning and end of each work shift, or more frequently to ensure safe work conditions. The HSO or alternate must complete the Jobsite Safety Inspection Checklist, found in Attachment F. Any deficiencies must be shared with the FTL, HSM, and PM and will be discussed at the daily tailgate meeting.

15.0 HAND AND POWER TOOLS

All hand- and electric-power tools and similar equipment must be maintained in a safe operating condition. All electric-power tools must be inspected before initial use. Damaged tools must be removed immediately from service or repaired. Tools must be used only for the purpose for which they were designed. All users must be properly trained in their safe operation.

16.0 EMERGENCY RESPONSE

16.1 General

This section establishes procedures and provides information for use during a project emergency. Emergencies happen unexpectedly and quickly, and require an immediate response; therefore, contingency planning and advanced training of staff is essential. Specific elements of emergency support procedures that are addressed in the following subsections include communications, local emergency support units, and preparation for medical emergencies, first aid for injuries incurred on site, record keeping, and emergency site evacuation procedures. In case of emergency, in addition to 911, call *WorkCare - Incident Intervention®* at 1-888-479-7787 to report their injuries. For all other communications, contact the Langan Incident Hotline at **973-560-4699** as soon as possible.

Should outside assistance be needed for accidents, fire, or release of hazardous substances, the emergency numbers will be available and posted at the site (Table 5) where a readily accessible telephone is made available for emergency use.

Also, in the event of an incident where a team member becomes exposed or suffers from an acute symptom from contact with site materials and has to be taken to a hospital, a short medical data sheet (Attachment C) for that individual will be made available to the attending physician. The medical data sheet will include the following:

- Name, address, home phone

- Age, height, weight
- Name of person to be notified in case of an accident.
- Allergies
- Particular sensitivities
- Does he/she wear contact lenses?
- Short checklist of previous illness
- Name of personal physician and phone
- Name of company physician and phone
- Prescription and non-prescription medications currently used.

An incident reporting form is included in Attachment C.

16.2 Responsibilities

16.2.1 Health and Safety Officer (HSO)

The HSO is responsible for ensuring that all personnel are evacuated safely, and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. The HSO is responsible for ensuring the HSM is notified of all incidents, all injuries, near misses, fires, spills, releases, or equipment damage. The HSO is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized) so that the HSM can notify OSHA within the required time limit.

16.2.2 Emergency Coordinator

The HSO or their designated alternate will serve as the Emergency Coordinator. The Emergency Coordinator is responsible for ensuring that all personnel are evacuated safely, and that machinery and processes are shut down or stabilized in the event of a stop work order or evacuation. They are also responsible for ensuring the HSM is notified of all incidents, all injuries, near misses, fires, spills, releases, or equipment damage. The Emergency Coordinator is required to immediately notify the HSM of any fatalities or catastrophes (three or more workers injured and hospitalized.

The Emergency Coordinator must locate emergency phone numbers and identify hospital routes prior to beginning work on the sites. The Emergency Coordinator must make necessary arrangements to be prepared for any emergencies that could occur.

The Emergency Coordinator is responsible for implementing the Emergency Response Plan.

16.2.3 Site Personnel

Project site personnel are responsible for knowing the Emergency Response Plan and the procedures contained herein. All personnel are expected to notify the Emergency Coordinator of situations that could constitute a site emergency. Project site personnel, including all subcontractors, will be trained in the Emergency Response Plan.

16.3 Communications

Once an emergency situation has been stabilized, or as soon as practically, the injured Langan personnel should contact *WorkCare - Incident Intervention®* at 1-888-479-7787 to report their injuries. For all other communications, contact the Langan Incident Hotline at **973-560-4699** as soon as possible.

16.4 Local Emergency Support Units

In order to be able to deal with any emergency that might occur during investigative activities at the site, the Emergency Notification Numbers (Table 5) will be posted and provided to all personnel conducting work within the EZ.

Figure 2 shows the hospital route map. Outside emergency number 911 and local ambulance should be relied on for response to medical emergencies and transport to emergency rooms. Always contact first responders when there are serious or life-threatening emergencies on the site. Project personnel are instructed not to drive injured personnel to the Hospital. In the event of an injury, provide first aid and keep the injured party calm and protected from the elements, and treat for shock when necessary.

16.5 Pre-Emergency Planning

Langan will communicate directly with administrative personnel from the emergency room at the hospital to determine whether the hospital has the facilities and personnel needed to treat cases of trauma resulting from any of the contaminants expected to be found on the site. Instructions for finding the hospital will be posted conspicuously in the site office and each site vehicle.

16.6 Emergency Medical Treatment

The procedures and rules in this CHASP are designed to prevent employee injury. However, if an injury occurs, no matter how slight, it will be reported to the HSO immediately. First-aid equipment will be available on-site at the following locations:

- First Aid Kit: Contractor Vehicles
- Emergency Eye Wash: Contractor Vehicles

During the site safety briefing, project personnel will be informed of the location of the first aid station(s) that has been set up. Some injuries, such as severe cuts and lacerations or burns, may require immediate treatment. Any first-aid instructions that can be obtained from doctors or paramedics, before an emergency-response squad arrives at the site or before the injured person can be transported to the hospital, will be followed closely.

16.7 Personnel with current first aid and CPR certification will be identified.

Only in non-emergency situations may an injured person be transported to an urgent care facility. Due to hazards that may be present at the site and the conditions under which operations are conducted, an emergency may develop. Emergencies can be characterized as injury or acute chemical exposure to personnel, fire or explosion, environmental release, or hazardous weather conditions.

16.8 Emergency Site Evacuation Routes and Procedures

All project personnel will be instructed on proper emergency response procedures and locations of emergency telephone numbers during the initial site safety meeting. If an emergency occurs as a result of the site investigation activities, including but not limited to fire, explosion, or significant release of toxic gas into the atmosphere, the Langan Project Manager will be verbally notified immediately. All heavy equipment will be shut down and all personnel will evacuate the work areas and assemble at the nearest intersection to be accounted for and to receive further instructions.

If an emergency arises, the FTL will implement an immediate evacuation of all project personnel due to immediate or impending danger. The FTL will also immediately communicate with the contractor to coordinate any needed evacuation of the property.

The FTL or Site Supervisor will give necessary instructions until the Designated Incident Commander (IC) assumes control. After the emergency has been resolved, the FTL or Site Supervisor will coordinate with the IC and indicate when staff should resume their normal duties. If dangers are present for those at the designated assembly point, another designated location of assembly will be established.

It will be the responsibility of the FTL or Site Supervisor to report a fire or emergency, assess the seriousness of the situation, and initiate emergency measures until the arrival of the local fire fighters or other first responders, should they be necessary. The FTL, working with emergency responders, may also order the closure of the Site for an indefinite period as long as it is deemed necessary.

Under no circumstances will incoming visitors be allowed to proceed to the area of concern once an emergency evacuation has been implemented. Visitors or other persons present in the area

of the emergency must be instructed to evacuate the area. The FTL will ensure that access roads are not obstructed and will remain on-site to provide stand-by assistance upon the arrival of emergency personnel.

If it is necessary to temporarily control traffic in the event of an emergency, those persons controlling traffic will wear proper reflection warning vests until the arrival of police or fire personnel.

16.8.1 Designated Assembly Locations

All personnel will evacuate the site and assemble at a designated assembly location. The assembly location will be designated by Langan personnel and discussed during each shift's pre-job safety briefing.

16.8.2 Accounting for Personnel

All contractor and subcontractor supervisors are responsible for the accounting of all personnel assembled at the designed assembly area. The Designated Incident Commander must be notified if personnel are not found.

16.9 Fire Prevention and Protection

In the event of a fire or explosion, procedures will include immediately evacuating the site and notification of the Langan Project Manager of the investigation activities. Portable fire extinguishers will be provided at the work zone. The extinguishers located in the various locations should also be identified prior to the start of work. No personnel will fight a fire beyond the stage where it can be put out with a portable extinguisher (incipient stage).

16.9.1 Fire Prevention

Fires will be prevented by adhering to the following precautions:

- Good housekeeping and storage of materials.
- Storage of flammable liquids and gases away from oxidizers.
- Shutting off engines to refuel.
- Grounding and bonding metal containers during transfer of flammable liquids.
- Use of UL approved flammable storage cans.
- Fire extinguishers rated at least 10 pounds ABC located on all heavy equipment, in all trailers and near all hot work activities.

The person responsible for the control of fuel source hazards and the maintenance of fire prevention and/or control equipment is the HSO.

16.10 Significant Vapor Release

Based on the proposed tasks, the potential for a significant vapor release is low. However, if a release occurs, the following steps will be taken:

- Move all personnel to an upwind location. All non-essential personnel must evacuate.
- Upgrade to Level C Respiratory Protection.
- Downwind perimeter locations must be monitored for volatile organics.
- If the release poses a potential threat to human health or the environment in the community, the Emergency Coordinator must notify the Langan Project Manager.
- Local emergency response coordinators will be notified.

16.11 Overt Chemical Exposure

The following are standard procedures to treat chemical exposures. Other, specific procedures detailed on the Material Safety Data Sheet (MSDS) will be followed, when necessary.

SKIN AND EYE: Use copious amounts of soap and water from eye-wash kits and portable hand-wash stations.

CONTACT: Wash/rinse affected areas thoroughly, then provide appropriate medical attention. Skin must also be rinsed for 15 minutes if contact with caustics, acids, or hydrogen peroxide occurs. Affected items of clothing must also be removed from contact with skin.

Providing wash water and soap will be the responsibility of each individual contractor or subcontractor on-site.

16.12 Decontamination during Medical Emergencies

If emergency lifesaving first aid and/or medical treatment is required, normal decontamination procedures may need to be abbreviated or omitted. The HSO or designee will accompany contaminated victims to the medical facility to advice on matters involving decontamination when necessary. The outer garments can be removed if they do not cause delays, interfere with treatment, or aggravate the problem. Respiratory equipment must always be removed. Protective clothing can be cut away. If the outer contaminated garments cannot be safely removed on site, a plastic barrier placed between the injured individual and clean surfaces should be used to help prevent contamination of the inside of ambulances and/or medical personnel. Outer garments may then be removed at the medical facility. No attempt will be made to wash or rinse the victim if his/her injuries are life threatening unless it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life to emergency response personnel. For minor medical problems or injuries, normal decontamination procedures will be followed.

16.13 Adverse Weather Conditions

In the event of adverse weather conditions, the HSO will determine if work will continue without potentially risking the safety of all field workers. Some of the items to be considered prior to determining if work should continue are:

- Potential for heat stress and heat-related injuries.
- Potential for cold stress and cold-related injuries.
- Treacherous weather-related working conditions (hail, rain, snow, ice, high winds).
- Limited visibility (fog).
- Potential for electrical storms.
- Earthquakes.
- Other major incidents.

Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The HSO will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

16.14 Spill Control and Response

All small spills/environmental releases must be contained as close to the source as possible. Whenever possible, the MSDS will be consulted to assist in determining proper waste characterization and the best means of containment and cleanup. For small spills, sorbent materials such as sand, sawdust, or commercial sorbents should be placed directly on the substance to contain the spill and aid recovery. Any acid spills should be diluted or neutralized carefully prior to attempting recovery. Berms of earthen or sorbent materials can be used to contain the leading edge of the spills. All spill containment materials will be properly disposed of. An exclusion zone of 50 to 100 feet around the spill area should be established depending on the size of the spill.

All contractor vehicles must have spill kits on them with enough material to contain and absorb the worst-case spill from that vehicle. All vehicles and equipment must be inspected prior to being admitted on-site. Any vehicle or piece of equipment that develops a leak will be taken out of service and removed from the job site.

The following seven steps must be taken by the Emergency Coordinator:

1. Determine the nature, identity, and amounts of major spills.
2. Make sure all unnecessary persons are removed from the spill area.
3. Notify the HSO immediately.

4. Use proper PPE in consultation with the HSO.
5. If a flammable liquid, gas, or vapor is involved, remove all ignition sources, and use non-sparking and/or explosion-proof equipment to contain or clean up the spill (diesel-only vehicles, air-operated pumps, etc.)
6. If possible, try to stop the leak with the appropriate material.
7. Remove all surrounding materials that can react or compound with the spill.

In addition to the spill control and response procedures described in this CHASP, Langan personnel will coordinate with the designated project manager relative to spill response and control actions. Notification to the Project Manager must be immediate and, to the extent possible, include the following information:

- Time and location of the spill.
- Type and nature of the material spilled.
- Amount spilled.
- Whether the spill has affected or has a potential to affect a waterway or sewer.
- A brief description of affected areas/equipment.
- Whether the spill has been contained.
- Expected time of cleanup completion. If spill cleanup cannot be handled by Langan's on-site personnel alone, such fact must be conveyed to the Project Manager immediately.

Langan will not make any notification of spills to outside agencies. The client will notify regulatory agencies as per their reporting procedures.

16.15 Emergency Equipment

The following minimum emergency equipment must be kept and maintained on site:

- Industrial first aid kit.
- Fire extinguishers (one per site).

16.16 Restoration and Salvage

After an emergency, prompt restoration of utilities, fire protection equipment, medical supplies, and other equipment will reduce the possibility of further losses. Some of the items that may need to be addressed are:

- Refilling fire extinguishers.
- Refilling medical supplies.
- Recharging eyewashes and/or showers.
- Replenishing spill control supplies.

16.17 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan Incident/Injury Hotline at 1-(800)-9-LANGAN (extension 4699) and the client representative to report the incident or near miss. For emergencies involving personnel injury and/or exposure, the HSO and affected employee will complete and submit an Employee Exposure/Injury Incident Report (Attachment C) to the Langan Corporate Health and Safety Manager as soon as possible following the incident.

17.0 SPECIAL CONDITIONS

This guideline contains information and requirements for special conditions that may not be routinely encountered.

17.1 Scope

The guideline applies to the specific projects identified within this document. Additional provisions will be addressed in each Site-Specific CONSTRUCTION HEALTH AND SAFETY PLAN (CHASP), as needed.

17.2 Responsibilities

Site Personnel - All site personnel must be alert to safety hazards on work sites and take action to minimize such hazards. Personnel must utilize the buddy system, watch for inappropriate behavior, and be alerted to changes in site conditions.

Health and Safety Officer (HSO) - The HSO is responsible for considering these procedures in the development of site-specific CHASPs. The HSO must schedule frequent "tail gate" safety briefings to enhance safety awareness and discuss potential problems.

17.3 Procedures

The procedures outlined below must be followed when such conditions are encountered.

17.3.1 Ladders

Langan safety procedures must be used to ensure employee safety when using ladders in the office or work sites. All ladders must be coated or repaired to prevent injury to the employee from punctures or lacerations and to prevent snagging or clothing. Any wood ladders used must have an opaque covering except for identification or warning labels, which may be placed on one face only of a side rail.

17.3.1.1 Ladder Use

Employees must only use ladders for the purposes they were designed for and must not be used as scaffolding. Ladders will be maintained and inspected prior to use for slip hazards including oil and grease. Employees must use ladders only on stable and level surfaces unless the ladder is secured to prevent displacement. Ladders should not be used on slippery surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement. Ladders should not be used in locations where they could be displaced by workplace activities or traffic. Ladder rungs, cleats and steps must be parallel, level and uniformly spaced when the ladder is in the use position.

Employees should not be carrying anything including equipment that could cause injury if there was a fall while utilizing the ladder. The top and bottom of the ladder area must remain clear while in use. When ascending and descending the ladder, employees must face the ladder.

Ladders must not be loaded beyond the maximum intended load for which they were built or the manufacturer's rated capacity.

17.3.1.2 Portable Ladders

Rungs, cleats, and steps for portable ladders and fixed ladders must be spaced not less than 10 inches apart, nor more than 14 inches apart, as measured between center lines of the rungs, cleats, and steps. When used to access an upper landing surface, the ladder side rails must extend at least three feet above the upper landing surface to which the ladder is used to gain access. If this is not possible, due to the length of the ladder, then the top of the ladder must be secured at its top to a rigid support.

17.3.1.3 Step Stools

Rungs, cleats, and steps of step stools must not be less than 8 inches apart, nor more than 12 inches apart, as measured between center lines of the rungs, cleats, and steps.

17.3.1.4 Extension Ladders

Rungs, cleats, and steps of the base section of extension trestle ladders must be spaced not less than 8 inches apart, nor more than 18 inches apart, as measured between center lines of the rungs, cleats, and steps. The rung spacing on the extension section of the extension trestle ladder must not be less than 6 inches nor more than 12 inches, as measured between the center lines of the rungs, cleats and steps. Ladders must be used at an angle such that the horizontal distance from the top support to the foot of the ladder is approximately one-quarter of the working length of the ladder (the distance along the ladder between the foot and the top support).

17.3.1.5 Inspection

Ladders will be inspected for visible detects periodically, prior to utilization or after any occurrence that could have negatively affected the ladder. Portable ladders with defects including broken or missing rungs, cleats, or steps, broken or split rails, corroded components, or other faulty components must not be used. The ladder will be immediately marked as defective, tagged as "Do Not Use" or blocked from being used and removed from service until repaired.

17.3.2 First Aid/Cardiopulmonary Resuscitation (CPR)

Langan field and office personnel will be encouraged to be trained in First Aid and Cardiopulmonary Resuscitation (CPR). Training will be provided free of charge by Langan to all employees. Employees will receive a training certificate that will be kept on file with the Health & Safety Coordinator (HSC). Training and certification will be provided by a credited provider such as American Red Cross or equivalent.

17.3.2.1 Emergency Procedures

Prior to site work, the Langan employees certified in first aid and CPR will be identified in the site-specific CHASP. Langan will endear to have at least one employee at a job site trained and able to render first aid and CPR. The site-specific CHASP will contain first aid information on both potential chemical and physical hazards. Emergency procedures to be followed in case of injury or illnesses are provided in the CHASP. The CHASP will include emergency contact information including local police and fire departments, hospital emergency rooms, ambulance services, on-site medical personnel, and physicians. The CHASP will also include directions and contact information for the nearest emergency facility in case immediate medical attention is required. The emergency contact information will be conspicuously posted at the worksite. Employees that are injured and require immediate medical attention must call either 911 or the local posted emergency contacts. Employees should use ambulatory services to transport injured workers to the nearest facility for emergency medical care. In areas where 911 is not available, the telephone numbers of physicians, hospitals, or ambulances must be conspicuously posted.

17.3.2.2 First Aid Supplies

First aid supplies are readily available to all Langan employees when required. First aid kits are located in each Langan office. Portable first aid kits are available for employees to use at work sites. First aid kits should consist of items needed to treat employees for potential chemical and physical injuries. At a minimum, first aid kits should contain items to allow basic first aid to be rendered. Where the eyes or body of an employee may be exposed to corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area for immediate emergency use including eye wash.

First aid kits will be weatherproof with individually sealed packages of each item. All portable first aid kits must be inspected by Langan employees before and after use to ensure all used items are replaced. When out in the field, employees must check first aid kits weekly to ensure used items are replaced.

17.3.3 Hydrogen Sulfide

Langan employees with the potential to be exposed to hydrogen sulfide while at work sites must have training in hydrogen sulfide awareness. The training will include the identification of areas where employees could be exposed to hydrogen sulfide, health effects, permissible exposure limits, first aid procedures, and personnel protective equipment. Langan employees could be exposed to hydrogen sulfide while at job sites including petroleum refineries, hazardous waste treatment, storage and disposal facilities, uncontrolled hazardous waste sites, and remediation projects.

17.3.3.1 Characteristics

Hydrogen sulfide is a colorless gas with a strong odor of rotten eggs that is soluble in water. Hydrogen sulfide is used to test and make other chemicals. It is also found as a by-product of chemical reactions, such as in sewer treatment. It is a highly flammable gas and a dangerous fire hazard. Poisonous gases are produced in fires including sulfur oxides. Hydrogen sulfide is not listed as a carcinogen.

17.3.3.2 Health Effects

Hydrogen Sulfide can affect employees if inhaled or through contact with skin or eyes. Acute (or short-term) health effects of hydrogen sulfide exposure include irritation of the nose and throat, dizziness, confusion, headache, and trouble sleeping. Inhalation of hydrogen sulfide can irritate the lungs causing coughing and/or shortness of breath. Higher levels of exposure can cause a build-up of fluid in the lungs (pulmonary edema), a medical emergency, with severe shortness of breath.

Chronic (or long-term) health effects of low levels of exposure to hydrogen sulfide can cause pain and redness of the eyes with blurred vision. Repeated exposure may cause bronchitis with cough, phlegm, and shortness of breath.

17.3.3.3 Protective Clothing and Equipment

Respirators are required for those operations in which employees will be exposed to hydrogen sulfide above OSHA permissible exposure level. The maximum OSHA permissible exposure limit (PEL) for hydrogen sulfide is 20 parts of hydrogen sulfide vapor per million parts of air (20 ppm)

for an 8-hour workday and the maximum short-term exposure limit (STEL) is 10 ppm for any 10-minute period.

Where employees are exposed to levels up to 100 parts of hydrogen sulfide vapor per million parts of air (100 ppm), the following types of respiratory protection are allowed:

- Any powered, air-purifying respirator with cartridge(s).
- Any air-purifying, full-facepiece respirator (gas mask) with a chin style, front- or back-mounted canister.
- Any supplied air system with escape self-contained breathing apparatus, if applicable; and,
- Any self-contained breathing apparatus with a full facepiece.

Respirators used by employees must have joint Mine Safety and Health Administration and the National Institute for Occupational Safety and Health (NIOSH) seal of approval. Cartridges or canisters must be replaced before the end of their service life, or the end of the shift, whichever occurs first. Langan employees that have the potential to be exposed to hydrogen sulfide will be trained in the proper use of respirators. Respirator training is discussed under– Langan's Respiratory Protection Program.

Employees with potential exposure to hydrogen sulfide, or when required by the client, will wear a portable hydrogen sulfide gas detector. The detector should have an audible, visual, and vibrating alarm. The detector may also provide detection for carbon monoxide, sulfur dioxide, and oxygen-deficient atmospheres. The hydrogen sulfide monitor will, at a minimum, be calibrated to detect hydrogen sulfide at a level of 20 parts of hydrogen sulfide vapor per million parts of air (20 ppm). Many portable gas detectors will have factory defaults with a low-level alarm at 10 ppm and a high-level alarm at 15 ppm. Langan employees must consult clients to determine if any site-specific threshold levels exist.

If the hydrogen sulfide gas detector sounds and employees are not wearing appropriate respiratory protection, employees must immediately vacate the area and meet at the assigned emergency location. Langan employees may not re- enter the site without proper respiratory protection and approval from the client or property owner if needed.

Employees must wear PPE to prevent eye and skin contact with hydrogen sulfide. Employees must wear appropriate protective clothing including boots, gloves, sleeves, and aprons, over any parts of their body that could be exposed to hydrogen sulfide. Non-vented, impact-resistant goggles should be worn when working with or exposed to hydrogen sulfide.

17.3.3.4 Emergency and First Aid Procedures

Eye and Face Exposure

If hydrogen sulfide comes in contact with eyes, it should be washed out immediately with large amounts of water for 30 minutes, occasionally lifting the lower and upper eye lids. Seek medical attention immediately.

Skin Exposure

If hydrogen sulfide contaminates clothing or skin, remove the contaminated clothing immediately and wash the exposed skin with large amounts of water and soap. Seek medical attention immediately. Contaminated clothing should either be disposed of or washed before wearing again.

Breathing

If a Langan employee or other personnel breathe in hydrogen sulfide, immediately get the exposed person to fresh air. If breathing has stopped, artificial respiration should be started. Call for medical assistance or a doctor as soon as possible.

Safety Precautions

Hydrogen sulfide is a highly flammable gas and a dangerous fire hazard. Containers of hydrogen sulfide may explode in a fire situation. Poisonous gases are produced during fires.

Langan employees should contact property owners and operators prior to conducting work onsite to be aware of any site-specific contingency plans, identify where hydrogen sulfide is used at the facility, and be informed about additional safety rules or procedures.

17.3.4 Fire Protection/Extinguishers

Langan field personnel that have been provided with portable fire extinguishers for use at worksites will be trained to familiarize employees with general principles of fire extinguisher use and hazards associated with the incipient stage of firefighting. Training will be provided prior to the initial assignment for field work and annually thereafter.

Portable fire extinguishers must be visually inspected monthly and subjected to an annual maintenance check. Langan will retain records of the annual maintenance date.

17.3.5 Overhead lines

When field work is performed near overhead lines, the lines must be de-energized and grounded, or other protective measures must be provided before the work commences. If overhead lines are to be de-energized, arrangements must be made with the client, property owner, or

organization that operates or controls the electric circuits involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions must prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

When unqualified Langan personnel are working in an elevated position near overhead lines, the location must be such that the person and the longest conductive object they may contact cannot come closer to any unguarded, energized overhead line than the following distances:

1. For voltages to ground 50 kilovolts (kV) or below - 10 feet; and
2. For voltages to ground over 50kV - 10 feet, plus 4 inches for every 10kV over 50kV.

As previously indicated, Langan does not retain qualified employees to perform work on energized equipment.

17.3.5.1 Vehicle and Equipment Clearance

Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines must be operated so that a clearance of 10 feet is maintained. If the voltage of the overhead lines is higher than 50kV, the clearance must be increased by 4 inches for every 10kV over that voltage.

If any of the following discussed conditions occur, the clearance may be reduced.

- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance must be increased to 4 inches for every 10 kV over that voltage.
- If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments unless the employee is using protective equipment rated for the voltage, or the equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the overhead line than permitted.

If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, must

be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

17.3.6 Trade Secret

Langan employees could potentially be provided trade secret information by the client or property owner when site-specific information is provided about highly hazardous chemicals. Trade secret means any confidential formula, pattern, process, device, information, or compilation of information that is used in an employer's business, and that allows the employer to obtain an advantage over competitors who do not know or use it. Langan employees understand that this information should be kept confident and if required, may enter into a confidentiality agreement with the client.

17.3.7 Bloodborne Pathogens

Langan employees that can anticipate exposure to blood or other potentially infectious material while at work sites must have training in bloodborne pathogens. Applicable employees would include those trained in first aid and serving a designated role as an emergency medical care provider. Bloodborne pathogens are pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include but are not limited to, hepatitis B virus and human immunodeficiency virus.

17.3.7.1 Training

Langan employees with potential occupational exposure to blood or other potentially infectious material must participate in a training program. Training must be conducted prior to the initial assignment where there would be potential for exposure and annually thereafter within one year of previous training. The training program will be provided to Langan employees at no cost to them and during working hours.

Langan will ensure the training program must consist of the following:

- An accessible copy of the regulatory text of 29 CFR 1910.1030 and an explanation of its contents.
- A general explanation of the epidemiology and symptoms of bloodborne diseases.
- An explanation of the modes of transmission of bloodborne pathogens.
- An explanation of Langan's exposure control plan and how the employee can obtain a copy of the written plan.
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials.

- An explanation of the use and limitations of personal protective equipment (PPE) to prevent and reduce exposure.
- Information on the types, proper use, location, removal, handling, and disposal of PPE.
- An explanation of the basis for the selection of PPE.
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge.
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials.
- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available.
- Information on the post-exposure evaluation and determining whether the employer is required to provide for the employee following an exposure incident.
- An explanation of the signs and labels and/or color coding required by paragraph 29 CFR 1910.1030(g)(1); and
- An opportunity for interactive questions and answers with the person conducting the training session.

Langan will develop and implement a written Exposure Control Plan, which will be designed to eliminate or minimize employee exposure to bloodborne pathogens. The Exposure Control Plan will contain the following elements:

- An exposure determination for employees.
- The schedule and method of implementation for Methods of Compliance (29 CFR 191.1030(d)), Hepatitis B Vaccination and Post-Exposure Evaluation and Follow-up (29 CFR 1910.1030(f)), Communication of Hazards to Employees (29 CFR 1910.1030(g)) and (h) Recordkeeping (29 CFR 1910.1030(h)).
- The procedure for the evaluation of circumstances surrounding exposure incidents.
- Ensure a copy of the Exposure Control Plan will be accessible to employees; and,
- The Exposure Control Plan must be reviewed and updated at least annually.

Langan employees with occupational exposure to bloodborne pathogens include any employees trained in first aid that would be expected to provide emergency medical care. This determination is made without regard to the use of PPE, which could eliminate or minimize exposure.

Universal precautions must be observed to prevent contact with blood or other potentially infectious materials. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for bloodborne pathogens. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids must be considered potentially infectious materials.

Work practice controls must be used to eliminate or minimize employee exposure, if applicable. Since Langan employees will have occupational exposure only during the rendering of first aid, personnel protective equipment will be utilized to reduce or minimize exposure. PPE that could be available to Langan personnel when administering first aid includes safety glasses, gloves, and Tyvek suits or sleeves. PPE and first aid kits will be provided to employees at no cost to them.

Langan employees that render first aid in office areas will have access to hand-washing facilities or restrooms. For first aid rendered at field locations, first aid kits will contain an appropriate antiseptic hand cleanser and clean cloth/paper towels or antiseptic towelettes. After using antiseptic hand cleansers or towelettes, employees must wash their hands with soap and running water as soon as feasible.

After administering first aid, potentially infectious materials, including towels, personnel protective equipment, clothes, and bandages, must be placed in a container, which prevents leakage during collection, handling, processing, storage, transport, or shipping. All PPE will be disposed of after use. Any equipment or working surfaces which was been exposed to blood or potentially infectious materials due to an injury will be decontaminated prior to reuse.

Langan will make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident. These services will be available to the employee at no cost to them through a medical provider.

17.3.7.2 Recordkeeping

Langan will maintain training and medical records for each employee with occupational exposure to blood or potentially infectious materials. Medical and training records will be maintained by Langan's H&S Department.

Training records will include the following:

- Dates of the training sessions.
- Contents or a summary of the training sessions.
- Names and qualifications of persons conducting the training; and
- Names and job titles of all persons attending the training sessions.

Training records must be maintained for 3 years from the date on which the training occurred. Medical records will be preserved and maintained for the duration of employment plus 30 years.

All records will be made available upon request to employees, the Assistant Secretary of Labor for Occupational Safety and Health, and the Director of the National Institute for Occupational

Safety and Health Director of OSHA for examination and copying. Medical records must have written consent from the employee before releasing.

If Langan ceases to do business, all records must be transferred to the successor employer. The successor employer must receive and maintain these records.

If there will not be a successor, Langan will notify current employees of their rights to access records at least three months prior to the cessation of business.

18.0 RECORDKEEPING

The following is a summary of required health and safety logs, reports, and recordkeeping.

18.1 Field Change Authorization Request

Any changes to the work to be performed that are not included in the CHASP will require an addendum that is approved by the Langan project manager and Langan HSM to be prepared. Approved changes will be reviewed with all field personnel at a safety briefing.

18.2 Medical and Training Records

Copies or verification of training (40-hour, 8-hour, supervisor, site-specific training, documentation of three-day on-the-job training (OJT)), and respirator fit-test records) and medical clearance for site work and respirator use will be maintained in the office and available upon request. Records for all subcontractor employees must also be available upon request. All employee medical records will be maintained by the HSM.

18.3 Onsite Log

A log of personnel on-site each day will be kept by the HSO or designee.

18.4 Daily Safety Meetings (“Tailgate Talks”)

Completed safety briefing forms will be maintained by the HSO.

18.5 Exposure Records

All personal monitoring results, laboratory reports, calculations, and air sampling data sheets are part of an employee exposure record. These records will be maintained by the HSO during site work. At the end of the project, they will be maintained according to 29 CFR 1910.1020.

18.6 Hazard Communication Program/MSDS-SDS

Material safety data sheets (MSDS) Safety Data Sheets (SDS) have been obtained for applicable substances and are included in this CHASP (Attachment D). Langan's written hazard communication program, in compliance with 29 CFR 1910.1200, is maintained by the HSM.

18.7 Documentation

Immediately following an incident or near miss, unless emergency medical treatment is required, either the employee or a coworker must contact the Langan incident/injury hotline at 1-800-952-6426, extension 4699, and the Project Manager to report the incident or near miss. The Project Manager will contact the client or client representative. A written report must be completed and submitted HSM within 24 hours of the incident. For emergencies involving personnel injury and/or exposure, the employee will complete and submit the Langan incident/injury report to the Langan corporate health and safety manager as soon as possible following the incident. Accidents will be investigated in-depth to identify all causes and to recommend hazard control measures.

18.7.1 Accident and Injury Report Forms

18.7.1.1 Accident/Incident Report

All injuries, no matter how slight, must be reported to the FTL and the PM immediately. The accident/incident report forms, attached in Attachment C, will be filled out on all accidents by the applicable contractor supervision personnel, the FTL, or the HSO. Copies of all accident/incident reports must be kept on-site and available for review. Project personnel will be instructed on the location of the first aid station, hospital, and doctor and ambulance service near the job. The emergency telephone numbers will be conspicuously posted in site vehicles near the work zone. First aid supplies will be centrally located and conspicuously posted between restricted and nonrestricted areas to be readily accessible to all on the site.

18.7.1.2 First Aid Treatment Record

The forms will be used for recording all non-lost time injuries treated by the project first-aid attendant, the local physician or hospital will be entered in detail on this record. "Minor" treatment of scratches, cuts, etc. will receive the same recording attention as treatment of more severe injuries.

18.7.1.3 OSHA Form 300

An OSHA Form 300 will be kept at the Langan Corporate Office in Parsippany, New Jersey. All recordable injuries or illnesses will be recorded on this form. Subcontractor employers must also

meet the requirements of maintaining an OSHA 300 form. The Incident Report form used to capture the details of work-related injuries/illnesses meets the requirements of the OSHA Form 301 (supplemental record) and must be maintained with the OSHA Form 300 for all recordable injuries or illnesses. Forms for recording OSHA work-related injuries and illnesses are included in Attachment C.

19.0 CONFINED SPACE ENTRY

Confined spaces are not anticipated at the Site during planned construction activities. If confined spaces are identified, the contractor must implement their own confined space program that all applicable federal, state, and local regulations. Confined spaces **will not** be entered by Langan personnel.

20.0 CHASP ACKNOWLEDGEMENT FORM

All Langan personnel and contractors will sign this CHASP Compliance Agreement indicating that they have become familiar with this CHASP and that they understand it and agree to abide by it.

Printed Name	Signature	Company	Date

Printed Name	Signature	Company	Date

Printed Name	Signature	Company	Date

TABLES

TABLE 1
TASK HAZARD ANALYSES

Task	Hazard	Description	Control Measures	First Aid
1.3.1 – 1.3.20	Contaminated Soil or Groundwater-Dermal Contact	Contaminated water spills on skin, splashes in eyes; contact with contaminated soil/fill during construction activities or sampling.	Wear proper PPE; follow safe practices, maintain safe distance from construction activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.20	Lacerations, abrasions, punctures	Cutting bailer twine, pump tubing, acetate liners, etc. with knife; cuts from sharp site objects or previously cut piles, tanks, etc.; Using tools in tight spaces	Wear proper PPE; follow safe practices	Clean wound, apply pressure and/or bandages; seek medical attention as required.
1.3.1 – 1.3.20	Contaminated Media Inhalation	Opening drums, tanks, wells; vapors for non-aqueous phase liquids or other contaminated site media; dust inhalation during excavation; vapor accumulation in excavation	Follow air monitoring plan; have quick access to respirator, do not move or open unlabeled drums found at the site, maintain safe distance from construction activities	See Table 2, seek medical attention as required
1.3.1 – 1.3.20	Lifting	Improper lifting/carrying of equipment and materials causing strains	Follow safe lifting techniques. Langan employees are not to carry contractor equipment or materials	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.20	Slips, trips, and falls	Slips, trips, and falls due to uneven surfaces, cords, steep slopes, debris, and equipment in work areas	Good housekeeping at site; constant awareness and focus on the task; avoid climbing on stockpiles; maintain safe distance from construction activities and excavations; avoid elevated areas over six feet unless fully accredited in fall protection and wearing an approved fall protection safety apparatus	Rest, ice, compression, elevation; seek medical attention as required
1.3.1 – 1.3.20	Noise	Excavation equipment, hand tools, drilling equipment.	Wear hearing protection; maintain safe distance from construction activities	Seek medical attention as required
1.3.1 – 1.3.20	Falling objects	Soil material, tools, etc. dropping from drill rigs, front-end loaders, etc.	Hard hats to be worn at all times while in work zones; maintain safe distance from construction activities and excavations	Seek medical attention as required
1.3.1 – 1.3.20	Underground/ overhead utilities	Excavation equipment, drill rig auger makes contact with underground object; boom touches overhead utility	"One Call" before dig; follow safe practices; confirm utility locations with contractor; wear proper PPE; maintain safe distance from construction activities and excavations	Seek medical attention as required
1.3.1 – 1.3.20	Insects (bees, wasps, hornet, mosquitoes, and spider)	Sings, bites	Insect Repellent; wear proper protective clothing (work boots, socks and light-colored pants); field personnel who may have insect allergies (e.g., bee sting) should provide this information to the HSO or FSO prior to commencing work and will have allergy medication on site.	Seek medical attention as required
1.3.1 – 1.3.20	Vehicle traffic / Heavy Equipment Operation	Vehicles unable to see workers on site, operation of heavy equipment in tight spaces, equipment failure, malfunctioning alarms	Wear proper PPE, especially visibility vest; use a buddy system to look for traffic; rope off area of work with cones and caution tape or devices at points of hazard, maintain safe distance from construction activities and equipment	Seek medical attention as required

TABLE 2
CONTAMINANT HAZARDS OF CONCERN

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	1,1,2-Trichloro-1,2,2-trifluoroethane Chlorofluorocarbon-113 CFC-113 Freon® 113 Genetron® 113 Halocarbon 113 Refrigerant 113 TTE Frigen 113 TR Freon TF Trichlorotrifluoroethane	76-13-1	PID	1000 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation skin, throat, drowsiness, dermatitis; central nervous system depression; dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite. In animals: cardiac arrhythmias, narcosis,	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	1,1-Dichloroethane Asymmetrical dichloroethane Ethylidene chloride 1,1-Ethylidene dichloride 1,1-DCA	75-34-3	PID	100 ppm 3000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the skin; central nervous system depression; liver, kidney, lung damage	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	1,2,4-Trimethylbenzene	95-63-6	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	1,3,5-Trimethylbenzene Mesitylene sym-Trimethylbenzene	108-67-8	PID	None None	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	1,3-Butadiene Biethylene Bivinyl Butadiene Divinyl Erythrene Vinylethylene	106-99-0	PID	1 ppm 2000 ppm	Vapor	inhalation, skin and/or eye contact (liquid)	irritation to the eyes, nose, throat; drowsiness, dizziness; liquid: frostbite; teratogenic, reproductive effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.20	1,4-Dioxane 1,4-Dioxacyclohexane [1,4] Dioxane p-Dioxane [6]-crown-2 Diethylene dioxide Diethylene ether Dioxan Dioxane 1,4-Dioxane	123-91-1	PID	100 ppm 500 ppm	Groundwater Soil Vapor	Inhalation, ingestion, skin and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	1H,1H,2H,2H.Perfluorooctanesulfonic Acid (6:2FTS) Sodium 1H,1H, 2H, 2H-Perfluorooctane Sulfonate (6:2)(6:2FTS) 6:2 Fluorinated Telomer Sulfonates (6:2FTS) 1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS) 1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	27619-97-2	NA	NA NA	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	2-(N-Methylperfluorooctanesulfonamido)acetic acid N-MeFOSAA N-methylperfluorooctane sulfonamidoacetic acid 2-(N-methyl-perfluorooctane sulfonamido) acetic acid Glycine N-[(heptadecafluorooctyl)sulfonyl]-N-methyl- N-methyl perfluorooctane-sulfonamidoacetic acid NMeFOSAA MeFOSAA	2355-31-9	NA	NA NA	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	2-Butanone Ethyl methyl ketone MEK Methyl acetone Methyl ethyl ketone	78-93-3	PID	200 ppm 3000 ppm	Soil Groundwater Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose; headache; dizziness; vomiting; dermatitis	Eye: Irrigate immediately Skin: Water wash immediately Breathing: Fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	2-Hexanone Butyl methyl ketone MBK Methyl butyl ketone Methyl n-butyl ketone	591-78-6	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose; peripheral neuropathy: lassitude (weakness, exhaustion), paresthesia; dermatitis; headache, drowsiness	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	2-Methylnaphthalene β-methylnaphthalene	91-57-6	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion or skin absorption, eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract. It may also cause headaches, nausea, vomiting, diarrhea, anemia, jaundice, euphoria, dermatitis, visual disturbances, convulsions and comatose	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	4-Isopropyltoulene 1-Methyl-4-(1-methylethyl)benzene 4-Isopropyltoluene; 4-Methylcumene; 1-Methyl-4-isopropylbenzene Dolcymene Camphogen Paracymene Cymene p-Cymene p-Isopropyltoluene	99-87-6	PID	NA NA	Soil Groundwater Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Acenaphthene 1,2-Dihydroacenaphthylene 1,8-Ethylenenaphthalene peri-Ethylenenaphthalene Naphthyleneethylene Tricyclododecapentaene	83-32-9	PID	NA NA	Soil	inhalation, ingestion, skin and/or eye contact,	irritation to the skin, eyes, mucous membranes, and upper respiratory tract; If ingested, it can cause vomiting	Eye: Irrigate immediately Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately
1.3.1 – 1.3.20	Acenaphthylene Cycopental(de)naphthalene, Acenaphthalene	208-96-8	PID	NA NA	Soil	inhalation, ingestion, skin and/or eye contact	irritation to the skin, eyes, mucous membranes, and upper respiratory tract	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, if redness or irritation develop, seek medical attention immediately Breathing: Move to fresh air Swallow: do not induce vomiting, seek medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Acetone Dimethyl ketone Ketone propane 2-Propanone	67-64-1	PID	1000 ppm 2500 ppm	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose, throat; headache, dizziness, central nervous system depression; dermatitis	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Alpha-BHC alpha-Hexachlorocyclohexane -alpha,2-alpha,3-beta,4-alpha,5-beta,6-beta- Hexachlorocyclohexane alpha-1,2,3,4,5,6- Hexachlorocyclohexane alpha-Benzenehexachloride α-1,2,3,4,5,6- hexachlorocyclohexane α-HCH α-Benzenehexachloride alpha-hexacloran(e) alpha-Lindane Alpha Hexachlorocyclohexane	319-84-6	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane possible carcinogenic, effects to liver, blood, and central nervous system	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Alpha-Chlordane Alpha Chlordane a-Chlordane	5103-71-9	None	0.5 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Aluminum	7429-90-5	None	0.5 mg/m3 50 mg/m3	Soil	inhalation, skin and/or eye contact	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Anthracene	120-12-7	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to the skin, eyes, mucous membranes and upper respiratory tract, abdominal pain if ingested.	Eye: Irrigate immediately, seek medical attention immediately, Skin: Soap wash immediately, Breathing: Move to fresh air, refer to medical attention; Swallow: refer to medical attention
1.3.1 – 1.3.20	Antimony	7440-36-0	None	0.5 mg/m^3 50 mg/m^3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation skin, dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Arsenic	NA	None	0.5 mg/m3 NA	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation skin, dermatitis; resp distress; diarrhea; muscle tremor, convulsions; possible gastrointestinal tract	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Barium	10022-31-8	None	0.5 mg/m3 50 mg/m3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, upper respiratory system; skin burns; gastroenteritis; muscle spasm; slow pulse	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Benzene Benzol Phenyl hydride Alkyl benzene isomers	71-43-2	PID	3.19 mg/m^3 1,595 mg/mg^3	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; lassitude (weakness, exhaustion) [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Benzo(a)anthracene Benzanthracene Benzanthrene 1,2-Benzanthracene Benzo[b]phenanthrene Tetraphene	56-55-3	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Benzo(a)pyrene	50-32-8	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	dermatitis, bronchitis, [potential occupational carcinogen]	Eye: Irrigate immediately, seek medical attention Skin: Soap wash immediately; Breathing: move to fresh air; Swallow: Induce vomiting if conscious, seek medical attention immediately
1.3.1 – 1.3.20	Benzo(b)fluoranthene	205-99-2	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.20	Benzo(g,h,i)perylene Benzo(ghi)perylene	191-24-2	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	NA	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Benzo(k)fluoranthene	207-08-9	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.20	Benzyl butyl phthalate Butyl benzyl phthalate Butylbenzylphthalate	86-66-7	None	NA NA	Groundwater Soil Vapor	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation (dizziness, weakness, fatigue, nausea, headache	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.20	Beryllium	7440-41-7	None	0.002 mg/m^3 4 mg/m^3	Soil	inhalation, skin and/or eye contact	berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation to the eyes; dermatitis; [potential occupational carcinogen]	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Bis(2-ethylhexyl)phthalate Bis(2-Ethylhexyl) Phthalate Di-sec octyl phthalate DEHP Di(2-ethylhexyl)phthalate Octyl phthalate bis(2-ethylexyl)phthalate	117-81-7	None	5 mg/m^3 5000 mg/m^3	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, mucous membrane; in animals: liver damage; teratogenic effects; [potential occupational carcinogen	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Cadmium	7440-43-9	None	0.005 mg/m3 9 mg/m3	Soil	inhalation, ingestion	pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal (occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Calcium	7440-70-2	None	NA	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, upper resp tract; ulcer, perforation nasal septum; pneumonitis; dermatitis	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Carbazole 9-azafluorene Dibenzopyrrole Diphenylenimine diphenyleneimide	86-74-8	None	NA NA	Soil	inhalation, skin absorption (liquid), skin and/or eye contact	irritation to eyes and skin, respiratory irritation	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.20	Carbon disulfide	75-15-0	PID	20 ppm 500 ppm	Soil Groundwater Vapor	inhalation, skin or eye contact, ingestion	irritation to the eyes, skin, respiratory system	Eye: Irrigate immediately (liquid) Skin: Water flush immediately (liquid) Breathing: Respiratory support
1.3.1 – 1.3.20	Carbon tetrachloride Carbon chloride Carbon tet Freon® 10 Halon® 104 Tetrachloromethane	56-23-5	PID	10 ppm 200 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Chloroform Methane trichloride Trichloromethane Chloro-3-methyl phenol	67-66-3	None	50 ppm 500 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; dizziness, mental dullness, nausea, confusion; headache, lassitude (weakness, exhaustion); anesthesia; enlarged liver; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Chromium Total Chromium Chromium, Total	7440-47-3	None	1.0 mg/m3 250 mg/m3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Chrysene Benzo[a]phenanthrene 1,2-Benzphenanthrene	218-01-9	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eye, skin, and respiratory, gastrointestinal irritation nausea, vomit, diarrhea [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	cis-1,2-Dichloroethylene cis-1,2-Dichloroethene	156-59-2	NA	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	Irritant to eyes, skin, mucous membranes, and respiratory system. May be harmful by ingestion, skin absorption and inhalation	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Cobalt	7440-48-4	None	0.1mg/m^3 20 mg/m^3	Soil	inhalation, ingestion, skin and/or eye contact	Cough, dyspnea (breathing difficulty), wheezing, decreased pulmonary function; weight loss; dermatitis; diffuse nodular fibrosis; resp hypersensitivity, asthma	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Copper	7440-50-8	None	1.0 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose, metallic taste; dermatitis; anemia	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Cumene Cumol Isopropylbenzene 2-Phenyl propane 1-methylethy lbenzene Isopropyl Benzene	98-82-8	PID	50 ppm 900 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Cyanide	57-12-5	None	5 mg/m^3 25 mg/m^3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	Exposure to cyanide can cause weakness, headaches, confusion, dizziness, fatigue, anxiety, sleepiness, nausea and vomiting. Breathing can speed up then become slow and gasping. Coma and convulsions also occur. If large amounts of cyanide have been absorbed by the body, the person usually collapses and death can occur very quickly. Long-term exposure to lower levels of cyanide can cause skin and nose irritation, itching, rashes and thyroid changes.	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Cyclohexane Benzene hexahydride Hexahydrobenzene Hexamethylene Hexanaphthene	110-82-7	PID	300 ppm 1300 ppm	Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, respiratory system; drowsiness; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	DDE 4,4-DDE 4,4′-DDE 1,1-bis-(4-chlorophenyl)-2,2-dichloroethene Dichlorodiphenyldichloroethylene p,p'-DDE	72-55-9	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	Oral ingestion of food is the primary source of exposure for the general population. Acute and chronic ingestion may cause nausea, vomiting, diarrhea, stomach pain, headache, dizziness, disorientation, tingling sensation, kidney damage, liver damage, convulsions, coma, and death. 4,4' DDE may cross the placenta and can be excreted in breast milk	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Dibenz(a,h)anthracene Dibenzo(a,h)anthracene Dibenzo[a,h]anthracene	53-70-3	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support PID Swallow: Medical attention immediately
1.3.1 – 1.3.20	Dibenzofuran	132-64-9	None	NA NA	Soil	inhalation, absorption	irritation to eyes, and skin	Eyes: Irrigate immediately Skin: Soap wash promptly.

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Dibutyl phthalate Di-n-butyl phthalate Butyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid dibutyl ester o-Benzenedicarboxylic acid dibutyl ester DBP Palatinol C, Elaol Dibutyl-1,2-benzene-dicarboxylate Di-n-butylphthalate	84-74-2	None	5 mg/m^3 4000 mg/m^3	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, upper respiratory system, stomach	Eye: Irrigate immediately Skin: Wash regularly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Dichlorodifluoromethane Difluorodichloromethane, Fluorocarbon 12 Freon 12 Freon® 12 Genetron® 12 Halon® 122 Propellant 12 Refrigerant 12 Dichlorodifluromethane	75-71-8	None	1000 pp, 15,000 ppm	Groundwater Soil Vapor	inhalation, skin and/or eye contact (liquid)	dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.20	Dieldrin HEOD 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo exo-5,8-dimethanonaphthalene	60-57-1	PID	0.25 mg/m^3 50 mg/m^3	Groundwater Soil Water	inhalation, skin absorption, ingestion, skin and/or eye contact	headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; [potential occupational carcinogen]; in animals: liver, kidney damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Diesel Fuel automotive diesel fuel oil No. 2 distillate diesoline diesel oil diesel oil light diesel oil No. 1-D summer diesel	68334-30-5	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Di-n-octyl phthalate Di-n-cotylphthalate Di-n-octylphthalate Di-sec octyl phthalate Dioctyl phthalate DEHP, Di(2-ethylhexyl)phthalate, DOP, bis-(2-Ethylhexyl)phthalate, Octyl phthalate	117-84-0	None	5 mg/m^3 5000 mg/m^3	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, mucous membrane; in animals: liver damage; teratogenic effects; [potential occupational carcinogen]	Eye: Irrigate immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Ethyl acetate Acetic ester Acetic ether Ethyl ester of acetic acid Ethyl ethanoate	141-78-6	PID	400 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; narcosis; dermatitis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Ethyl benzene Ethylbenzene Ethylbenzol Phenylethane	100-41-4	PID	435 mg/m3 3,472 mg/m3	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Fluoranthene Benzo(j, k)fluorene	206-44-0	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.20	Fluorene	86-73-7	PID	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attenti
1.3.1 – 1.3.20	gamma-Chlordane Gamma Chlordane y-Chlordane	5566-34-7	None	0.5 mg/m^3 100 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Gasoline	8006-61-9	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Helium	7440-59-7	Helium Detector	NA NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.20	Heptane n-Heptane	142-82-5	PID	500 ppm 750 ppm	Goundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	dizziness, stupor, incoordination; loss of appetite, nausea; dermatitis; chemical pneumonitis (aspiration liquid); unconsciousness	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Indeno(1,2,3-cd)pyrene Indeno(1,2,3-c,d)Pyrene Indeno[1,2,3-cd]Pyrene	193-39-5	None	0.2 mg/m^3 80 mg/m^3 (Coal Pitch Tar)	Groundwater Soil	inhalation, absorption, ingestion, consumption	irritation to eyes, skin, respiratory, and digestion [potential occupational carcinogen]	Eyes: Irrigate immediately Skin: Soap wash promptly. Breath: Respiratory support Swallow: Medical attention immediately, wash mouth with water

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Iron	7439-89-6	None	10 mg/m^3 NA	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; abdominal pain, diarrhea, vomiting	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Isopropyl alcohol Iso-Propyl Alcohol Carbinol IPA Isopropanol 2-Propanol sec-Propyl alcohol Rubbing alcohol Isopropylalcohol	67-63-0	PID	400 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose, throat; drowsiness, dizziness, headache; dry cracking skin; in animals: narcosis	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Lead	7439-92-1	None	0.050 mg/m3 100 mg/m3	Groundwater Soil	inhalation, ingestion, skin and/or eye contact	lassitude (weakness, exhaustion), insomnia; facial pallor; anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation to the eyes; hypertension	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Magnesium	7439-95-4	None	15 mg/m^3 NA	Soil	inhalation, skin and/or eye contact	irritation to the eyes, skin, respiratory system; cough	Eye: Irrigate immediately Breathing: Fresh air

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Manganese	7439-96-5	None	5 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation, ingestion	aerosol is irritating to the respiratory tract	Eye: Irrigate immediately Skin: Soap flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	m-Cresol meta-Cresol 3-Cresol m-Cresylic acid 1-Hydroxy-3-methylbenzene 3-Hydroxytoluene 3-Methylphenol 3-Methylphenols	108-39-4	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irreg rapid resp, weak pulse; eye, skin burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Mercury	7439-97-6	None	0.1 mg/m3 10 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Methyl Acetate	79-20-9	PID	200 ppm 3100 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; headache, drowsiness; optic nerve atrophy; chest tightness; in animals: narcosis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Methyl Chloride Chloromethane Monochloromethane Refrigerant-40 R-40	74-87-3	NA	100 ppm 2000 ppm	Groundwater Soil	inhalation, skin and/or eye contact	dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]	Eye: Frostbite Skin: Frostbite Breathing: Respiratory support
1.3.1 – 1.3.20	Methyl chloroform Chlorothene 1,1,1-Trichloroethane 1,1,1-Trichloroethane-(stabilized) 1,1,1-TCA 1,1,1-Trichbroethane TCA	71-55-6	PID	350 ppm 700 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention
1.3.1 – 1.3.20	Methyl methacrylate Methacrylate monomer Methyl ester of methacrylic acid Methyl-2-methyl-2-propenoate	80-62-6	PID	100 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat; dermatitis	Eye: Irrigate immediately Skin: Water wash immediately Breathing: Fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Methyl *tert*-butyl ether MTBE Methyl tertiary-butyl ether Methyl t-butyl ether tert-Butyl methyl ether tBME tert-BuOMe Methyl tert butyl ether	1634-04-4	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Methylcyclohexane Methyl cyclohexane Methylcyclohexane Hexahydrotoluene Cyclohexylmethane Toluene hexahydride	108-87-2	PID	500 ppm 1200 ppm	Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, drowsiness; in animals: narcosis	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Methylene Chloride Dichloromethane Methylene dichloride	75-09-2	PID	25 ppm 2300 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numb, tingle limbs; nausea; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	m-Xylenes 1,3-Dimethylbenzene m-Xylol Metaxylene	108-38-3 179601-23-1	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Naphthalene Naphthalin Tar camphor White tar	91-20-3	PID	50 mg/m3 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; hematuria (blood in the urine); dermatitis, optical neuritis	Eye: Irrigate immediately Skin: Molten flush immediately/solid-liquid soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	n-Butylbenzene Butylbenzene 1-phenylbutane	104-51-8	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	N-ethyl perfluorooctane sulfonamido acetic acid NEtFOSAA N-ethyl perfluorooctane sulfonamido acetic acid (N-EtFOSAA) N-Ethylperfluorooctanesulfonamide N-Ethyl Perfluorooctanesulfonamidoacetic Acid N-ethyl perfluorooctane-sulfonamidoacetic acid N-Ethyl-N-[(heptadecafluorooctyl)sulphonyl]glycine	2991-50-6	NA	None None	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	n-Hexane Hexane, Hexyl hydride, normal-Hexane	110-54-3	PID	500 ppm 1100 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, nose; nausea, headache; peripheral neuropathy: numb extremities, muscle weak; dermatitis; dizziness; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Nickel	7440-02-0	None	NA 10 mg/m^3	Groundwater Soil	ion, ingestion, skin and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Methane Hydrogen Sulfide Carbon Monoxide Nitrogen	 7782-44-7 74-82-8 7783-08-4 830-08-0 7727-37-9	Multi-Gas PID	 NA/NA NA/NA 10/100 ppm 50/1200 ppm NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.20	Non-Flammable Gas Mixture CALGAS (Equipment Calibration Gas : Oxygen Isobutylene Nitrogen	 7782-44-7 115-11-7 7727-37-9	PID	 NA/NA NA/NA NA/NA	NA	inhalation	dizziness, headache, and nausea	Breathing: Respiratory support
1.3.1 – 1.3.20	n-Propylbenzene Isocumene Propylbenzene 1-Phenylpropane 1-Propylbenzene Phenylpropane Propylbenzene-n	103-65-1	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	o-Cresol ortho-Cresol 2-Cresol o-Cresylic acid 1-Hydroxy-2-methylbenzene 2-Hydroxytoluene 2-Methyl phenol 2-Methylphenol	95-48-7	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irreg rapid resp, weak pulse; eye, skin burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediatelyethylphhhhhhhhhh
1.3.1 – 1.3.20	o-Xylenes 1,2-Dimethylbenzene ortho-Xylene o-Xylol	95-47-6 179601-23-1	PID	100 ppm 900 ppm	Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	p-Cresol para-Cresol 4-Cresol p-Cresylic acid 1-Hydroxy-4-methylbenzene 4-Hydroxytoluene 4-Methylphenol 4-Methylphenols	106-44-5	PID	5 ppm 250 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; central nervous system effects: confusion, depression, resp failure; dyspnea (breathing difficulty), irreg rapid resp, weak pulse; eye, skin burns; dermatitis; lung, liver, kidney, pancreas damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Perfluoro(2-ethoxyethane)sulfonic acid	113507-82-7	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorobutanesulfonic acid FC-98 Nonaflate Nonafluorobutanesulphonic acid Perfluorobutanesulfonic Acid Perfluorobutane sulfonate PFBS	375-73-5	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorobutanoic Acid Heptafluorobutyric acid Heptafluorobutanoic acid Perfluorobutyric acid PFBA	375-22-4	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorodecanesulfonic Acid PFDS	335-77-3	NA	NA NA	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Perfluorodecanoic acid PFDA	335-76-2	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluoroheptanoic acid Perfluoroheptanoic acid Tridecafluoroheptanoic acid PFHpA	375-85-9	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorohexanesulfonic Acid perfluorohexanesulfonate perfluorohexanesulfonic acid Perfluorohexane-1-sulphonic acid PFHxS	355-46-4	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorohexanoic Acid PFHxA	307-24-4	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Perfluorononanoic Acid Perfluorononanoic Acid PFNA perfluoro-n-nonanoic acid perfluorononanoate	375-95-1	NA	None None	Groundwater	Groundwater	inhalation, skin or eye contact, ingestion; strong acid	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorooctanesulfonic Acid PFOS	1763-23-1	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluorooctanoic Acid PFOA pentadecafluorooctanoic acid perfluorooctanoate perfluorocaprylic acid	335-67-1	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Perfluoropentanoic Acid PFPeA	2706-90-3	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	p-Ethyltoluene 4-Ethyltoluene 1-ethyl-4-methyl-benzene 1-methyl-4-ethylbenzene	622-96-8	NA	NA NA	Soil	ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Phenanthrene	85-01-8	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Potassium	7440-09-7	None	NA NA	Soil	inhalation, skin absorption, ingestion, skin and/or eye contact inhalation, ingestion, skin and/or eye contact	eye: Causes eye burns. Skin: Causes skin burns. Reacts with moisture in the skin to form potassium hydroxide and hydrogen with much heat. ingestion: Causes gastrointestinal tract burns. inhalation: May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Causes chemical burns to the respiratory tract. inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.	Eyes: Get medical aid immediately Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Ingestion: If victim is conscious and alert, give 2-4 full cups of milk or water. Get medical aid immediately. inhalation: Get medical aid immediately.
1.3.1 – 1.3.20	Propylene Propene Methyl ethylene	115-07-1	PID	NA NA	Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose, throat, skin burns asphyxiation	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	p-Xylenes 1,4-Dimethylbenzene para-Xylene p-Xylol	106-42-3	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Pyrene benzo[def]phenanthrene	129-00-0	PID	0.2 mg/m3 80 mg/m3 (Coal Pitch Tar)	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes and skin, respiratory irritation(dizziness, weakness, fatigue, nausea, headache)	Eye: Irrigate immediately, refer to medical attention Skin: Soap wash immediately Breathing: move to fresh air Swallow: Medical attention immediately
1.3.1 – 1.3.20	sec-Butylbenzene 2-phenylbutane	135-98-8	PID	10 ppm 100 ppm	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose, throat; inhalation: nausea or vomiting	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Selenium	7782-49-2	None	1 mg/m^3 0.2 mg/m^3	Soil	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; in animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Silver	7440-22-4	None	0.01mg/ m3 10 mg/m3	Soil	inhalation, ingestion, skin and/or eye contact	blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Sodium	7440-23-5	None	NA NA	Groundwater Soil	ion, ingestion, skin and/or eye contact	sensitization dermatitis, allergic asthma, pneumonitis; [potential occupational carcinogen]	Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Styrene Ethenyl benzene Phenylethylene Styrene monomer Styrol Vinyl benzene	100-42-5	PID	100 ppm 700 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose, respiratory system; headache, lassitude (weakness, exhaustion), dizziness, confusion, malaise (vague feeling of discomfort), drowsiness, unsteady gait; narcosis; defatting dermatitis; liver injury; reproductive effects	Eye: Irrigate immediately Skin: Water flush Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Tert-Butyl Alcohol Tertiary Butyl Alcohol Tert-Butanol Butyl alcohol 2-Methyl-2-propanol Trimethyl carbinol TBA	75-65-0	PID	100 ppm 1600 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; drowsiness, narcosis	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Tetrachloroethylene Perchlorethylene Perchloroethylene PCE Perk Tetrachlorethylene Tetrachloroethene	127-18-4	PID	100 ppm 150 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Tetrafluoro-2-(heptafluoropropoxy) propanoic Acid 2,3,3,3-Tetrafluoro-2-(heptafluoropropoxy)propanoic acid Perfluoro-2-propoxypropanoic acid hexafluoropropylene oxide dimer acid HFPO-DA	13252-13-6	NA	None None	Groundwater Soil	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Tetrahydrofuran Diethylene oxide 1,4-Epoxybutane Tetramethylene oxide THF	109-99-9	PID	200 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, skin and/or eye contact, ingestion	irritation to the eyes, upper respiratory system; nausea, dizziness, headache, central nervous system depression	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immedi
1.3.1 – 1.3.20	Thallium	7440-28-0	None	0.1 mg/m^3 15 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Toluene Methyl benzene Methyl benzol Phenyl methane Toluol	108-88-3	PID	200 ppm 500 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, paresthesia; dermatitis	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Total Petroleum Hydrocarbons TPH	143-07-7	PID	NA NA	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, mucous membrane; dermatitis; headache, lassitude (weakness, exhaustion), blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Total Xylenes Dimethylbenzene Xylol	1330-20-7	PID	100 ppm 900 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; nausea, vomiting, abdominal pain; dermatitis	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Trichloroethylene Trichloroetheneylenes Ethylene trichloride TCE Trichloroethene Trilene	79-01-6	PID	100 ppm 1000 ppm	Groundwater Soil Vapor	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Trichlorofluoromethane Fluorotrichloromethane Freon® 11 Monofluorotrichloromethane Refrigerant 11 Trichloromonofluoromethane Freon 11	75-69-4	PID	1000 ppm 2000 ppm	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	incoordination, tremor; dermatitis; cardiac arrhythmias, cardiac arrest; asphyxia; liquid: frostbite	Eye: Irrigate immediately Skin: Water flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Trivalent Chromium Chromium III Chromium, Trivalent	NA	None	1.0 mg/m^3 250 mg/m^3	Groundwater Soil	inhalation absorption ingestion	irritation to eye, skin, and respiratory	Eye: Irrigate immediately Skin: Soap wash Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Vanadium	7440-62-2	None	0.1 mg/m3 15 mg/m3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Zinc	7440-62-2	None	15 mg/m^3 500 mg/m^3	Groundwater Soil	inhalation	chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Breathing: Respiratory support`
1.3.1 – 1.3.20	Total PCBs Chlorodiphenyl (42% chlorine) Aroclor® 1242 PCB Polychlorinated biphenyl	53469-21-9	None	0.5 mg/m^3 5 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	Fuel Oil No. 2	68476-30-2	PID	NA NA	Groundwater Soil Vapor	inhalation, ingestion, skin and/or eye contact	irritation to the eyes, skin, nose, throat; burning sensation in chest; headache, nausea, lassitude (weakness, exhaustion), restlessness, incoordination, confusion, drowsiness; vomiting, diarrhea; dermatitis; chemical pneumonitis (aspiration liquid)	Eye: Irrigate immediately Skin: Soap flush immediately Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Sodium 1H,1H,2H,2H-perfluorooctanesulfonate 2-(Perfluorohexyl)ethane-1-sulfonic Acid Sodium Salt ,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluoro-1-octanesulfonic Acid Sodium Salt; Sodium 1H,1H,2H,2H-perfluoro-1-[1,2-13C2]-octane sulfonate (6:2) Sodium Salt; 3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctane-1-sulfonic Acid Sodium Salt; 3,3,4,4,5,5,6,6,7,7,8,8,8-Tridecafluorooctanesulfonic Acid Sodium Salt; 6:2 FTS Impurity: Sodium 1H, 1H, 2H, 2H-Perfluorooctane Sulfonic (6:2) Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2) Sodium 1H,1H,2H,2H-Perfluorooctane Sulfonate (6:2) (6:2FTS)	27619-94-9	NA	None None	Groundwater	inhalation, skin or eye contact, ingestion	irritation to eyes with eye damage, skin causing rash, redness or burning, irritation to nose, throat, and lungs	Eye: Irrigate immediately Skin: Water flush promptly Breathing: Respiratory support Swallow: Medical attention immediately

Task	Contaminant	CAS Number	Monitoring Device	PEL/ IDLH	Source of Concentration on Site	Route of Exposure	Symptoms	First Aid
1.3.1 – 1.3.20	4,4'-DDD Dichlorodiphenyldichloroethane 1,1'-(2,2-Dichloroethylidene)bis (4-chlorobenzene) p,p'-DDD	72-54-8	None	NA NA	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]	Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately
1.3.1 – 1.3.20	Aroclor 1260	11096-82-5	None	0.5 mg/m^3 5 mg/m^3	Groundwater Soil	inhalation, skin absorption, ingestion, skin and/or eye contact	irritation to the eyes, chloracne	Eye: Irrigate immediately Skin: Soap wash immediately Breathing: Respiratory support Swallow: Medical attention immediately

EXPLANATION OF ABBREVIATIONS

PID = Photoionization Detector
PEL = Permissible Exposure Limit (8-hour Time Weighted Average)
IDLH = Immediately Dangerous to Life and Health
ppm = part per million
mg/m^3 = milligrams per cubic meter
500 mg/m^3

TABLE 3
SUMMARY OF MONITORING EQUIPMENT

Instrument	Operation Parameters
Photoionization Detector (PID)	**Hazard Monitored:** Many organic and some inorganic gases and vapors. **Application:** Detects total concentration of many organic and some inorganic gases and vapors. Some identification of compounds is possible if more than one probe is measured. **Detection Method:** Ionizes molecules using UV radiation; produces a current that is proportional to the number of ions. **General Care/Maintenance:** Recharge or replace battery. Regularly clean lamp window. Regularly clean and maintain the instrument and accessories. **Typical Operating Time:** 10 hours. 5 hours with strip chart recorder.
Oxygen Meter	**Hazard Monitored:** Oxygen (O_2). **Application:** Measures the percentage of O_2 in the air. **Detection Method:** Uses an electrochemical sensor to measure the partial pressure of O_2 in the air, and converts the reading to O_2 concentration. **General Care/Maintenance:** Replace detector cell according to manufacturer's recommendations. Recharge or replace batteries prior to explanation of the specified interval. If the ambient air is less than 0.5% C O_2, replace the detector cell frequently. **Typical Operating Time:** 8 – 12 hours.
Additional equipment (if needed, based on site conditions)	
Combustible Gas Indicator (CGI)	**Hazard Monitored:** Combustible gases and vapors. **Application:** Measures the concentration of combustible gas or vapor. **Detection Method:** A filament, usually made of platinum, is heated by burning the combustible gas or vapor. The increase in heat is measured. Gases and vapors are ionized in a flame. A current is produced in proportion to the number of carbon atoms present. **General Care/Maintenance:** Recharge or replace battery. Calibrate immediately before use. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.
Flame Ionization Detector (FID) with Gas Chromatography Option *(i.e., Foxboro Organic Vapor Analyzer (OVA))*	**Hazard Monitored:** Many organic gases and vapors (approved areas only). **Application:** In survey mode, detects the concentration of many organic gases and vapors. In gas chromatography (GC) mode, identifies and measures specific compounds. In survey mode, all the organic compounds are ionized and detected at the same time. In GC mode, volatile species are separated. **General Care/Maintenance:** Recharge or replace battery. Monitor fuel and/or combustion air supply gauges. Perform routine maintenance as described in the manual. Check for leaks. **Typical Operating Time:** 8 hours; 3 hours with strip chart recorder.
Potable Infrared (IR) Spectrophotometer	**Hazard Monitored:** Many gases and vapors. **Application:** Measures concentration of many gases and vapors in air. Designed to quantify one or two component mixtures. **Detection Method:** Passes different frequencies of IR through the sample. The frequencies absorbed are specific for each compound. **General Care/Maintenance:** As specified by the manufacturer.

Instrument	Operation Parameters
Direct Reading Colorimetric Indicator Tube	**Hazard Monitored:** Specific gas and vapors. **Application:** Measures concentration of specific gases and vapors. **Detection Method:** The compound reacts with the indicator chemical in the tube, producing a stain whose length or color change is proportional to the compound's concentration. **General Care/Maintenance:** Do not use a previously opened tube even if the indicator chemical is not stained. Check pump for leaks before and after use. Refrigerate before use to maintain a shelf life of about 2 years. Check expiration dates of tubes. Calibrate pump volume at least quarterly. Avoid rough handling which may cause channeling.
Aerosol Monitor	**Hazard Monitored:** Airborne particulate (dust, mist, fume) concentrations **Application:** Measures total concentration of semi-volatile organic compounds, PCBs, and metals. **Detection Method:** Based on light-scattering properties of particulate matter. Using an internal pump, air sample is drawn into the sensing volume where near infrared light scattering is used to detect particles. **General Care/Maintenance:** As specified by the mfr. Also, the instrument must be calibrated with particulates of a size and refractive index similar to those to be measured in the ambient air.
Monitox	**Hazard Monitored:** Gases and vapors. **Application:** Measures specific gases and vapors. **Detection Method:** Electrochemical sensor specific for the chemical species in question. **General Care/Maintenance:** Moisten sponge before use; check the function switch; change the battery when needed.
Gamma Radiation Survey Instrument	**Hazard Monitored:** Gamma Radiation. **Application:** Environmental radiation monitor. **Detection Method:** Scintillation detector. **General Care/Maintenance:** Must be calibrated annually at a specialized facility. **Typical Operating Time:** Can be used for as long as the battery lasts, or for the recommended interval between calibrations, whichever is less.

TABLE 4
INSTRUMENTATION ACTION LEVELS

Photoionization Detector Action Levels	**Action Required**
Background to 5 parts per million (ppm)[1]	No respirator needed; no further action
>5ppm but </= 15 ppm at the perimeter of the work area	• Work temporarily halted and monitoring continues • If instantaneous readings decrease below 5 ppm above background, work activities will resume with continued monitoring
>5ppm but </= 25 ppm at the downwind perimeter of the hot zone	• Work activities will be halted • Source of vapors identified • Corrective actions taken to abate emissions • Continued monitoring • Workers will don appropriate respirators and work can resume if vapor levels 200 feet downind or the hot zone or half the distance to the nearest potential receptor or residential or commercial structure, whichever is less – but in no case less than 20 feet – is below 5 ppm above background for the 15-minute average
>25ppm at the parameter of the hot zone	Activities will shut down

Particulate Monitoring Action Levels	**Action Required**
Background to 100 micrograms per cubic meter (µg/m³)[2], no dust observed	No further action
Background to 100 µg/m³, dust observed leaving the work area	Dust suppression must be employed
100 to 150 µg/m³ at the downwind parameter of the hot zone	• Work activities will be halted • Source of dust identified • Dust suppression activities initiated • Corrective actions taken to abate emissions • Continued monitoring • Workers will don appropriate respirators • Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM10 concentration to within 150 µg/m³ of the upwind level and in preventing visible dust migration.
>150 µg/m³ at the parameter of the hot zone	Activities will shut down

[1] VOC concentrations are 15-minute averages above site background (upwind parameter)
[2] Particulate concentrations are 15-minute averages above site background (upwind parameter)

TABLE 5
EMERGENCY NOTIFICATION LIST

ORGANIZATION	CONTACT	TELEPHONE
Local Police Department		911
Local Fire Department		911
Ambulance/Rescue Squad		911
Hospital	Lincoln Medical and Mental Health Center	911 or 718-579-5700
Langan Incident Hotline		800-952-6426 extension 4699
Medical Treatment Hotline	WorkCare™	911 or 888-449-7757
Langan Environmental PM Langan Geotechnical PM Langan Site/Civil PM	Stuart Knoop Seth Vaidya James Harley	845-750-9649 (cell) 201-981-1315 (cell) 718-406-2416 (cell)
Langan Health and Safety Manager (HSM)	Tony Moffa	215-756-2523 (cell)
Langan Health & Safety Officer (HSO)	William Bohrer	410-984-3068 (cell)
Langan Field Team Leader (FTL)	To Be Determined	
Client's Representative	Joshua Weissman	718-993-2940
National Response Center (NRC)		800-424-8802
Chemical Transportation Emergency Center (Chemtrec)		800-424-9300
Center for Disease Control (CDC)		404-639-3534
EPA (RCRA Superfund Hotline)		800-424-9346
TSCA Hotline		202-554-1404
Poison Control Center		800-222-1222

Immediately following an injury, unless immediate emergency medical treatment is required, the injured employee must contact WorkCare - Incident Intervention® at 888-449-7787.

For all other incidents or near misses, unless emergency response is required, either the employee or a coworker must contact the Langan Incident Hotline at 973-560-4699.

TABLE 6
SUGGESTED FREQUENCY OF PHYSIOLOGICAL MONITORINGFOR FIT AND ACCLIMATED WORKERS[A]

Adjusted Temperature[b]	Normal Work Ensemble[c]	Impermeable Ensemble
90°F or above (32.2°C) or above	After each 45 min. of work	After each 15 min. of work
87.5°F (30.8°-32.2°C)	After each 60 min. of work	After each 30 min. of work
82.5°-87.5°F (28.1°-30.8°C)	After each 90 min. of work	After each 60 min. of work
77.5°-82.5°F (25.3°-28.1°C)	After each 120 min. of work	After each 90 min. of work
72.5°-77.5°F (22.5°-25.3°C)	After each 150 min. of work	After each 120 min. of work

a For work levels of 250 kilocalories/hour.

b Calculate the adjusted air temperature (ta adj) by using this equation: ta adj ^{o}F = ta ^{o}F + (13 x % sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer, with the bulb shielded from radiant heat. Estimate percent sunshine by judging what percent time the sun is not covered by clouds that are thick enough to produce a shadow. (100 percent sunshine = no cloud cover and a sharp, distinct shadow; 0 percent sunshine = no shadows.)

c A normal work ensemble consists of cotton coveralls or other cotton clothing with long sleeves and pants.

TABLE 7

HEAT INDEX

ENVIRONMENTAL TEMPERATURE (Fahrenheit)

RELATIVE HUMIDITY	70	75	80	85	90	95	100	105	110	115	120
	APPARENT TEMPERATURE*										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	**130**
30%	67	73	78	84	90	96	104	113	123	**135**	**148**
40%	68	74	79	86	93	101	110	123	**137**	**151**	
50%	69	75	81	88	96	107	120	**135**	**150**		
60%	70	76	82	90	100	114	**132**	**149**			
70%	70	77	85	93	106	124	**144**				
80%	71	78	86	97	113	**136**					
90%	71	79	88	102	122						
100%	72	80	91	108							

*Combined Index of Heat and Humidity...what it "feels like" to the body
Source: National Oceanic and Atmospheric Administration

How to use Heat Index:
1. Across top locate Environmental Temperature
2. Down left side locate Relative Humidity
3. Follow across and down to find Apparent Temperature
4. Determine Heat Stress Risk on chart at right

Note: Exposure to full sunshine can increase Heat Index values by up to 15 degrees F.

Apparent Temperature	Heat Stress Risk with Physical Activity and/or Prolonged Exposure
90-105	Heat Cramps or Heat Exhaustion Possible
105-130	Heat Cramps or Heat Exhaustion Likely, Heat Stroke Possible
>130	Heatstroke Highly Likely

FIGURES

FIGURE 1
SITE LOCATION MAP



NOTES:
1. BASE MAP REFERENCED FROM THE UNITED STATE GEOLOGICAL SURVEY 7.5 MINUTE SERIES CENTRAL PARK QUADRANGLE
2. ALL LOCATIONS APPROXIMATE

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN any WAY.

LANGAN
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Project	Figure Title	Project No.	Figure No.
261 WALTON AVENUE BLOCK No. 2344, LOT No. 60 BRONX NEW YORK	SITE LOCATION MAP	170601701 Date 10/29/2019 Drawn By KW Checked By JL	1 Sheet 1 of 4

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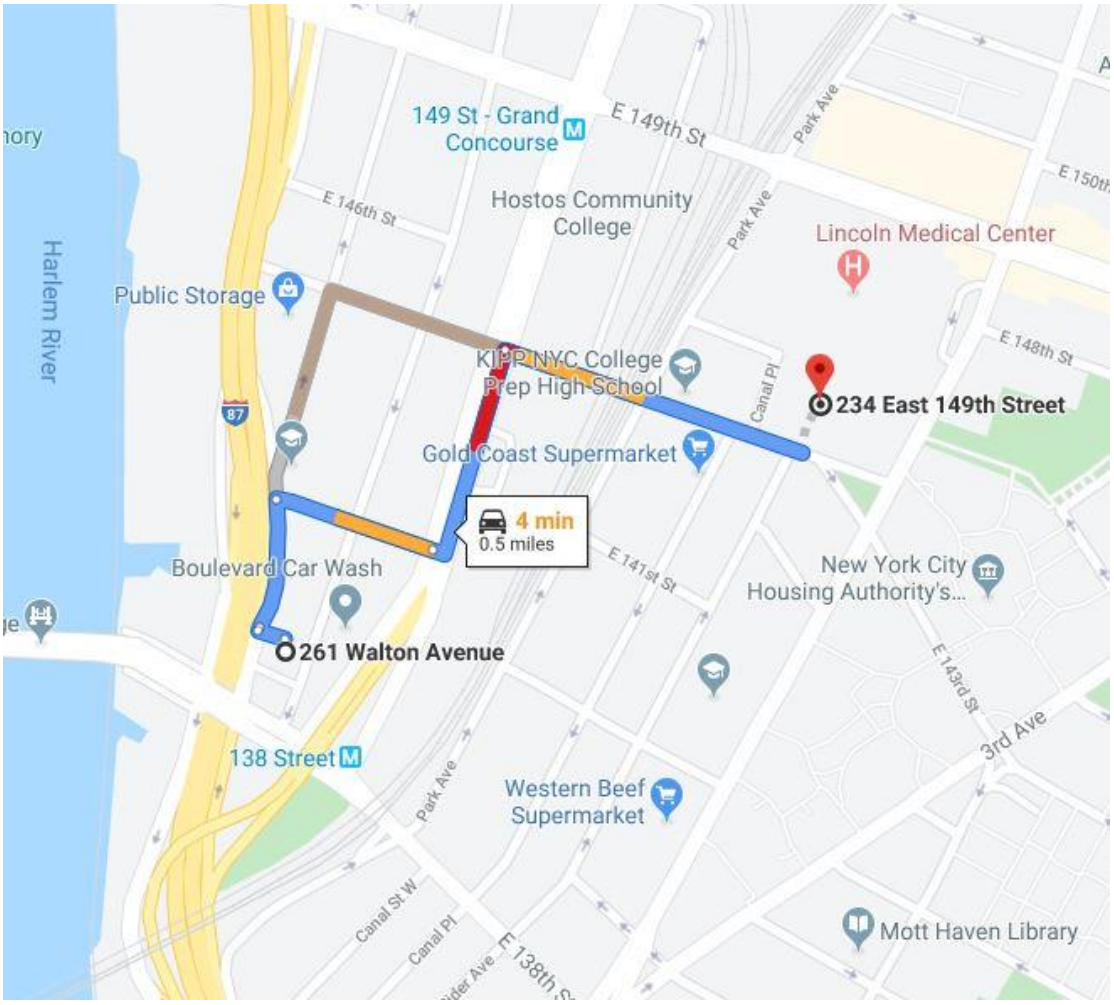
FIGURE 2
HOSPITAL ROUTE PLAN

Hospital Location: **Lincoln Medical and Mental Health Center**
234 East 149th Street
Bronx, New York
718-579-5700

START: 2671 Walton Avenue, Bronx, NY

1. Head west towards Gerard Avenue
2. Turn right onto Gerard Avenue
3. Keep right to stay on Gerard Avenue
4. Turn right onto East 140th Street
5. Turn left onto Grand Concourse
6. Turn right onto East 144th street, destination will be on the left.

END: Lincoln Medical and Mental Health Center, 234 East 149th Street, Bronx, New York



ATTACHMENTS

ATTACHMENT A

STANDING ORDERS

STANDING ORDERS

GENERAL

- No smoking, eating, or drinking in this work zone.
- Upon leaving the work zone, personnel will thoroughly wash their hands and face.
- Minimize contact with contaminated materials through proper planning of work areas and decontamination areas, and by following proper procedures. Do not place equipment on the ground. Do not sit on contaminated materials.
- No open flames in the work zone.
- Only properly trained and equipped personnel are permitted to work in potentially contaminated areas.
- Always use the appropriate level of personal protective equipment (PPE).
- Maintain close contact with your buddy in the work zone.
- Contaminated material will be contained in the Exclusion Zone (EZ).
- Report any unusual conditions.
- Work areas will be kept clear and uncluttered. Debris and other slip, trip, and fall hazards will be removed as frequently as possible.
- The number of personnel and equipment in the work zone will be kept to an essential minimum.
- Be alert to the symptoms of fatigue and heat/cold stress, and their effects on the normal caution and judgment of personnel.
- Conflicting situations which may arise concerning safety requirements and working conditions must be addressed and resolved quickly by the site HSO.

TOOLS AND HEAVY EQUIPMENT

- Do not, under any circumstances, enter or ride in or on any backhoe bucket, materials hoist, or any other device not specifically designed to carry passengers.
- Loose-fitting clothing or loose long hair is prohibited around moving machinery.
- Ensure that heavy equipment operators and all other personnel in the work zone are using the same hand signals to communicate.
- Drilling/excavating within 10 feet in any direction of overhead power lines is prohibited.
- The locations of all underground utilities must be identified and marked out prior to initiating any subsurface activities.
- Check to ensure that the equipment operator has lowered all blades and buckets to the ground before shutting off the vehicle.
- If the equipment has an emergency stop device, have the operator show all personnel its location and how to activate it.
- Help the operator ensure adequate clearances when the equipment must negotiate in tight quarters; serve as a signal operator to direct backing, as necessary.
- Ensure that all heavy equipment that is used in the Exclusion Zone is kept in that zone until the job is done and that such equipment is completely decontaminated before moving it into the clean area of the work zone.
- Samplers must not reach into or get near rotating equipment such as the drill rig. If personnel must work near any tools that could rotate, the equipment operator must completely shut down the rig prior to initiating such work. It may be necessary to use a remote sampling device.

ATTACHMENT B

DECONTAMINATION PROCEDURES

PERSONNEL DECONTAMINATION

LEVEL C DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross-contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves, and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Canister or Mask Change	4. If worker leaves Exclusion Zone to change canister (or mask), this is the last step in the decontamination procedure. Worker's canister is exchanged, new outer gloves and boot covers donned, joints taped, and worker returns to duty.
Station 5:	Boot, Gloves and Outer Garment Removal	5. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 6:	Face piece Removal	6. Face piece is removed (avoid touching face with fingers). Face piece deposited on plastic sheets.
Station 7:	Field Wash	7. Hands and face are thoroughly washed. Shower as soon as possible.

LEVEL D DECONTAMINATION

Station 1:	Equipment Drop	1. Deposit equipment used on-site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) on plastic drop cloths. Segregation at the drop reduces the probability of cross contamination. During hot weather operations, cool down stations may be set up within this area.
Station 2:	Outer Garment, Boots, and Gloves Wash and Rinse	2. Scrub outer boots, outer gloves and chemical-resistant splash suit with decon solution or detergent and water. Rinse off using copious amounts of water.
Station 3:	Outer Boot and Glove Removal	3. Remove outer boots and gloves. Deposit in container with plastic liner.
Station 4:	Boot, Gloves and Outer Garment Removal	4. Boots, chemical-resistant splash suit, inner gloves removed and deposited in separate containers lined with plastic.
Station 5:	Field Wash	5. Hands and face are thoroughly washed. Shower as soon as possible.

EQUIPMENT DECONTAMINATION

GENERAL:

Equipment to be decontaminated during the project may include tools, monitoring equipment, respirators, sampling containers, laboratory equipment, and drilling equipment.

All decontamination will be done by personnel in protective gear, appropriate for the level of decontamination, as determined by the site HSO. The decontamination work tasks will be split or rotated among support and work crews.

Depending on site conditions, backhoes and pumps may be decontaminated over a portable decontamination pad to contain wash water; or wash water may be allowed to run off into a storm sewer system. Equipment needed may include a steam generator with high-pressure water, empty drums, screens, screen support structures, and shovels. Drums will be used to hold contaminated wash water pumped from the lined pit. These drums will be labeled as such.

Miscellaneous tools and equipment will be dropped into a plastic bucket, tub, or other containers. They will be brushed off and rinsed with a detergent solution, and finally rinsed with clean water.

MONITORING EQUIPMENT:

Monitoring equipment will be protected as much as possible from contamination by draping, masking, or otherwise covering as many of the instruments as possible with plastic without hindering the operation of the unit. The PID, HNu, or OVA meter, for example, can be placed in a clear plastic bag, which allows reading of the scale and operation of knobs. The probes can be partially wrapped keeping the sensor tip and discharge port clear.

The contaminated equipment will be taken from the drop area and the protective coverings removed and disposed of in the appropriate containers. Any dirt or obvious contamination will be brushed or wiped with a disposable paper wipe.

RESPIRATORS:

Respirators will be cleaned and disinfected after every use. Taken from the drop area, the masks (with the cartridges removed and disposed of with other used disposable gear) will be immersed in a cleaning solution and scrubbed gently with a soft brush, followed by a rinse in plain warm water, and then allowed to air dry. In the morning, new cartridges will be installed. Personnel will inspect their own masks for serviceability prior to donning them. And, once the mask is on, the wearer will check the respirator for leakage using the negative and positive pressure fit check techniques.

ATTACHMENT C

EMPLOYEE EXPOSURE/INJURY INCIDENT REPORT

EMPLOYEE INCIDENT/INJURY REPORT
LANGAN ENGINEERING & ENVIRONMENTAL SERVICES

(Complete and return to Tony Moffa in the Doylestown Office)

Affected Employee Name: _____ Date: _____

Incident type: ☐ Injury ☐ Report Only/No Injury
☐ Near Miss ☐ Other: _____

EMPLOYEE INFORMATION (Person completing Form)

Employee Name: _____ Employee No: _____

Title: _____ Office Location: _____

Length of time employed or date of hire: _____

Mailing address: _____

_____

Sex: M ☐ F ☐ Birth date: _____

Business phone & extension: _____ Residence/cell phone: _____

ACCIDENT INFORMATION

Project: _____ Project #: _____

Date & time of incident: _____ Time work started & ended: _____

Site location: _____

Incident Type: Possible Exposure ☐ Exposure ☐ Physical Injury ☐

Names of person(s) who witnessed the incident:_____

_____

_____

Exact location incident occurred:

_____

_____

Describe work being done:_____

_____

_____

_____

Describe what affected employee was doing prior to the incident occurring:

_____

_____

_____

Describe in detail how the incident occurred:

_____

_____

_____

_____

Nature of the incident (List the parts of the body affected):

_____

_____

_____

_____

Person(s) to whom the incident was reported (Time and Date):

_____

_____

List the names of other persons affected during this incident:

_____

_____

Possible causes of the incident (equipment, unsafe work practices, lack of PPE, etc.):

Weather conditions during incident:

MEDICAL CARE INFORMATION

Did affected employee receive medical care? Yes ☐ No ☐

If Yes, when and where was medical care received:

Provide name of facility (hospital, clinic, etc.):

Length of stay at the facility?

Did the employee miss any work time? Yes ☐ No ☐ Undetermined ☐

Date employee last worked: _____ Date employee returned to work:

Has the employee returned to work? Yes ☐ No ☐

Does the employee have any work limitations or restrictions from the injury? : Yes ☐ No ☐

If Yes, please describe:

Did the exposure/injury result in permanent disability? Yes ☐ No ☐ Unknown ☐

If Yes, please describe:

HEALTH & SAFETY INFORMATION

Was the operation being conducted under an established site-specific CONSTRUCTION HEALTH AND SAFETY PLAN?
Yes ☐ No ☐ Not Applicable: ☐

Describe protective equipment and clothing used by the employee:

_____

_____

_____

Did any limitations in safety equipment or protective clothing contribute to or affect exposure/injury? If so, explain:

_____

_____

_____

_____

Employee Signature Date

_____

Langan Representative Date

ATTACHMENT D

CALIBRATION LOG

DATE:_____ **PROJECT:**_____

CALIBRATION LOG

Date & Time	Inst Type	Inst #	Media	Initial Reading	Span #	Calibrat. Reading	Performed By:

ATTACHMENT E

MATERIAL SAFETY DATA SHEETS
SAFETY DATA SHEETS

All Langan Field Personnel Completing This Work Plan Are To Have Real-Time Accessibility To Material Safety Data Sheets (MSDS) or Safety Data Sheets (SDSs) Through Their Smart Phone.

The link is http://www.msds.com/
The login name is "drapehead"
The password is "2angan987"

If You Are Unable To Use the Smart Phone App, You Are To Bring Printed Copies of the MSDS/SDSs to the Site

SAFETY DATA SHEET

Version 5.1
Revision Date 02/09/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Residual Solvent Class 1 - 1,1,1-Trichloroethane, United States Pharmacopeia (USP) Reference Standard

Product Number : 1601226
Brand : USP

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.2 GHS Label elements, including precautionary statements

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

No components need to be disclosed according to the applicable regulations.

4. FIRST AID MEASURES

4.1 Description of first aid measures

No data available

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

No data available

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters
No data available

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
No data available

6.3 Methods and materials for containment and cleaning up
No data available

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
No data available

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls
No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
No data available

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Skin corrosion/irritation
Serious eye damage/eye irritation
Respiratory or skin sensitisation
Germ cell mutagenicity
Carcinogenicity

Reproductive toxicity

Specific target organ toxicity - single exposure

Specific target organ toxicity - repeated exposure

Aspiration hazard

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

12.2 Persistence and degradability

12.3 Bioaccumulative potential

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
No data available

14. TRANSPORT INFORMATION

DOT (US)
NA-Number: 1993 Class: NONE Packing group: III
Proper shipping name: Combustible liquid, n.o.s. (DMSO (USP Specification))

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

16. OTHER INFORMATION

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1 Revision Date: 02/09/2015 Print Date: 04/11/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 03/05/2015
Print Date 02/19/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Freon® 113 solution

Product Number : 48411
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Specific target organ toxicity - single exposure (Category 1), H370

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H370	Causes damage to organs.

Precautionary statement(s)

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.

P304 + P340 + P311	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Synonyms : 1,1,2-Trichloro-1,2,2-trifluoroethanesolution

Hazardous components

Component		Classification	Concentration
Methanol			
CAS-No.	67-56-1	Flam. Liq. 2; Acute Tox. 3; STOT SE 1; H225, H301 + H311 + H331, H370	>= 90 - <= 100 %
EC-No.	200-659-6		
Index-No.	603-001-00-X		
Registration number	01-2119433307-44-XXXX		

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Methanol	67-56-1	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Headache Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		
		STEL	250.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Headache Nausea Dizziness Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption		

		TWA	200.000000 ppm 260.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		ST	250.000000 ppm 325.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	200.000000 ppm 260.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Methanol	67-56-1	Methanol	15.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials

Zinc, Acids, Oxidizing agents, Alkali metals, Powdered metals, Potassium, Acid chlorides, Acid anhydrides, Reducing agents, Aluminum, Sodium/sodium oxides, Magnesium

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1230 Class: 3 Packing group: II
Proper shipping name: Methanol
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1230 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D
Proper shipping name: METHANOL

IATA
UN number: 1230 Class: 3 (6.1) Packing group: II
Proper shipping name: Methanol

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

1,1,2-Trichlorotrifluoroethane	76-13-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Methanol	67-56-1	2007-07-01

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No.	Revision Date
Methanol	67-56-1	2012-03-16

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H370	Causes damage to organs.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 03/05/2015 Print Date: 02/19/2016

SAFETY DATA SHEET

Version 5.3
Revision Date 12/29/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,1-Dichloroethane

Product Number : 48512
Brand : Supelco
Index-No. : 602-011-00-1

CAS-No. : 75-34-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Ethylidene chloride
Formula	:	$C_2H_4Cl_2$
Molecular weight	:	98.96 g/mol
CAS-No.	:	75-34-3
EC-No.	:	200-863-5
Index-No.	:	602-011-00-1

Hazardous components

Component	Classification	Concentration
1,1-Dichloroethane		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 3; Aquatic Chronic 3; H225, H302, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,1-Dichloroethane	75-34-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Liver damage Kidney damage Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 400.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		See Appendix C		
		TWA	100.000000 ppm 400.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 60 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering

controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-97.99 °C (-144.38 °F)
f)	Initial boiling point and boiling range	55.0 - 58.0 °C (131.0 - 136.4 °F)
g)	Flash point	-9.99 °C (14.02 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.17 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 725.0 mg/kg

LC50 Inhalation - Rat - 4 h - 13000 ppm

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
Chronic exposure may cause dermatitis.

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KI0175000

Liver injury may occur., Kidney injury may occur., narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2362 Class: 3 Packing group: II
Proper shipping name: 1,1-Dichloroethane
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2362 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,1-DICHLOROETHANE

IATA
UN number: 2362 Class: 3 Packing group: II
Proper shipping name: 1,1-Dichloroethane

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,1-Dichloroethane	75-34-3	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 12/29/2015 Print Date: 04/11/2016

SAFETY DATA SHEET

Creation Date 26-Sep-2009 **Revision Date** 31-Jan-2023 **Revision Number** 9

1. Identification

Product Name **Mesitylene**

Cat No. : **AC125580000; AC125580010; AC125580025; AC125580050; AC125582500**

CAS No 108-67-8
Synonyms 1,3,5-Trimethylbenzene

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements

Flammable liquid and vapor
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS No	Weight %
1,3,5-Trimethylbenzene	108-67-8	<100

4. First-aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Inhalation	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. Risk of serious damage to the lungs (by aspiration).
Ingestion	Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
Most important symptoms and effects	None reasonably foreseeable. Vapors may cause drowsiness and dizziness: Symptoms may be delayed: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray, carbon dioxide (CO2), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
Flash Point	44 °C / 111.2 °F
Method -	No information available
Autoignition Temperature	550 °C / 1022 °F

Explosion Limits

Upper	6.00%
Lower	1.00%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2).
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	2	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Take precautionary measures against static discharges.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Flammables area. Incompatible Materials. Strong oxidizing agents. Nitric acid.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
1,3,5-Trimethylbenzene	TWA: 10 ppm		TWA: 25 ppm TWA: 125 mg/m^3	

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting equipment.

Personal Protective Equipment

Eye/face Protection Tight sealing safety goggles. Face protection shield.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Organic gases and vapours filter. Type A. Brown. conforming to EN14387.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-45 °C / -49 °F
Boiling Point/Range	163 - 166 °C / 325.4 - 330.8 °F @ 760 mmHg
Flash Point	44 °C / 111.2 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	6.00%
Lower	1.00%

Vapor Pressure	2.5 mbar @ 20 °C
Vapor Density	4.1 (Air = 1.0)
Specific Gravity	0.868
Solubility	Slightly soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	550 °C / 1022 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C9 H12
Molecular Weight	120.19

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Nitric acid

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,3,5-Trimethylbenzene	Not listed	Not listed	LC50 = 24 g/m³ (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
1,3,5-Trimethylbenzene	108-67-8	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system Central nervous system (CNS)

STOT - repeated exposure None known

Aspiration hazard Category 1

Symptoms / effects,both acute and delayed Vapors may cause drowsiness and dizziness: Symptoms may be delayed: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1,3,5-Trimethylbenzene	Not listed	LC50: = 3.48 mg/L, 96h (Pimephales promelas)	Not listed	Not listed

Persistence and Degradability based on information available. May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

TDG

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

IATA

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

IMDG/IMO

UN-No UN2325
Proper Shipping Name 1,3,5-TRIMETHYLBENZENE
Hazard Class 3
Packing Group III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
1,3,5-Trimethylbenzene	108-67-8	X	ACTIVE	-

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
1,3,5-Trimethylbenzene	108-67-8	X	-	203-604-4	X	X	X	X	X	KE-34411

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
1,3,5-Trimethylbenzene	X	-	-	-	-

U.S. Department of Transportation
Reportable Quantity (RQ): N
DOT Marine Pollutant Y
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Moderate risk, Grade 2

Authorisation/Restrictions according to EU REACH Not applicable

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High

				Concern (SVHC)
1,3,5-Trimethylbenzene	108-67-8	-	-	-

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
1,3,5-Trimethylbenzene	108-67-8	Listed	Not applicable	Not applicable	Not applicable

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
1,3,5-Trimethylbenzene	108-67-8	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 26-Sep-2009
Revision Date 31-Jan-2023
Print Date 31-Jan-2023
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Material Safety Data Sheet

Version 3.1
Revision Date 04/08/2011
Print Date 12/27/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	1,3,5-Trimethylbenzene
Product Number	:	442236
Brand	:	Supelco
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

Target Organs

Peripheral nervous system., Central nervous system, Blood

GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Inhalation (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2B)
Specific target organ toxicity - single exposure (Category 3)
Acute aquatic toxicity (Category 2)
Chronic aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H226	Flammable liquid and vapour.
H315 + H320	Causes skin and eye irritation.
H333	May be harmful if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	2
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Mesitylene
1,3,5-Trimethylbenzene

Formula : C_9H_{12}

Molecular Weight : 120.19 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Mesitylene			
108-67-8	203-604-4	601-025-00-5	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Mesitylene	108-67-8	TWA	25 ppm 125 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	25 ppm 123 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	25 ppm 125 mg/m3	USA. NIOSH Recommended Exposure Limits

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
impervious clothing, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear

Colour	colourless

Safety data

pH	no data available
Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
Boiling point	163 - 166 °C (325 - 331 °F) - lit.
Flash point	53.0 °C (127.4 °F) - closed cup
Ignition temperature	550 °C (1,022 °F)
Autoignition temperature	550.0 °C (1,022.0 °F)
Lower explosion limit	0.88 %(V)
Vapour pressure	18.7 hPa (14.0 mmHg) at 55.0 °C (131.0 °F) 3.3 hPa (2.5 mmHg) at 25.0 °C (77.0 °F)
Density	0.864 g/cm3 at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
Inhalation LC50
LC50 Inhalation - rat - 4 h - 24,000 mg/m3

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
no data available

Additional Information
RTECS: OX6825000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 12.52 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	Immobilization EC50 - Daphnia magna (Water flea) - 6 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

Toxic to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2325 Class: 3 Packing group: III
Proper shipping name: 1,3,5-Trimethylbenzene
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2325 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: 1,3,5-TRIMETHYLBENZENE
Marine pollutant: No

IATA
UN number: 2325 Class: 3 Packing group: III
Proper shipping name: 1,3,5-Trimethylbenzene

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Mesitylene	108-67-8	1994-04-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information
Copyright 2011 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

Version 4.6
Revision Date 03/03/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,3-Butadiene

Product Number : 295035
Brand : Aldrich
Index-No. : 601-013-00-X

CAS-No. : 106-99-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H340	May cause genetic defects.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P281	Use personal protective equipment as required.

P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_4H_6
Molecular weight	:	54.09 g/mol
CAS-No.	:	106-99-0
EC-No.	:	203-450-8
Index-No.	:	601-013-00-X

Hazardous components

Component	Classification	Concentration
1,3-Butadiene		
	Flam. Gas 1; Press. Gas Liquefied gas; Muta. 1B; Carc. 1A; H220, H280, H340, H350	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Recommended storage temperature 2 - 8 °C

Contents under pressure. Air sensitive. Light sensitive. Shock or heat may detonate May explode when heated. Handle and store under inert gas.
Storage class (TRGS 510): Gases

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
	Remarks	Potential Occupational Carcinogen See Appendix A		
1,3-Butadiene	106-99-0	TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Cancer Suspected human carcinogen		
		TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Cancer Suspected human carcinogen		
		TWA	1 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		
		TWA	1.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		

		STEL	5 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		
		STEL	5.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Substance listed; for more information see OSHA document 29 CFR 1910.1051; 29 CFR 1910.19(1)		
		See 1910.1051		
		PEL	1.000000 ppm	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1051 This section applies to all occupational exposures to 1,3-Butadiene (BD), Chemical Abstracts Service Registry No. 106-99-0, except as provided in paragraph (a)(2) of this section. Except for the recordkeeping provisions in paragraph (m)(1) of this section, this section does not apply to the processing, use, or handling of products containing BD or to other work operations and streams in which BD is present where objective data are reasonably relied upon that demonstrate the work operation or the product or the group of products or operations to which it belongs may not reasonably be foreseen to release BD in airborne concentrations at or above the action level or in excess of the STEL under the expected conditions of processing, use, or handling that will cause the greatest possible release or in any plausible accident. This section also does not apply to work operations, products or streams where the only exposure to BD is from liquid mixtures containing 0.1% or less of BD by volume or the vapors released from such liquids, unless objective data become available that show that airborne concentrations generated by such mixtures can exceed the action level or STEL under reasonably predictable conditions of processing, use or handling that will cause the greatest possible release. Except for labeling requirements and requirements for emergency response, this section does not apply to the storage, transportation, distribution or sale of BD or liquid mixtures in intact containers or in transportation pipelines sealed in such a manner as to fully contain BD vapors or liquid. Where products or processes containing BD are exempted under paragraph (a)(2) of this section, the employer shall maintain records of the objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in paragraph (m)(1) of this section 1,3-Butadiene means an organic compound with chemical formula CH2=CH-CH=CH2 that has a molecular weight of approximately 54.15 g/mole OSHA specifically regulated carcinogen		
		STEL	5.000000 ppm	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1051 This section applies to all occupational exposures to 1,3-Butadiene (BD), Chemical Abstracts Service Registry No. 106-99-0, except as provided in paragraph (a)(2) of this section. Except for the recordkeeping provisions in paragraph (m)(1) of this section, this section does not apply to the processing, use, or handling of products containing BD or to other work operations and streams in which BD is present where objective data are reasonably relied upon that demonstrate the work operation or the product or the group of products or operations to which it belongs may not reasonably be foreseen to release BD in airborne concentrations at or above the		

		action level or in excess of the STEL under the expected conditions of processing, use, or handling that will cause the greatest possible release or in any plausible accident. This section also does not apply to work operations, products or streams where the only exposure to BD is from liquid mixtures containing 0.1% or less of BD by volume or the vapors released from such liquids, unless objective data become available that show that airborne concentrations generated by such mixtures can exceed the action level or STEL under reasonably predictable conditions of processing, use or handling that will cause the greatest possible release. Except for labeling requirements and requirements for emergency response, this section does not apply to the storage, transportation, distribution or sale of BD or liquid mixtures in intact containers or in transportation pipelines sealed in such a manner as to fully contain BD vapors or liquid. Where products or processes containing BD are exempted under paragraph (a)(2) of this section, the employer shall maintain records of the objective data supporting that exemption and the basis for the employer's reliance on the data, as provided in paragraph (m)(1) of this section 1,3-Butadiene means an organic compound with chemical formula CH2=CH-CH=CH2 that has a molecular weight of approximately 54.15 g/mole OSHA specifically regulated carcinogen

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
1,3-Butadiene	106-99-0	1,2 Dihydroxy-4-(N-acetylcysteinyl)-butane	2.5000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Mixture of N-1 and N-2(hydroxybutenyl)valine	2.5pmol/g	Hemoglobin (Hb) adducts in blood	ACGIH - Biological Exposure Indices (BEI)
		Not critical			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Liquefied gas
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -109 °C (-164 °F) - lit.
f)	Initial boiling point and boiling range	-4.5 °C (23.9 °F) - lit.
g)	Flash point	-75.99 °C (-104.78 °F) - closed cup - Tested according to Annex V of Directive 67/548/EEC.
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 16.3 %(V) Lower explosion limit: 1.4 %(V)
k)	Vapour pressure	ca.2,400 hPa (1,800 mmHg) at 20 °C (68 °F) 3,200 hPa (2,400 mmHg) at 30 °C (86 °F) 5,700 hPa (4,275 mmHg) at 50 °C (122 °F)
l)	Vapour density	No data available
m)	Relative density	0.62 g/cm3 at 20 °C (68 °F)
n)	Water solubility	0.5 g/l at 20 °C (68 °F) - Tested according to Annex V of Directive 67/548/EEC.
o)	Partition coefficient: n-octanol/water	log Pow: 1.85 at 23 °C (73 °F)
p)	Auto-ignition temperature	No data available

q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Test for peroxide formation before using or discard after 3 months.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Oxygen, Copper, Copper alloys, Carbides, Halogens, Metal oxides, Metals

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,480 mg/kg

LC50 Inhalation - Rat - 4 h - 285 mg/l

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
In vivo tests showed mutagenic effects

Carcinogenicity

Carcinogenicity - Rat - Inhalation
Tumorigenic:Carcinogenic by RTECS criteria. Cardiac:Tumors. Lungs, Thorax, or Respiration:Tumors.

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (1,3-Butadiene)

NTP: Known to be human carcinogen (1,3-Butadiene)

OSHA: OSHA specifically regulated carcinogen (1,3-Butadiene)

Reproductive toxicity
No data available

Reproductive toxicity - Mouse - Inhalation
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

No data available

Developmental Toxicity - Rat - Inhalation
Specific Developmental Abnormalities: Musculoskeletal system.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Cholinesterase inhibitors can cause heavy salivation and secretion in the lungs, lachrymation, blurred vision, involuntary defecation, diarrhea, tremor, ataxia, sweating, hypothermia, lowered heart rate, and/or a fall in blood pressure as a result of their action at cholinergic nerve sites., narcosis, Headache, Nausea, Vomiting, Dizziness, Drowsiness, Confusion., Weakness, Muscle cramps/spasms., Change in pupil size., Tremors, Seizures., Incoordination., Convulsions, Coma

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 71.5 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1010 Class: 2.1
Proper shipping name: Butadienes, stabilized
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1010 Class: 2.1 EMS-No: F-D, S-U
Proper shipping name: BUTADIENES, STABILIZED

IATA
UN number: 1010 Class: 2.1
Proper shipping name: Butadienes, stabilized
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

SARA 311/312 Hazards
Fire Hazard, Sudden Release of Pressure Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,3-Butadiene	106-99-0	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. 1,3-Butadiene	CAS-No. 106-99-0	Revision Date 2007-09-28
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. 1,3-Butadiene	CAS-No. 106-99-0	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Flam. Gas	Flammable gases
H220	Extremely flammable gas.

H280	Contains gas under pressure; may explode if heated.
H340	May cause genetic defects.
H350	May cause cancer.
Muta.	Germ cell mutagenicity
Press. Gas	Gases under pressure

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	3

NFPA Rating

Health hazard:	0
Fire Hazard:	4
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/03/2015 Print Date: 03/03/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 03/03/2015
Print Date 04/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 1,4-Dioxane

Product Number : 296309
Brand : Sigma-Aldrich
Index-No. : 603-024-00-5

CAS-No. : 123-91-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.

P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides., Repeated exposure may cause skin dryness or cracking.
May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Dioxane Diethylene oxide
Formula	:	$C_4H_8O_2$
Molecular weight	:	88.11 g/mol
CAS-No.	:	123-91-1
EC-No.	:	204-661-8
Index-No.	:	603-024-00-5
Registration number	:	01-2119462837-26-XXXX

Hazardous components

Component	Classification	Concentration
1,4-Dioxane		
	Flam. Liq. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H319, H335, H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
1,4-Dioxane	123-91-1	TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	20 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	25 ppm 90 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		Skin notation		
		TWA	100.000000 ppm 360.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		
		TWA	100 ppm 360 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		
		C	1.000000 ppm 3.600000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 30 minute ceiling value		

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Long-term local effects	144 mg/m3
Workers	Inhalation	Long-term systemic effects	73 mg/m3
Workers	Skin contact	Long-term systemic effects	21 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	0.153 mg/kg
Marine water	0.67 mg/l
Fresh water	10 mg/l
Fresh water sediment	37 mg/kg
Sewage treatment plant	2700 mg/l
Aquatic intermittent release	10 mg/l

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 35 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	6.0 - 8 at 500 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 10 - 12 °C (50 - 54 °F) - lit.
f)	Initial boiling point and boiling range	100 - 102 °C (212 - 216 °F) - lit.
g)	Flash point	12 °C (54 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 22 %(V) Lower explosion limit: 2 %(V)
k)	Vapour pressure	36 hPa (27 mmHg) at 20 °C (68 °F) 53 hPa (40 mmHg) at 25.20 °C (77.36 °F)
l)	Vapour density	3.04 - (Air = 1.0)

m)	Relative density	1.034 g/cm3 at 25 °C (77 °F)
n)	Water solubility	completely miscible
o)	Partition coefficient: n-octanol/water	log Pow: -0.27
p)	Auto-ignition temperature	300 °C (572 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	36.9 mN/m at 25 °C (77 °F)
Relative vapour density	3.04 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxygen, Oxidizing agents, Halogens, Reducing agents, Perchlorates., Trimethylaluminum

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 4,200 mg/kg

LC50 Inhalation - Rat - 2 h - 46,000 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Other.

LD50 Dermal - Rabbit - 7,858 mg/kg

No data available

Skin corrosion/irritation
Skin - Human
Remarks: Chronic exposure causes drying effect on the skin and eczema.

Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (1,4-Dioxane)
NTP:	Reasonably anticipated to be a human carcinogen (1,4-Dioxane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: JG8225000

Nausea, Vomiting, Weakness, Dizziness, Vertigo, Headache, Sweating, loss of appetite, Kidney injury may occur., Liver injury may occur.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 985 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 8,450 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 500 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	Result: < 5 % - Not readily biodegradable.

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1165 Class: 3 Packing group: II
Proper shipping name: Dioxane
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1165 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: DIOXANE

IATA
UN number: 1165 Class: 3 Packing group: II
Proper shipping name: Dioxane

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
1,4-Dioxane	123-91-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 03/03/2015 Print Date: 04/11/2016

Matrix Scientific

PO BOX 25067
COLUMBIA, SC 29224-5067
Telephone: 803-788-9494 Fax: 803-788-9419

SAFETY DATA SHEET

Transportation Emergency: 3E Co. (5025) 800-451-8346

1. Product Identification

Name 1H,1H,2H,2H-Perfluorooctanesulfonic acid (25% aqueous solution)

Catalog Number	009120
CAS Registry Number	[27619-97-2]
Company	Matrix Scientific
Physical Address	131 Pontiac Business Center Drive Elgin, SC 29045 USA
Telephone/Fax	(803)788-9494/(803)788-9419

2. Hazard Identification

Hazardous Ingredients 1H,1H,2H,2H-Perfluorooctanesulfonic acid (25% aqueous solution)

GHS label elements, including precautionary statements

Pictogram



Signal word DANGER

Hazard statement(s)

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H317	H317 May cause an allergic skin reaction
H318	Causes serious eye damage
H319	H319 Causes serious eye irritation

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P501	Dispose of contents/container to … [… in accordance with

local/regional/national/international regulation (to be specified)].

3. Composition, Information or Ingredients

Name 1H,1H,2H,2H-Perfluorooctanesulfonic acid (25% aqueous solution)

4. First Aid Measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with clean, running water for at least 15 minutes while keeping eyes open. Cool water may be used. Seek medical attention.

Skin Contact: After contact with skin, wash with generous quantities of running water. Gently and thoroughly wash affected area with running water and non-abrasive soap. Cool water may be used. Cover the affected area with emollient. Seek medical attention. Wash any contaminated clothing prior to reusing.

Inhalation: Remove the victim from the source of exposure to fresh, uncontaminated air. If victim's breathing is difficult, administer oxygen. Seek medical attention.

Ingestion: Do NOT induce vomiting. Give water to victim to drink. Seek medical attention.

5. Fire-Fighting Measures

Extinguishing media: Carbon dioxide, dry chemical powder, alcohol or polymer foam.

Special fire fighting procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual fire and explosion hazards/ decomposition of product: Emits toxic fumes under fire conditions.

6. Accidental Release Measures

Steps to be taken if material is spilled or otherwise released into the environment - Wear Appropriate respirator, impervious boots and heavy rubber (or otherwise impervious) gloves. Scoop up solid material or absorb liquid material and place into appropriate container. Ventilate area and wash affected spill area after pickup is complete. Wash skin immediately with plenty of water. Place solid or absorbed material into containers and close for disposal.

7. Handling and Storage

Avoid prolonged exposure.
Use caution when handling.
Exposure to any chemical should be limited.
Do not breath dust or vapor.
Have safety shower and eye wash available.

Do not get in eyes, on skin or on clothing.
Keep container tightly closed.
Store in a cool, dry, well-ventilated place.
Ensure adequate ventilation during use.
Use only in a chemical fume hood.
To the best of our knowledge, the health hazards of this product have not been fully investigated.
This product is provided solely for the purpose of research and development.

8. Exposure Controls and Personal Protection

Wear Protective safety goggles.
Wear chemical-resistant gloves.
Wear protective clothing and chemical resistant boots.
Ensure ventilation during use.
After contact with skin, wash immediately.

9. Physical and Chemical Properties

Appearance: liquid
Molecular Formula: C8H5F13O3S
Molecular Weight: 428.17

10. Stability and Reactivity

Incompatibilities: Strong oxidizing agents
Strong acids and bases

Hazard Decomposition Products

Carbon	carbon monoxide
	carbon dioxide
Fluorine	hydrogen fluoride
Sulfur	oxides of sulfur

11. Toxicological Information

Acute effects:
Irritant
May be harmful by ingestion and inhalation.
Material is irritating to mucous membranes and upper respiratory tract.
To the best of our knowledge, the toxicological properties of this product have not been fully investigated or determined.

12. Ecological Information

Mobility:	Data not known
Persistence and degradability:	No data available
Cumulative potential:	No data available

Other adverse effects: No data available

13. Disposal Considerations

Absent other actions demanded by federal or local regulations - Dissolve or mix the material with a combustible solvent and burn in a requlated, chemical incinerator equipped with after burner and scrubber.
Observe all federal, state and local laws.

14. Transport Information

Shipping Name Corrosive liquid, acidic, organic, n.o.s.
Class / Sub-Class 8
UN Number UN3265
Packing Group III
Inhalation Hazard Zone

15. Regulatory Information

Adhere to all Federal, State and local regulations.

16. Other Information

The information contained herein is accurate to the best of our knowledge, but is not meant to be complete and is included only as a guide. The end user is responsible for any damage resulting from handling or from contact with this product.

MATERIAL SAFETY DATA SHEET

Date Printed: 05/24/2004
Date Updated: 03/10/2004
Version 1.5

Section 1 - Product and Company Information

Product Name	2-BUTANONE, 99.5+%, HPLC GRADE
Product Number	270695
Brand	ALDRICH
Company	Sigma-Aldrich
Street Address	3050 Spruce Street
City, State, Zip, Country	SAINT LOUIS MO 63103 US
Technical Phone:	314 771 5765
Emergency Phone:	414 273 3850 Ext. 5996
Fax:	800 325 5052

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
2-BUTANONE	78-93-3	Yes

Formula: C4H8O

Synonyms: Acetone, methyl- * Aethylmethylketon (German) * Butanone * 2-Butanone (OSHA) * Butanone 2 (French) * 3-Butanone * Ethyl methyl cetone (French) * Ethylmethylketon (Dutch) * Ketone, ethyl methyl * Meetco * MEK (OSHA) * Methyl acetone * Methyl ethyl ketone (ACGIH:OSHA) * Metiletilchetone (Italian) * Metyloetyloketon (Polish) * RCRA waste number U159

RTECS Number: EL6475000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable (USA) Highly Flammable (EU). Irritant.
Irritating to respiratory system and skin. Risk of serious damage to eyes. Vapors may cause drowsiness and dizziness.
Target organ(s): Central nervous system.

HMIS RATING

HEALTH: 2*
FLAMMABILITY: 3
REACTIVITY: 1

NFPA RATING

HEALTH: 2
FLAMMABILITY: 3
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of contact, immediately wash skin with soap and copious amounts of water.

EYE EXPOSURE
In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes.

Section 5 - Fire Fighting Measures

FLAMMABLE HAZARDS
Flammable Hazards: Yes

EXPLOSION HAZARDS
Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions.

FLASH POINT
30 ˚F -1 ˚C Method: closed cup

EXPLOSION LIMITS
Lower: 1.8 % Upper: 10.1 %

AUTOIGNITION TEMP
516 ˚C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area. Shut off all sources of ignition. Use nonsparking tools.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Store in a cool dry place. Store under nitrogen.

SPECIAL REQUIREMENTS
Hygroscopic.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Government approved respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Remove and wash contaminated clothing promptly. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	STEL	300 PPM
USA	ACGIH	TWA	200 PPM
USA	MSHA Standard-air	TWA	200 PPM (590 MG/M3)
USA	OSHA.	PEL	8H TWA 200 PPM (590 MG/M3)
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	200 PPM
		STEL	300 PPM

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	200 MG/M3
Poland		NDSCh	850 MG/M3
Poland		NDSP	-

Section 9 - Physical/Chemical Properties

Appearance	Physical State: Clear liquid Color: Colorless

Property	Value	At Temperature or Pressure
Molecular Weight	72.11 AMU	
pH	N/A	
BP/BP Range	79 - 80 °C	
MP/MP Range	-87 °C	
Freezing Point	-85.9 °C	
Vapor Pressure	71 mmHg	20 °C
Vapor Density	2.49 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	0.804 g/cm3	

Bulk Density	N/A	
Odor Threshold	5.4 - 1 ppm	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	0.4 Pas	25 ˚C
Surface Tension	24.6 mN/m	20 ˚C
Partition Coefficient	Log Kow: 0.29	
Decomposition Temp.	N/A	
Flash Point	30 ˚F -1 ˚C	Method: closed cup
Explosion Limits	Lower: 1.8 %	
	Upper: 10.1 %	
Flammability	N/A	
Autoignition Temp	516 ˚C	
Refractive Index	1.379	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:soluble	
	Other Solvents: ALCOHOL, ETHER, ACETONE BENZENE	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.
Conditions to Avoid: Protect from moisture.
Materials to Avoid: Oxidizing agents, Strong reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes severe eye irritation.
Inhalation: Material is irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Central nervous system.

SIGNS AND SYMPTOMS OF EXPOSURE

Can cause CNS depression. Exposure can cause: Gastrointestinal disturbances. Narcotic effect.

TOXICITY DATA

Oral
Rat
2737 mg/kg
LD50

Inhalation
Rat
23,500 mg/m3
LC50

Intraperitoneal
Rat
607 MG/KG
LD50

Oral
Mouse
4050 mg/kg
LD50

Inhalation
Mouse
32,000 mg/m3
LC50

Intraperitoneal
Mouse
616 MG/KG
LD50

Skin
Rabbit
6480 mg/kg
LD50

Inhalation
Mammal
38,000 mg/m3
LC50

IRRITATION DATA

Eyes
Human
350 ppm

Skin
Rabbit
500 mg
24H
Remarks: Moderate irritation effect

Skin
Rabbit
402 mg
24H
Remarks: Mild irritation effect

Skin
Rabbit
13.78 mg
24H
Remarks: Open irritation test

Eyes
Rabbit
80 mg

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 3000 PPM/7H
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue). Specific Developmental Abnormalities: Urogenital system. Specific Developmental Abnormalities: Homeostasis

Species: Rat
Dose: 1000 PPM/7H
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 3000 PPM/7H
Route of Application: Inhalation
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 7,060 mg/l

Test Type: LC50 Fish
Species: Leuciscus idus
Time: 48 h
Value: 4,600 - 4,880 mg/l

Test Type: LC50 Fish
Species: Pimephales promelas (Fathead minnow)
Time: 96 h
Value: 3,130 - 3,320 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Ethyl methyl ketone [or] Methyl ethyl ketone
UN#: 1193
Class: 3

Packing Group: Packing Group II
Hazard Label: Flammable liquid
PIH: Not PIH

IATA
Proper Shipping Name: Methyl ethyl ketone
IATA UN Number: 1193
Hazard Class: 3
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: F Xi
Indication of Danger: Highly Flammable. Irritant.
R: 11 36 66 67
Risk Statements: Highly flammable. Irritating to eyes. Repeated exposure may cause skin dryness or cracking. Vapors may cause drowsiness and dizziness.
S: 9 16
Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition - no smoking.

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Flammable (USA) Highly Flammable (EU). Irritant.
Risk Statements: Irritating to respiratory system and skin. Risk of serious damage to eyes. Vapors may cause drowsiness and dizziness.
Safety Statements: Keep away from sources of ignition - no smoking. Take precautionary measures against static discharges. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear eye/face protection.
US Statements: Target organ(s): Central nervous system.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
DEMINIMIS: 1 %
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or

from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
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Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **2-Methylnaphthalene, 99% (gc)**

Cat No. : **AC414551000; AC414555000**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
2-Methylnaphthalene	91-57-6	99.0

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
2-Methylnaphthalene	TWA: 0.5 ppm Skin		

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
2-Methylnaphthalene			TWA: 0.5 ppm Skin

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	No information available
Odor	Odorless
Odor Threshold	No information available
pH	
Melting Point/Range	37 38 °C
Boiling Point/Range	°C
Flash Point	
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	< 1 mmHg @ 25 °C
Vapor Density	No information available
Relative Density	1.0000
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C11H10
Molecular Weight	142.20

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
2-Methylnaphthalene	1630 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
2-Methylnaphthalene	91-57-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
2-Methylnaphthalene	Not listed	Pimephales promelas:LC50 = 2.5mg/L	Not listed	EC50 = 1.5 mg/L/48h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
2-Methylnaphthalene	3.86

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
2-Methylnaphthalene	X	X	-	202-078-3	-		X	X	X	X	-

Legend:

X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
2-Methylnaphthalene	-	X	-	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials

D2B Toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 5.1
Revision Date 06/26/2014
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 4,4′-DDD

Product Number : 35486
Brand : Sigma-Aldrich

CAS-No. : 72-54-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P322	Specific measures (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,1-Dichloro-2,2-bis(4-chlorophenyl)ethane TDE
Formula	:	$C_{14}H_{10}Cl_4$
Molecular Weight	:	320.04 g/mol
CAS-No.	:	72-54-8
EC-No.	:	200-783-0

Hazardous components

Component	Classification	Concentration
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas
Nature of decomposition products not known.

5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information

no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	94.0 - 96.0 °C (201.2 - 204.8 °F)
f)	Initial boiling point and boiling range	193.0 °C (379.4 °F) at 1.3 hPa (1.0 mmHg)
g)	Flash point	no data available
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	< 0.00001 hPa (< 0.00001 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	no data available
m)	Relative density	1.38 g/cm3
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	log Pow: 6.02
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available
t)	Oxidizing properties	no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
no data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Hamster - > 5,000 mg/kg

TDLo Oral - Human - 428.5 mg/kg
Remarks: Endocrine:Adrenal cortex hypoplasia.

TDLo Oral - rat - 6,000 mg/kg
Remarks: Cardiac:Other changes. Gastrointestinal:Other changes. Kidney, Ureter, Bladder:Changes in both tubules and glomeruli.

TDLo Oral - rat - 14 mg/kg
Remarks: Liver:Changes in liver weight. Endocrine:Estrogenic. Musculoskeletal:Other changes.

TDLo Oral - rat - 2,100 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex).

Inhalation: no data available

LD50 Dermal - rabbit - 1,200 mg/kg
Remarks: Behavioral:Excitement. Behavioral:Convulsions or effect on seizure threshold. Skin irritation

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as

probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: KI0700000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 1.18 - 9 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 0.04 - 0.05 mg/l - 96.0 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.06 - 0.09 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 3.47 - 5.58 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia pulex (Water flea) - 0.01 mg/l - 48 h

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Reportable Quantity (RQ): 1 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)
Marine pollutant: No

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane)

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
2,2-bis(4-Chlorophenyl)-1,1-dichloro-ethane	72-54-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.1 Revision Date: 06/26/2014 Print Date: 05/11/2016

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **p-Cymene**

Cat No. : **AC111760000; AC111760010; AC111760025; AC111760100; AC111762500**

Synonyms Dolcymene; p-Isopropyltoluene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 3
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Flammable liquid and vapor
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition / information on ingredients

Component	CAS-No	Weight %
p-Cymene	99-87-6	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If

not breathing, give artificial respiration. Obtain medical attention.

Ingestion Do not induce vomiting. Clean mouth with water. Get medical attention.

Most important symptoms/effects Breathing difficulties. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point 47 °C / 116.6 °F
Method - No information available

Autoignition Temperature 435 °C / 815 °F
Explosion Limits
Upper 5.60%
Lower .70%
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	2	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Take precautionary measures against static discharges. Use explosion-proof equipment. Use only non-sparking tools.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-68 °C / -90.4 °F
Boiling Point/Range	176 - 178 °C / 348.8 - 352.4 °F @ 760 mmHg
Flash Point	47 °C / 116.6 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	5.60%
Lower	.70%
Vapor Pressure	1.5 mmHg @ 20 °C
Vapor Density	4.62 (Air = 1.0)
Relative Density	0.854
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	435 °C / 815 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C10 H14
Molecular Weight	134.22

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products.

Incompatible Materials Strong oxidizing agents, Strong acids, Strong bases

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
p-Cymene	3669 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
p-Cymene	99-87-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
p-Cymene	Not listed	LC50: 48 mg/L/96h (sheepshead minnow)	Not listed	LC50: 6.5 mg/L/48h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
p-Cymene	4.1

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN2046
Hazard Class	3
Packing Group	III

TDG

UN-No	UN2046
Hazard Class	3
Packing Group	III

IATA

UN-No	2046
Proper Shipping Name	CYMENES
Hazard Class	3
Packing Group	III

IMDG/IMO

UN-No	2046
Proper Shipping Name	CYMENES
Hazard Class	3
Packing Group	III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
p-Cymene	X	X	-	202-796-7	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
p-Cymene	X	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B2 Flammable liquid
D2B Toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 5.4
Revision Date 01/02/2015
Print Date 12/11/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Acenaphthene

Product Number : 215376
Brand : Aldrich

CAS-No. : 83-32-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear eye protection/ face protection.
P280	Wear protective gloves.
P281	Use personal protective equipment as required.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,8-Ethylenenaphthalene

Formula : $C_{12}H_{10}$
Molecular weight : 154.21 g/mol
CAS-No. : 83-32-9
EC-No. : 201-469-6

Hazardous components

Component	Classification	Concentration
Acenaphthene		
	Skin Irrit. 2; Eye Irrit. 2A; Carc. 1B; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H350, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 90 - 94 °C (194 - 201 °F) - lit.
f)	Initial boiling point and boiling range	279 °C (534 °F) - lit.
g)	Flash point	125.0 °C (257.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available

k)	Vapour pressure	13.3 hPa (10.0 mmHg) at 131.0 °C (267.8 °F)
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.39 - 4.19
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Rat - 600 mg/kg

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Acenaphthene)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Reasonably anticipated to be a human carcinogen (Acenaphthene)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: AB1000000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.67 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 0.6 - 1.73 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.27 - 3.45 mg/l - 48 h
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 0.52 - 0.53 mg/l - 96 h

12.2 Persistence and degradability

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 28 d - 0.00894 mg/l
	Bioconcentration factor (BCF): 387

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Acenaphthene)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Acenaphthene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Acenaphthene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Acenaphthene	83-32-9	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Acenaphthene	83-32-9	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 01/02/2015 Print Date: 12/11/2015

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Poly(acenaphthylene)**

Cat No. : **AC178020000; AC178020050; AC178020100**

Synonyms None.

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Based on available data, the classification criteria are not met

Label Elements
None required

Hazards not otherwise classified (HNOC)
None identified

Unknown Acute Toxicity
.? % of the mixture consists of ingredients of unknown toxicity.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Poly(acenaphthylene)	25036-01-5	100

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated

clothes and shoes.

Inhalation Remove from exposure, lie down. Move to fresh air.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. If possible drink milk afterwards.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Thermal decomposition can lead to release of irritating gases and vapors Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Avoid contact with clothing. Remove and wash contaminated clothing before re-use. Avoid breathing vapors or mists. Do not ingest. Wash thoroughly after handling.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ventilation systems.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	No data available
Boiling Point/Range	No information available
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Oxidizing agents

Hazardous Decomposition Products Thermal decomposition can lead to release of irritating gases and vapors, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Oral LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Dermal LD50 Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50 Based on ATE data, the classification criteria are not met. ATE > 5 mg/l.
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Poly(acenaphthylene)	25036-01-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

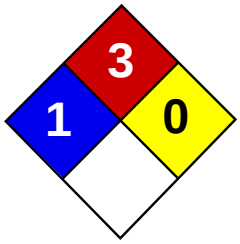
Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS







Material Safety Data Sheet
Acetone MSDS

Section 1: Chemical Product and Company Identification

Product Name: Acetone

Catalog Codes: SLA3502, SLA1645, SLA3151, SLA3808

CAS#: 67-64-1

RTECS: AL3150000

TSCA: TSCA 8(b) inventory: Acetone

CI#: Not applicable.

Synonym: 2-propanone; Dimethyl Ketone; Dimethylformaldehyde; Pyroacetic Acid

Chemical Name: Acetone

Chemical Formula: C3-H6-O

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Acetone	67-64-1	100

Toxicological Data on Ingredients: Acetone: ORAL (LD50): Acute: 5800 mg/kg [Rat]. 3000 mg/kg [Mouse]. 5340 mg/kg [Rabbit]. VAPOR (LC50): Acute: 50100 mg/m 8 hours [Rat]. 44000 mg/m 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. The substance is toxic to central nervous system (CNS). The substance may be toxic to kidneys, the reproductive system, liver, skin. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 465°C (869°F)

Flash Points: CLOSED CUP: -20°C (-4°F). OPEN CUP: -9°C (15.8°F) (Cleveland).

Flammable Limits: LOWER: 2.6% UPPER: 12.8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Highly flammable in presence of open flames and sparks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks, of oxidizing materials, of acids.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:
Forms explosive mixtures with hydrogen peroxide, acetic acid, nitric acid, nitric acid + sulfuric acid, chromic anydride, chromyl chloride, nitrosyl chloride, hexachloromelamine, nitrosyl perchlorate, nitryl perchlorate, permonosulfuric acid, thiodiglycol + hydrogen peroxide, potassium ter-butoxide, sulfur dichloride, 1-methyl-1,3-butadiene, bromoform, carbon, air, chloroform, thitriazylperchlorate.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis.

Storage:
Store in a segregated and approved area (flammables area) . Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Keep away from direct sunlight and heat and avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 500 STEL: 750 (ppm) from ACGIH (TLV) [United States] TWA: 750 STEL: 1000 (ppm) from OSHA (PEL) [United States] TWA: 500 STEL: 1000 [Austalia] TWA: 1185 STEL: 2375 (mg/m3) [Australia] TWA: 750 STEL: 1500 (ppm) [United Kingdom (UK)] TWA: 1810 STEL: 3620 (mg/m3) [United Kingdom (UK)] TWA: 1800 STEL: 2400 from OSHA (PEL) [United States]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Fruity. Mint-like. Fragrant. Ethereal

Taste: Pungent, Sweetish

Molecular Weight: 58.08 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 56.2°C (133.2°F)

Melting Point: -95.35 (-139.6°F)

Critical Temperature: 235°C (455°F)

Specific Gravity: 0.79 (Water = 1)

Vapor Pressure: 24 kPa (@ 20°C)

Vapor Density: 2 (Air = 1)

Volatility: Not available.

Odor Threshold: 62 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.2

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, exposure to moisture, air, or water, incompatible materials.

Incompatibility with various substances: Reactive with oxidizing agents, reducing agents, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 3000 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 44000 mg/m3 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. Causes damage to the following organs: central nervous system (CNS). May cause damage to the following organs: kidneys, the reproductive system, liver, skin.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May affect genetic material (mutagenicity) based on studies with yeast (S. cerevisiae), bacteria, and hamster fibroblast cells. May cause reproductive effects (fertility) based upon animal studies. May contain trace amounts of benzene and formaldehyde which may cancer and birth defects. Human: passes the placental barrier.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. May be harmful if absorbed through the skin. Eyes: Causes eye irritation, characterized by a burning sensation, redness, tearing, inflammation, and possible corneal injury. Inhalation: Inhalation at high concentrations affects the sense organs, brain and causes respiratory tract irritation. It also may affect the Central Nervous System (behavior) characterized by dizzness, drowsiness, confusion, headache, muscle weakeness, and possibly motor incoordination, speech abnormalities, narcotic effects and coma. Inhalation may also affect the gastrointestinal tract (nausea, vomiting). Ingestion: May cause irritation of the digestive (gastrointestinal) tract (nausea, vomiting). It may also

affect the Central Nevous System (behavior), characterized by depression, fatigue, excitement, stupor, coma, headache, altered sleep time, ataxia, tremors as well at the blood, liver, and urinary system (kidney, bladder, ureter) and endocrine system. May also have musculoskeletal effects. Chronic Potential Health Effects: Skin: May cause dermatitis. Eyes: Eye irritation.

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 5540 mg/l 96 hours [Trout]. 8300 mg/l 96 hours [Bluegill]. 7500 mg/l 96 hours [Fatthead Minnow]. 0.1 ppm any hours [Water flea].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Acetone UNNA: 1090 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Benzene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Benzene, Formaldehyde Connecticut hazardous material survey.: Acetone Illinois toxic substances disclosure to employee act: Acetone Illinois chemical safety act: Acetone New York release reporting list: Acetone Rhode Island RTK hazardous substances: Acetone Pennsylvania RTK: Acetone Florida: Acetone Minnesota: Acetone Massachusetts RTK: Acetone Massachusetts spill list: Acetone New Jersey: Acetone New Jersey spill list: Acetone Louisiana spill reporting: Acetone California List of Hazardous Substances (8 CCR 339): Acetone TSCA 8(b) inventory: Acetone TSCA 4(a) final test rules: Acetone TSCA 8(a) IUR: Acetone

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable. R36- Irritating to eyes. S9- Keep container in a well-ventilated place. S16- Keep away from sources of ignition - No smoking. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-Material safety data sheet issued by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, RTECS, HSDB databases. Other MSDSs

Other Special Considerations: Not available.

Created: 10/10/2005 08:13 PM

Last Updated: 05/21/2013 12:00 PM

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SAFETY DATA SHEET

Version 5.8
Revision Date 06/02/2016
Print Date 08/02/2019

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : α-BHC

Product Number : 48493
Brand : Supelco
Index-No. : 602-042-00-0

CAS-No. : 319-84-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 4), H312
Carcinogenicity (Category 2), H351
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H312 Harmful in contact with skin.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	α-1,2,3,4,5,6-Hexachlorocyclohexane
Formula	:	C6H6Cl6
Molecular weight	:	290.83 g/mol
CAS-No.	:	319-84-6
EC-No.	:	206-270-8
Index-No.	:	602-042-00-0

Hazardous components

Component	Classification	Concentration
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H312, H351, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	156.0 - 161.0 °C (312.8 - 321.8 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.80
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 177.0 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
IARC:	2B - Group 2B: Possibly carcinogenic to humans ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
NTP:	Reasonably anticipated to be a human carcinogen ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GV3500000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 0.12 mg/l - 48.0 h
	LC50 - Cyprinus carpio (Carp) - 0.2 mg/l - 48.0 h
	LC50 - other fish - 1.49 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.20 - 1.70 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - > 100.00 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Bioaccumulation: other fish - 96 h
- 0.8 mg/l

Bioconcentration factor (BCF): 250

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

IATA
UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. ((1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
(1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2009-02-01
WARNING! This product contains a chemical known to the State of California to cause cancer. (1α,2α,3β,4α,5β,6β)-1,2,3,4,5,6-Hexachlorocyclohexane	319-84-6	2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Carc.	Carcinogenicity
H301	Toxic if swallowed.
H312	Harmful in contact with skin.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0
Health hazard:	1
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 06/02/2016 Print Date: 08/02/2019

SAFETY DATA SHEET

Version 4.8
Revision Date 05/03/2017
Print Date 07/13/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : α-Chlordane

Product Number : 442449
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular weight : 409.8 g/mol
EC-No. : 225-825-5

Hazardous components

Component	Classification	Concentration
Chlordane		
	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H302 + H332, H315, H319, H335, H351, H410	90 - 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.
Hazardous components without workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	93.0 - 94.0 °C (199.4 - 201.2 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available

i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 500 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chlordane)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 0.0074 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 24 h - 0.005 mg/l
	Bioconcentration factor (BCF): 322

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Chlordane)
Reportable Quantity (RQ): Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Chlordane)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Chlordane)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chlordane	5103-71-9	

	CAS-No.	Revision Date
Chlordane	5103-71-9	

New Jersey Right To Know Components

	CAS-No.	Revision Date
Chlordane	5103-71-9	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.8 Revision Date: 05/03/2017 Print Date: 07/13/2017

SAFETY DATA SHEET

1. Identification

Product identifier **ATOMIZED ALUMINUM POWDER**

Other means of identification

SDS number 123

Chemical formula Al

Version # 08

Revision date August 11, 2015.

Other means of identification

Synonyms All non-alloyed, non-coated nodular aluminum powder containing < 1% trace elements * Grade 13, 101, 102, 104, 101T, 120, 121, 123, 1124, 1202, 1233, 1235, 1401/S2(1406), 1403, 1404, 1407, 1401/S9(1409), 1125, * 4402, 6401, 7123, 7124, 7125, 7401

Recommended use Various metallurgical/chemical/structural/coating applications

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

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Health and Safety Fax: +1-412-553-4822
Health and Safety Email: accmsds@alcoa.com

Alcoa Inc.
Rockdale Operations
P.O. Box 472
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Tel: +1-512-446-8681

Poços de Caldas
Rodovia Poços de Caldas/Andradas, km 10
CEP 37.719-900
Poços de Caldas, Minas Gerais
Tel.: (+55 35) 2101-5000
E-mail: pfacomercialprimarios@alcoa.com.br

Emergency Information CHEMTREC: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken); ALCOA: +1-412-553-4001 (24 Hour Emergency Telephone, only English spoken)

Website For a current Safety Data Sheet, refer to Alcoa websites: www.alcoa.com or internally at my.alcoa.com EHS Community

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

Authority defined hazards Combustible dust

Label elements

Hazard symbol None.

Signal word Warning

Hazard statement May form combustible dust concentrations in air.

Precautionary statement

Prevention	Care should be taken during bulk handling to prevent accumulation/generation over time of 75 micron or finer particles. Use only non-sparking tools and natural bristle brushes. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Prevent dust accumulation to minimize explosion hazard. Take precautionary measures against static discharge.
Response	In case of fire: Use appropriate media for extinction.
Storage	Store in a dry place and/or in closed container. Keep away from heat, sparks and open flame - No smoking.Do not allow chips, fines or dust to contact water, particularly in enclosed areas.
Disposal	Reuse or recycle material whenever possible. Material that cannot be reused may be sent to a metals reclamation facility that is able to handle fines. Waste material that cannot be reclaimed for metal value should be rendered non-reactive prior to disposal.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	Powder may ignite readily. Powder or dusts dispersed in the air can be explosive. Explosion/fire hazards may be present when: • Powder or dust are dispersed in air. • Powder or dusts are in contact with water. • Powder or dusts are in contact with certain metal oxides (e.g., rust, copper oxide).

3. Composition/information on ingredients

Composition comments Complete composition is provided below and may include some components classified as non-hazardous.

Substances

Chemical name	Common name and synonyms	CAS number	%
Aluminum powder		7429-90-5	≥99.7

4. First-aid measures

Eye contact	Dust from processing: Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.
Skin contact	Dust from processing: Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or persists.
Inhalation	Dust from processing: Remove to fresh air. Check for clear airway, breathing, and presence of pulse. If breathing is difficult, provide oxygen. Loosen any tight clothing on neck or chest. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.
Ingestion	If swallowed, dilute by drinking water. Recommend quantities up to 30 mL (~1 oz.) in children and 250 mL (~9 oz.) in adults. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do NOT induce vomiting. Consult a physician.
Most important symptoms/effects, acute and delayed	Dust from processing: Can cause irritation of the upper respiratory tract. See Section 11 of the SDS for additional information on health hazards.
Medical conditions aggravated by exposure	Asthma, chronic lung disease, and skin rashes.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen.
General information	If exposed or concerned: Get medical advice/attention. In case of shortness of breath, give oxygen.

5. Fire-fighting measures

Suitable extinguishing media	Use Class D extinguishing agents on fines, dust or molten metal.
Unsuitable extinguishing media	DO NOT USE water, halogenated agents, or ABC dry chemical agents. These fire extinguishing agents will react with the burning material.

Specific hazards arising from the chemical	Alcoa aluminum powders were tested by the United States Department of Interior Bureau of Mines in 1991, under UN criteria and found not to meet the definition of a hazard class 4. Care should be taken, however, during bulk handling to prevent accumulation/generation over time of 75 micron or finer particles. May be a potential hazard under the following conditions: • Dust clouds may be explosive. Even a minor dust cloud can explode violently. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions. • Powder or dusts in contact with water can generate flammable/explosive hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces. • Powder or dusts are in contact with certain metal oxides (e.g., rust, copper oxide).
Special protective equipment and precautions for firefighters	Firefighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.
Fire fighting equipment/instructions	Use gentle surface application of Class D extinguishing agent or dry inert granular material (e.g., sand) to cover and ring the burning material. Avoid mixing of the extinguishing agent with the burning material. Apply extinguishing media carefully to avoid creating airborne dust. Do not disturb the material until completely cool. If possible, isolate the burning material to prevent fire spread, and allow the material to burn itself out. Move undamaged containers away from heat or flame, if possible.
General fire hazards	Dust and fines from processing may ignite readily. Dust or fines dispersed in the air can be explosive.
Explosion data	
Sensitivity to mechanical impact	Not sensitive.
Sensitivity to static discharge	Static electricity and formation of sparks must be prevented. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Use non-sparking handling equipment, tools and natural bristle brushes. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations. Obtain and follow the safety procedures and equipment guides contained in Aluminum Association Bulletin F-1 and National Fire Protection Association (NFPA) Standards listed in Section 16. Use non-sparking handling equipment, tools and natural bristle brushes. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations (See Section 15).

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Avoid contact with skin and eyes. Use personal protection recommended in Section 8 of the SDS.
Personal precautions, protective equipment and emergency procedures	
For emergency responders	Avoid contact with skin and eyes. Use personal protection recommended in Section 8 of the SDS.
Evacuation procedures	Keep people away from and upwind of spill/leak. Keep unnecessary personnel away.
Methods and materials for containment and cleaning up	Isolate area. Avoid the generation of dusts during clean-up. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Use only non-sparking tools and natural bristle brushes. Use dry cleanup procedures. Keep material dry. Place carefully in dry, water-tight containers. Seal containers. After complete clean-up by sweeping, area may be washed with large amounts of water if necessary. Material that cannot be reused may be sent to a metals reclamation facility that is able to handle fines. Waste material that cannot be reclaimed for metal value should be rendered non-reactive prior to disposal. For waste disposal, see section 13 of the SDS.
Environmental precautions	No specific precautions.

7. Handling and storage

Handling	Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. Care should be taken during bulk handling to prevent accumulation/generation over time of 75 micron or finer particles. Keep material dry.
Storage	Keep dry. Storage rooms must be of fire-resistant construction. Do not store powder in same room as other combustible materials.

Requirements for Processes Which Generate Dusts or Fines

Obtain and follow the safety procedures and equipment guides contained in Aluminum Association Bulletin TR-2 and National Fire Protection Association (NFPA) brochures listed in Section 16. Use non-sparking handling equipment, tools and natural bristle brush. Cover and reseal partially empty containers. Provide grounding and bonding where necessary to prevent accumulation of static charges during metal dust handling and transfer operations (See Section 15).

Local ventilation and vacuum systems must be designed to handle explosive dusts. Dry vacuums and electrostatic precipitators must not be used, unless specifically approved for use with flammable/explosive dusts. Dust collection systems must be dedicated to aluminum dust only and should be clearly labeled as such. Do not co-mingle fines of aluminum with fines of iron, iron oxide (rust) or other metal oxides.

Process equipment, storage containers, vessels and buildings should be equipped with explosion/pressure relief valves, panels and windows. Precautions must also be taken to prevent water leakage or seepage which could contact the powder. Refer to NFPA 484.

Avoid all ignition sources. Good housekeeping practices must be maintained. Dust accumulation on the floor, ledges and beams can present a risk of ignition, flame propagation and secondary explosions. Do not use compressed air to remove settled material from floors, beams or equipment . Do not allow fines or dust to contact water, particularly in enclosed areas.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA

Components	Type	Value	Form
Aluminum powder (CAS 7429-90-5)	TWA	15 mg/m3	(total dust)

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value	Form
ATOMIZED ALUMINUM POWDER	PEL	5 mg/m3	Respirable dust.
		15 mg/m3	Total dust.

Components	Type	Value	Form
Aluminum powder (CAS 7429-90-5)	TWA	5 mg/m3	Respirable dust.

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units

Material	Type	Value	Form
ATOMIZED ALUMINUM POWDER	TWA	1 mg/m3	Respirable fraction.

Components	Type	Value	Form
Aluminum powder (CAS 7429-90-5)	TWA	1 mg/m3	Respirable fraction.

Alcoa

Material	Type	Value	Form
ATOMIZED ALUMINUM POWDER	TWA	3 mg/m3	Respirable fraction
		10 mg/m3	Total dust

Components	Type	Value	Form
Aluminum powder (CAS 7429-90-5)	TWA	3 mg/m3	Respirable fraction
		10 mg/m3	Total dust

General Use personal protective equipment as required.

Appropriate engineering controls Dust from processing: Use with adequate explosion-proof ventilation designed to handle particulates to meet the limits listed in Section 8, Exposure Guidelines.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields.

Skin protection

Hand protection Wear impervious gloves to avoid direct skin contact.

Other	Recommend fire resistant cotton or equivalent full-length fire resistant pants and jackets along with electrically conductive safety shoes or grounding straps. Great caution is required to avoid contact with unprotected electrical devices when wearing conductive safety shoes or grounding straps.
Respiratory protection	Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8. Suggested respiratory protection: N95.
Thermal hazards	Not applicable.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.
Control parameters	

9. Physical and chemical properties

Form	Solid, powder.
Color	Silvery to gray.
Odor	Odorless
Odor threshold	Not applicable
pH	Not applicable
Density	0.80 - 1.30 g/cm3
Melting point/freezing point	1194.8 - 1214.6 °F (646 - 657 °C) 1220 °F (660 °C)
Initial boiling point and boiling range	Not determined 4220.6 °F (2327 °C)
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - upper (%)	Not determined
Flammability limit - lower (%)	40 mg/l
Explosive properties	Dust can form an explosive mixture in air. Dust accumulation from this product may present an explosion hazard in the presence of an ignition source.
Dust explosion properties	
St class	Very strong explosion.
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not determined
Solubility(ies)	Insoluble Insoluble
Partition coefficient (n-octanol/water)	Not applicable. Not applicable
Auto-ignition temperature	1202 °F (650 °C) layered
Decomposition temperature	Not applicable
Viscosity	Not applicable

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal conditions of use, storage, and transportation as shipped.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	• Water: Slowly generates flammable and explosive hydrogen gas and heat. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). Water/aluminum mixtures may be hazardous when confined. • Heat: Oxidizes at a rate dependent upon temperature and particle size.

Incompatible materials	• Acids and alkalis: Reacts to generate flammable/explosive hydrogen gas. Generation rate is greatly increased with smaller particles (e.g., fines and dusts). • Strong oxidizers: Violent reaction with considerable heat generation. Can react explosively with nitrates (e.g., ammonium nitrate and fertilizers containing nitrate) when heated or molten. • Halogenated compounds: Many halogenated hydrocarbons, including halogenated fire extinguishing agents, can react violently with finely divided or molten aluminum. • Iron oxide (rust) and other metal oxides (e.g., copper and lead oxides): A violent thermite reaction generating considerable heat can occur. Reaction with aluminum fines and dusts requires only very weak ignition sources for initiation. • Iron powder and water: Explosive reaction forming hydrogen gas when heated above 1470°F (800°C).
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Health effects associated with ingredients

Aluminum dust/fines and fumes: Low health risk by inhalation. Generally considered to be biologically inert.

Health effects associated with compounds formed during processing

No new/additional compounds are expected to be formed during processing.

Information on likely routes of exposure

Eye contact	Can cause mechanical irritation.
Skin contact	Dust from processing: Can cause mechanical irritation.
Inhalation	Dust from processing: Can cause irritation of the upper respiratory tract.
Ingestion	Can cause irritation of the gastrointestinal tract.
Symptoms related to the physical, chemical and toxicological characteristics	Dust from processing: Can cause mechanical irritation. Dust: Can cause irritation of the upper respiratory tract.

Information on toxicological effects

Acute toxicity	Based on available data, the classification criteria are not met.
Skin corrosion/irritation	Non-corrosive.
Serious eye damage/eye irritation	Can cause mechanical irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not a respiratory sensitizer.
Skin sensitization	Not a skin sensitizer.
Germ cell mutagenicity	Based on available data, the classification criteria are not met.
Neurological effects	Based on available data, the classification criteria are not met.
Pre-existing conditions aggravated by exposure	Asthma, chronic lung disease, and skin rashes.
Carcinogenicity	Does not present any cancer hazards.
Reproductive toxicity	Does not present any reproductive hazards.
Routes of exposure	Inhalation. Skin contact. Eye contact.
Specific target organ toxicity - single exposure	Based on available data, the classification criteria are not met.
Specific target organ toxicity - repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Not an aspiration hazard.
Chronic effects	Not classified.
Further information	None known.

12. Ecological information

Ecotoxicity	Not expected to be harmful to aquatic organisms.

Product		Species	Test Results
ATOMIZED ALUMINUM POWDER			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.16 mg/l, 96 hours

Persistence and degradability The product is not biodegradable.

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

Mobility in soil Not considered mobile.

Mobility in general Not considered mobile.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Reuse or recycle material whenever possible. Material that cannot be reused may be sent to a metals reclamation facility that is able to handle fines. Waste material that cannot be reclaimed for metal value should be rendered non-reactive prior to disposal.

Local disposal regulations Dispose in accordance with all applicable regulations.

Waste codes RCRA Status: Not federally regulated in the U.S. if disposed of "as is."
RCRA waste codes other than described here may apply depending on use of the product. Status must be determined at the point of waste generation. Refer to 40 CFR 261 or state equivalent in the U.S.

Waste from residues / unused products If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.

Contaminated packaging Dispose of in accordance with local regulations.

14. Transport information

General Shipping Information

Basic Shipping Information

ID number -

Proper shipping name Not regulated

Hazard class -

Packing group -

General Shipping Notes

• This material has been tested under UN criteria and found not to meet the definition of a hazard class 4 and does not meet the definition of any other hazard class.
• Standard Transportation Commodity Code: 33-991-19.
• HTS (Harmonized Tariff Schedule) code: 7603.10.0000.
• The import/export HTS (Harmonized Tariff Schedule) code given above is the United States HTS code provided by Alcoa's Customs Compliance Office in Knoxville, TN. Other country specific HTS codes may apply. If available, more information on the HTS codes will be provided on country specific Material Safety Data Sheets.
• When "Not regulated", enter the proper freight classification, SDS Number and Product Name onto the shipping paperwork.

Disclaimer

This section provides basic classification information and, where relevant, information with respect to specific modal regulations, environmental hazards and special precautions. Otherwise, it is presumed that the information is not available/not relevant

15. Regulatory information

US federal regulations In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.
All electrical equipment must be suitable for use in hazardous atmospheres involving aluminum powder in accordance with 29 CFR 1910.307. The National Electrical Code, NFPA 70, contains guidelines for determining the type and design of equipment and installation which will meet this requirement.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - Yes — If dust clouds are generated
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Aluminum powder	7429-90-5	≥99.7

US state regulations

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

SDS Status

August 11, 2015: Change(s) in Section: 1 and 16.
April 30, 2015 (April 30, 2015 Minor modification 0123usa): Change(s) in Section: 1, 2 Minor modification..
January 7, 2015: Change(s) in Section: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16.

Origination date: September 17, 1980

Hazardous Materials Control Committee
Preparer: Jim Perriello, +1-865-977-2051.

SDS System Number: 145308

Revision date August 11, 2015.

Version # 08

Revision Information

Product and Company Identification: Synonyms
Composition / Information on Ingredients: Disclosure Overrides
Physical & Chemical Properties: Multiple Properties
Transport Information: Agency Name, Packaging Type, and Transport Mode Selection
Regulatory Information: United States
HazReg Data: North America
GHS: Classification

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available.

Other information

• Aluminum Association Bulletin TR-2, "Recommendations for Storage and Handling of Aluminum Pigments and Powders." The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, www.aluminum.org.
• Aluminum Association, "Guidelines for Handling Molten Aluminum, The Aluminum Association, 1525 Wilson Boulevard, Suite 600, Arlington, Virginia 22209, www.aluminum.org.
• NFPA 484, Standard for Combustible Metals (NFPA phone: 800-344-3555)
• NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids
• NFPA 70, Standard for National Electrical Code (Electrical Equipment, Grounding and Bonding)
• NFPA 77, Standard for Static Electricity
• NFPA 68, Standard on Explosion Protection by Deflagration Venting • NFPA 69, Standard on Explosion Prevention Systems

Key/Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Japan - Existing and New Chemical Substances
EWC	European Waste Catalogue
EPA	Environmental Protective Agency
IARC	International Agency for Research on Cancer
LC	Lethal Concentration
LD	Lethal Dose
MAK	Maximum Workplace Concentration (Germany) "maximale Arbeitsplatz-Konzentration"
NDSL	Non-Domestic Substances List (Canada)
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PIN	Product Identification Number
PMCC	Pensky Marten Closed Cup
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SIMDUT	Système d'Information sur les Matières Dangereuses Utilisées au Travail
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

m meter, cm centimeter, mm millimeter, in inch,
g gram, kg kilogram, lb pound, µg microgram,
ppm parts per million, ft feet

*** End of SDS ***

Hazard statement

May form combustible dust concentrations in air.

Precautionary statement

Prevention

Care should be taken during bulk handling to prevent accumulation/generation over time of 75 micron or finer particles. Use only non-sparking tools and natural bristle brushes. Keep away from heat/sparks/open flames/hot surfaces - No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Prevent dust accumulation to minimize explosion hazard. Take precautionary measures against static discharge.

Response

In case of fire: Use appropriate media for extinction.

Storage

Store in a dry place and/or in closed container. Keep away from heat, sparks and open flame - No smoking. Do not allow chips, fines or dust to contact water, particularly in enclosed areas.

Disposal

Reuse or recycle material whenever possible. Material that cannot be reused may be sent to a metals reclamation facility that is able to handle fines. Waste material that cannot be reclaimed for metal value should be rendered non-reactive prior to disposal.

Warning

Supplemental information

Powder may ignite readily. Powder or dusts dispersed in the air can be explosive.

Explosion/fire hazards may be present when:

- Powder or dust are dispersed in air.
- Powder or dusts are in contact with water.
- Powder or dusts are in contact with certain metal oxides (e.g., rust, copper oxide).

FIRE FIGHTING MEASURES: Use gentle surface application of Class D extinguishing agent or dry inert granular material (e.g., sand) to cover and ring the burning material. Avoid mixing of the extinguishing agent with the burning material. If possible, isolate the burning material to prevent fire spread, and allow the material to burn itself out. Do not disturb the material until completely cool. Move undamaged containers away from heat or flame, if possible.

DO NOT USE water, halogenated agents, or ABC dry chemical agents.

These fire extinguishing agents will react with the burning material.

IN CASE OF SPILL: Avoid dusting of powder to the greatest extent possible. Use only non-sparking tools and natural bristle brushes. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Prohibit smoking. Use dry cleanup procedures. Place carefully in dry, water-tight containers. Seal containers. After complete clean-up by sweeping, area may be washed with large amounts of water if necessary.

See Alcoa SDS Number 0123.

SAFETY DATA SHEET

Version 4.9
Revision Date 04/20/2015
Print Date 12/11/2015

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Anthracene

Product Number : A89200
Brand : Aldrich

CAS-No. : 120-12-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear eye protection/ face protection.

P280	Wear protective gloves.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Photosensitizer., Lachrymator.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{14}H_{10}$
Molecular weight	:	178.23 g/mol
CAS-No.	:	120-12-7
EC-No.	:	204-371-1

Hazardous components

Component	Classification	Concentration
Anthracene Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H315, H319, H335, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Anthracene	120-12-7	TWA	0.200000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	1910.1002 As used in §1910.1000 (Table Z-1), coal tar pitch volatiles include the fused polycyclic hydrocarbons which volatilize from the distillation residues of coal, petroleum (excluding asphalt), wood, and other organic matter. Asphalt (CAS 8052-42-4, and CAS 64742-93-4) is not covered under the 'coal tar pitch volatiles' standard OSHA specifically regulated carcinogen		

		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen NIOSH considers coal tar, coal tar pitch, and creosote to be coal tar products. cyclohexane-extractable fraction See Appendix C See Appendix A		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Anthracene	120-12-7	1-Hydroxypyrene (1-HP)		Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 480 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 210 - 215 °C (410 - 419 °F) - lit.
f)	Initial boiling point and boiling range	340 °C (644 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.6 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 145.0 °C (293.0 °F)
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 4.45
p)	Auto-ignition temperature	540.0 °C (1,004.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents, Hypochlorites

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Inhalation: No data available

Dermal: No data available

LD50 Intraperitoneal - Mouse - 430 mg/kg

Skin corrosion/irritation
Skin - Mouse
Result: Mild skin irritation

Serious eye damage/eye irritation
Irritating to eyes. The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Respiratory or skin sensitisation
Causes photosensitivity. Exposure to light can result in allergic reactions resulting in dermatologic lesions, which can vary from sunburnlike responses to edematous, vesiculated lesions, or bullae

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Anthracene)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	OSHA specifically regulated carcinogen (Anthracene)

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CA9350000

Possible tumor promoter., Headache, Nausea, Weakness

Blood -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 0.001 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.10 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Indication of bioaccumulation.
Bioaccumulation Pimephales promelas (fathead minnow) - 42 d - 0.01191 mg/l

Bioconcentration factor (BCF): 649

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Anthracene)
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Anthracene)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Anthracene)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Anthracene	120-12-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Anthracene	120-12-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Irrit.	Eye irritation
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.9 Revision Date: 04/20/2015 Print Date: 12/11/2015

Antimony

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision Date: 02/12/2014 Version: 1.0

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY

1.1. Product Identifier

Product Form: Substance

Product Name: Antimony

Synonyms: Stibium (Sb)

1.2. Intended Use of the Product No additional information available

1.3. Name, Address, and Telephone of the Responsible Party

Company

Atomized Products Group, Inc
3838 Miller Park Dr
Garland, TX 75042
T 972-272-9596
atomizedproductsgroup.com

1.4. Emergency Telephone Number

Emergency Number : 800-255-3924 (CHEMTEL)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

Classification (GHS-US)

Comb. Dust
Acute Tox. 3 (Oral) H301
Acute Tox. 4 (Inhalation:dust,mist) H332
Carc. 2 H351
Aquatic Acute 2 H401
Aquatic Chronic 2 H411

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :



GHS06 GHS07 GHS08 GHS09

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : May form combustible dust concentrations in air
H301 - Toxic if swallowed
H332 - Harmful if inhaled
H351 - Suspected of causing cancer
H401 - Toxic to aquatic life
H411 - Toxic to aquatic life with long lasting effects

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing dust.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection, respiratory protection.
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 - If exposed or concerned: Get medical advice/attention.

P312 - Call a POISON CENTER/doctor/physician if you feel unwell.
P321 - Specific treatment (see section 4).
P330 - If swallowed, rinse mouth.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to local, regional, national, territorial, provincial, and international regulations.

2.3. Other Hazards

Other Hazards Not Contributing to the Classification: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions. May form combustible dust concentrations in air. Exposure may aggravate individuals with pre-existing skin, kidney, liver, and pulmonary disorders. On burning release of harmful/irritant gases/vapours (antimony oxides). Inhalation of dusts and fumes can cause metal fume fever. Symptoms can include a metallic or sweet taste in the mouth, sweating, shivering, headache, throat irritation, fever, chills, thirstiness, muscle aches, nausea, vomiting, weakness, fatigue, and shortness of breath.

2.4. Unknown Acute Toxicity (GHS-US)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Name : Antimony

Name	Product identifier	%	Classification (GHS-US)
Antimony	(CAS No) 7440-36-0	100	Comb. Dust Acute Tox. 3 (Oral), H301 Acute Tox. 4 (Inhalation), H332 Carc. 2, H351 Aquatic Acute 2, H401 Aquatic Chronic 2, H411

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. Description of First Aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation persists.

First-aid Measures After Ingestion: Rinse mouth. Do not induce vomiting. Seek medical attention if a large amount is swallowed.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/Injuries: Suspected of causing cancer. Toxic if swallowed. Harmful if inhaled.

Symptoms/Injuries After Inhalation: Harmful if inhaled. Respiratory tract irritation.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Toxic if swallowed. May cause nausea, vomiting, and diarrhea.

Chronic Symptoms: Prolonged exposure may cause effects in specific organs such as the liver, kidneys, blood, and nervous system.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures. Dust explosion hazard in air.

Explosion Hazard: Avoid dust clouds in combination with static electricity. Dust explosion hazard in air.

Reactivity: Hazardous reactions will not occur under normal conditions. Dust clouds can be explosive.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Other information: Risk of dust explosion. Do not allow the product to be released into the environment. Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Use special care to avoid static electric charges. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety practice. Do not breathe dust. Avoid generating dust. Avoid all contact with skin, eyes, or clothing.

6.1.1. For Non-emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Responders

Protective Equipment: Equip cleanup crew with proper protection. Use appropriate personal protection equipment (PPE).

Emergency Procedures: Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses.

6.3. Methods and Material for Containment and Cleaning Up

For Containment: Avoid generation of dust during clean-up of spills. Use only non-sparking tools.

Methods for Cleaning Up: Clear up spills immediately and dispose of waste safely. Avoid generation of dust during clean-up of spills. Use only non-sparking tools. Use explosion proof vacuum during cleanup, with appropriate filter, do not mix with other materials. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Avoid dust production. Accumulation and dispersion of dust with an ignition source can cause a combustible dust explosion, keep dust levels to a minimum and follow applicable regulations. Do not pressurize, cut, or weld containers. . On burning: release of harmful/irritant gases/vapours e.g.: (antimony oxides).

Precautions for Safe Handling: Use only non-sparking tools. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Handle in accordance with good industrial hygiene and safety procedures.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do no eat, drink or smoke when using this product.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, and lighting equipment. Comply with applicable regulations.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from extremely high or low temperatures, ignition sources, incompatible materials.

Incompatible Products: Strong acids. Strong bases. Strong oxidizers.

7.3. Specific End Use(s)

No additional information available

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

Antimony (7440-36-0)		
USA ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.5 mg/m³

USA IDLH	US IDLH (mg/m³)	50 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	0.5 mg/m³

8.2. Exposure Controls

Appropriate Engineering Controls : Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof equipment. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment : Gloves. Protective goggles. Respiratory protection of the dependent type. Protective clothing.



Materials for Protective Clothing : Chemically resistant materials and fabrics.

Hand Protection : Wear chemically resistant protective gloves.

Eye Protection : Chemical goggles or safety glasses.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of dust are expected to exceed exposure limits.

Thermal Hazard Protection : Wear suitable protective clothing.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State : Solid

Odor : No data available

Odor Threshold : No data available

pH : No data available

Relative Evaporation Rate (butylacetate=1) : No data available

Melting Point : No data available

Freezing Point : No data available

Boiling Point : No data available

Flash Point : No data available

Auto-ignition Temperature : No data available

Decomposition Temperature : No data available

Flammability (solid, gas) : No data available

Vapor Pressure : No data available

Relative Vapor Density at 20 °C : No data available

Relative Density : No data available

Specific Gravity : No data available

Solubility : No data available

Log Pow : No data available

Log Kow : No data available

Viscosity, Kinematic : No data available

Viscosity, Dynamic : No data available

Explosive Properties : No data available

Oxidizing Properties : No data available

Explosive Limits : No data available

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Hazardous reactions will not occur under normal conditions. Dust clouds can be explosive.

10.2 Chemical Stability: Dust clouds can be explosive.

10.3 Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4 Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Open flame. Ignition sources. Incompatible materials.

10.5 Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Halogenated compounds.

10.6 Hazardous Decomposition Products: Antimony and its oxides. Metal oxides. Inhalation of fumes may cause metal fume fever.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information On Toxicological Effects

Acute Toxicity: Toxic if swallowed. Harmful if inhaled.

Antimony	
ATE (Oral)	500.000 mg/kg body weight
ATE (Dust/Mist)	1.500 mg/l/4h

Antimony (7440-36-0)	
LD50 Oral Rat	100 mg/kg
ATE (Oral)	100.000 mg/kg body weight

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Not classified

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Harmful if inhaled. Respiratory tract irritation.

Symptoms/Injuries After Skin Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Eye Contact: Prolonged contact with large amounts of dust may cause mechanical irritation.

Symptoms/Injuries After Ingestion: Toxic if swallowed. May cause nausea, vomiting, and diarrhea.

Chronic Symptoms: Prolonged exposure may cause effects in specific organs such as the liver, kidneys, blood, and nervous system.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Toxic to aquatic life with long lasting effects.

12.2. Persistence and Degradability

Antimony	
Persistence and Degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative Potential No additional information available

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, and international regulations.

Additional Information: The materials contained within this product are hazardous to the environment, do not release into the environment.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : ANTIMONY POWDER
Hazard Class : 6.1
Identification Number : UN2871
Label Codes : 6.1
Packing Group : III
Marine Pollutant : Marine pollutant
ERG Number : 170



14.2 In Accordance with IMDG

Proper Shipping Name : ANTIMONY POWDER
Hazard Class : 6.1
Identification Number : UN2871
Packing Group : III
Label Codes : 6.1
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-A
MFAG Number : 171



14.3 In Accordance with IATA

Proper Shipping Name : ANTIMONY POWDER
Packing Group : III
Identification Number : UN2871
Hazard Class : 6
Label Codes : 6.1
ERG Code (IATA) : 6L



SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

Antimony	
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard Immediate (acute) health hazard

Antimony (7440-36-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on SARA Section 313 (Specific toxic chemical listings)	
SARA Section 313 - Emission Reporting	1.0 %

15.2 US State Regulations

Antimony (7440-36-0)
U.S. - California - Priority Toxic Pollutants - Human Health Criteria
U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Level Goals (MCLGs)
U.S. - Colorado - Primary Drinking Water Regulations - Maximum Contaminant Levels (MCLs)
U.S. - Connecticut - Drinking Water Quality Standards - Maximum Contaminant Levels
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min)
U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr)
U.S. - Connecticut - Water Quality Standards - Consumption of Organisms Only
U.S. - Connecticut - Water Quality Standards - Consumption of Water and Organisms
U.S. - Connecticut - Water Quality Standards - Health Designations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities
U.S. - Florida - Drinking Water Standards - Inorganic Contaminants - Maximum Contaminant Levels (MCLs)
U.S. - Georgia - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Emission Levels (ELs)
U.S. - Idaho - Occupational Exposure Limits - TWAs

U.S. - Illinois - Toxic Air Contaminants
U.S. - Louisiana - Reportable Quantity List for Pollutants
U.S. - Maine - Air Pollutants - Hazardous Air Pollutants
U.S. - Maryland - Surface Water Quality Standards - Consumption of Organisms Only
U.S. - Maryland - Surface Water Quality Standards - Consumption of Water and Organisms
U.S. - Massachusetts - Allowable Ambient Limits (AALs)
U.S. - Massachusetts - Allowable Threshold Concentrations (ATCs)
U.S. - Massachusetts - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Groundwater Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Oil & Hazardous Material List - Reportable Quantity
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 1
U.S. - Massachusetts - Oil & Hazardous Material List - Soil Reportable Concentration - Reporting Category 2
U.S. - Massachusetts - Right To Know List
U.S. - Massachusetts - Threshold Effects Exposure Limits (TELs)
U.S. - Massachusetts - Toxics Use Reduction Act
U.S. - Michigan - Occupational Exposure Limits - TWAs
U.S. - Michigan - Polluting Materials List
U.S. - Minnesota - Chemicals of High Concern
U.S. - Minnesota - Groundwater Health Risk Limits
U.S. - Minnesota - Hazardous Substance List
U.S. - Minnesota - Permissible Exposure Limits - TWAs
U.S. - Missouri - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Nebraska - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour
U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual
U.S. - New Jersey - Discharge Prevention - List of Hazardous Substances
U.S. - New Jersey - Environmental Hazardous Substances List
U.S. - New Jersey - Primary Drinking Water Standards - Maximum Contaminant Levels - MCLs
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - New Jersey - Water Quality - Ground Water Quality Criteria
U.S. - New Jersey - Water Quality - Practical Quantitation Levels (PQLs)
U.S. - New York - Occupational Exposure Limits - TWAs
U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances
U.S. - North Dakota - Air Pollutants - Guideline Concentrations - 8-Hour
U.S. - North Dakota - Water Quality Standards - Human Health Value for Class III
U.S. - North Dakota - Water Quality Standards - Human Health Value for Classes I, IA, II
U.S. - Oregon - Permissible Exposure Limits - TWAs
U.S. - Pennsylvania - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Rhode Island - Air Toxics - Acceptable Ambient Levels - 24-Hour
U.S. - Rhode Island - Water Quality Standards - Acute Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Chronic Freshwater Aquatic Life Criteria
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Aquatic Organisms Only
U.S. - Rhode Island - Water Quality Standards - Human Health Criteria for Consumption of Water and Aquatic Organisms
U.S. - South Carolina - Maximum Contaminant Levels (MCLs)
U.S. - Tennessee - Occupational Exposure Limits - TWAs
U.S. - Texas - Drinking Water Standards - Maximum Contaminant Levels (MCLs)
U.S. - Texas - Effects Screening Levels - Long Term
U.S. - Texas - Effects Screening Levels - Short Term
U.S. - Utah - Drinking Water - Maximum Contaminant Levels (MCLs)
U.S. - Vermont - Hazardous Waste - Hazardous Constituents
U.S. - Vermont - Permissible Exposure Limits - TWAs
U.S. - Virginia - Water Quality Standards - Public Water Supply Effluent Limits
U.S. - Virginia - Water Quality Standards - Surface Waters Not Used for the Public Water Supply Effluent Limits

U.S. - Washington - Dangerous Waste - Dangerous Waste Constituents List
U.S. - Washington - Permissible Exposure Limits - STELs
U.S. - Washington - Permissible Exposure Limits - TWAs
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 25 Feet to Less Than 40 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 40 Feet to Less Than 75 Feet
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights 75 Feet or Greater
U.S. - Wisconsin - Hazardous Air Contaminants - All Sources - Emissions From Stack Heights Less Than 25 Feet

SECTION 16: OTHER INFORMATION

Revision date : 02/12/2014

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
	May form combustible dust concentrations in air
H301	Toxic if swallowed
H332	Harmful if inhaled
H351	Suspected of causing cancer
H401	Toxic to aquatic life
H411	Toxic to aquatic life with long lasting effects

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom) - US

SAFETY DATA SHEET

Version 5.3
Revision Date 06/25/2015
Print Date 05/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : AROCLOR 1260

Product Number : CRM48736
Brand : Supelco

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 1B), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H350 May cause cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous components

Component		Classification	Concentration
Distillates (petroleum), hydrotreated middle			
CAS-No. EC-No. Index-No.	64742-46-7 265-148-2 649-221-00-X	Carc. 1B; H350	>= 90 - <= 100 %
Baseoil - unspecified			
CAS-No. EC-No. Index-No.	64742-53-6 265-156-6 649-466-00-2	Carc. 1B; H350	>= 30 - < 50 %
2,6-di-tert-Butyl-p-cresol			
CAS-No. EC-No.	128-37-0 204-881-4	Aquatic Acute 1; Aquatic Chronic 1; H410	>= 0.1 - < 1 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Distillates (petroleum), hydrotreated middle	64742-46-7	TWA	500.000000 ppm 2,000.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	The value in mg/m3 is approximate.		

		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10 mg/m3	USA. NIOSH Recommended Exposure Limits
Baseoil - unspecified	64742-53-6	TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (2,6-di-tert-Butyl-p-cresol)
IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Distillates (petroleum), hydrotreated middle)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Nerves. - (Aroclor 1260)

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Distillates (petroleum), hydrotreated middle	64742-46-7	1989-08-11
Baseoil - unspecified	64742-53-6	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Aroclor 1260	11096-82-5	2008-08-01
Distillates (petroleum), hydrotreated middle	64742-46-7	2013-12-20

WARNING: This product contains a chemical known to the	CAS-No.	Revision Date

State of California to cause birth defects or other reproductive harm.	11096-82-5	2008-08-01
Aroclor 1260		

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.3 Revision Date: 06/25/2015 Print Date: 05/11/2016

Material Safety Data Sheets

Division of Facilities Services

DOD Hazardous Material Information (ANSI Format)
For Cornell University Convenience Only

ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Compositon/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - MSDS Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls & Personal Protection	Section 16 - Other Information

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Section 1 - Product and Company Identification
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Product Identification: ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE
Date of MSDS: 08/01/1997 **Technical Review Date:** 09/01/1999
FSC: 6810 **NIIN: LIIN:** 00N092040
Submitter: N NF
Status Code: A
MFN: 01
Article: N
Kit Part: N

Manufacturer's Information

Manufacturer's Name: UNITED MINERAL & CHEMICAL CORP
Manufacturer's Address1: 1100 VALLEYBROOK AVE
Manufacturer's Address2: LYNDHURST, NJ 07071
Manufacturer's Country: US
General Information Telephone: 201-507-3300
Emergency Telephone: (800)424-9300
Emergency Telephone: (800)424-9300
Chemtec Telephone: (800)424-9300
Proprietary: N
Reviewed: Y
Published: Y
CAGE: 87730

Contractor Information

Contractor's Name: UNITED MINERAL & CHEMICAL CORP
Contractor's Address1: 1100 VALLEYBROOK AVE
Contractor's Address2: LYNDHURST, NJ 07071
Contractor's Telephone: 201-507-3300
Contractor's CAGE: 87730

Section 2 - Compositon/Information on Ingredients
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Ingredient Name: ARSENIC; (ARSENIC METAL)
Ingredient CAS Number: 7440-38-2 **Ingredient CAS Code:** T
RTECS Number: CG0525000 **RTECS Code:** T
=WT: 100. **=WT Code:** M
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text:
% Enviromental Weight:
Other REC Limits: N/P
OSHA PEL: N/P **OSHA PEL Code:**
OSHA STEL: N/P **OSHA STEL Code:**
ACGIH TLV: 0.01 MG/M3 **ACGIH TLV Code:** T
ACGIH STEL: NOT ESTABLISHED **ACGIH STEL Code:** T
EPA Reporting Quantity: 1 LB
DOT Reporting Quantity: 1 LB
Ozone Depleting Chemical: N

Section 3 - Hazards Identification, Including Emergency Overview
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Health Hazards Acute & Chronic: ARSENIC METAL IS NOT AS READILY AVAIL IN THE BODY AS ARSENIC IN THE FORM OF DUST OR VAP OR WHEN PROCESSED INTO ARSENIC CMPDS (ARSENICALS). INORGANIC ARSENICALS ARE MORE TOXIC THAN ORGANIC ARSENICALS. ACUTE EFTS: ARSENIC IS POISON BY SUBCUTANEOUS, INTRAMUSCULAR & INTRAPERITONEAL ROUTES. ACUTE ARSENIC POISONING FROM INGEST RSLTS IN MARKED IRRIT OF STOMACH & INTESTINES W/NAUS, VOMIT & DIARR. IN SEV C ASES STOOLS & VOMIT ARE BLOODY & PATIENT MAY GO INTO COLLAPSE & SHOCK W/WEAK, RAPID PULSE, COLD SWEATS, COMA & DEATH. INHAL MAY CAUSE ULCERATION OF NASAL SEPTUM, RESP IRRIT. SKIN/EYE CNTCT MAY CAUSE DERM, SKIN & EYE (EFTS OF OVEREXP)

Signs & Symptoms of Overexposure:
HLTH HAZS: IRRIT. CHRONIC EFTS: ARSENIC IS CONFIRMED HUMAN CARCIN PRODUCING LIVER TUMORS & AN EXPERIMENTAL TERATOGEN (MAY CAUSE DMG TO DEVELOPING FETUS). CHRONIC ARSENIC POISONING MAY INCL ANY/ALL OF FOLLOWING: DIGEST SYS DISTURBS, LOSS OFAPPETITE, CRAMPS, NAUS, CONSTIP, DIARR; LIVER DMG WHICH MAY RSLT IN JAUN; DISTURBS OF BLOOD, KIDNEYS & NERVOUS SYS; SKIN ABNORMS INCL ITCHING, PIGMENTATION & POS S CANCEROUS CHGS. TARGET ORGANS FOR INORGANIC CMPDS AS AS): LIVER, KIDNEYS, SKIN, LUNGS, LYMPHATIC SYS. TLV: 0.01 MG/M3 TWA ARSENIC, ELEMENTAL & INORGANIC CMPDS (EXCEPT ARSINE), AS AS. OSHA PEL: (SUPD AT)

Medical Conditions Aggravated by Exposure:
KNOWN EFFECTS ON OTHER ILLNESSES: GASTROINTESTINAL. NERVOUS SYSTEM. SKIN. LIVER & KIDNEY PROBLEMS. AFTER EXPOSURE HAVE URINE TEST.

LD50 LC50 Mixture: LD50: (ORAL, RAT) 763 MG/M3

Route of Entry Indicators:
- **Inhalation:** YES
- **Skin:** YES
- **Ingestion:** YES

Carcenogenicity Indicators
- **NTP:** YES
- **IARC:** YES
- **OSHA:** YES

Carcinogenicity Explanation: ARSENIC: IARC MONOGRAPHS, SUPPLEMENT, VOL 7, PG 100, 1987: GROUP 1. NTP 8TH ANNUAL REPORT ON CARCINOGENS, 1998: KNOWN TO BE CARCINOGEN. OSHA REGULATED: CFR 29 1910.1018.

Section 4 - First Aid Measures
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

First Aid:
SKIN: FLUSH WITH SOAP AND WATER. AVOID RUBBING INTO SKIN. CONTACT MD IMMEDIATELY. EYES: FLUSH WITH WATER FOR AT LEAST 15 MINUTES. CONTACT PHYSICIAN IMMEDIATELY. INHALATION: REMOVE TO FRESH AIR. PROVID E OXYGEN IF NECESSARY. CONTACT PHYSICIAN IMMEDIATELY. INGESTION: TREATMENT WITH BAS(DIMERCAPTOL) IS OF QUESTIONABLE EFFECTIVENESS IN TRIVALENT ARSENIC COMPOUNDS. INDUCE VOMITING AND DO GASTRIC LAVAGE. GET PERSONNEL TO HOSPITAL IMMEDIATELY. A PHYSICIAN CAN INITIATE AN EXCHANGE TRANSFUSION AND DIALYSIS. ALSO ABSORPTION AND REMOVAL WITH ANIMAL BONE COAL OR FE(OH)*2 SHOULD BE DONE.

Section 5 - Fire Fighting Measures
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Fire Fighting Procedures:
USE NIOSH APPRVD SCBA & FULL PROT EQUIP (FP N). RESTRICT PERS NOT WEARING PROT EQUIP FROM AREA. TRY TO SNUFF FIRE W/SAND, DRY MEDIA, FOAM OR CO*2. IF NO OTHER OPTIONS AVAILABLE, USE WATER & ALWAYS WEA R NIOSH APPRVD SCBA OR NIOSH TOXIC VAPOR RESP. POISONOUS GASES ARE PRODUCED IN FIRE, INCLUDING ARSENIC OXIDES.
Unusual Fire or Explosion Hazard:
ARSENIC, WHEN HEATED OR IN CONTACT W/ACID OR ACID FUMES, CAN PRODUCE HIGHLY TOXIC FUMES. ARSENIC REACTS VIGOROUSLY W/OXIDIZING MATLS. ARSENIC IS FLAMMABLE IN FORM OF DUST WHEN EXPOSED TO HEAT OR FLAME OR BY CHEMICAL RXN W/POWERFUL OXIDIZERS. SLIGHT EXPLOSION HAZ EXISTS IN FORM OF DUST WHEN EXPOSED TO (ECOLOGICAL INFO)
Extinguishing Media:
FOAM, CARBON DIOXIDE, DRY CHEMICAL.
Flash Point: Flash Point Text: NONE

Autoignition Temperature:
Autoignition Temperature Text: N/K
Lower Limit(s): N/A
Upper Limit(s): N/A

Section 6 - Accidental Release Measures
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Spill Release Procedures:
RESTRICT PERSONS NOT WEARING PROTECTIVE EQUIPMENT FROM AREA UNTIL CLEANUP IS COMPLETE. WEARING NIOSH APPROVED RESPIRATOR, GLOVES, GOGGLES, LAB COAT, GATHER UP CHUNKS, RODS OR GRANULES WITH VACUUM OR U TENSILS RESERVED FOR POISONOUS SOLIDS. AVOID RAISING DUST. VENTILATE THE AREA AFTER CLEANUP IS COMPLETE.

Section 7 - Handling and Storage
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Repiratory Protection:
NIOSH APPROVED, AIR PURIFYING, TOXIC VAPOR RESPIRATOR TO PARTICULATE AND FUME AIR LEVEL. FOR INORGANIC ARSENIC APPLICATIONS, SEE 29 CFR 1910.1018 FOR PROPER RESPIRATOR SELECTION.
Ventilation:
LOC EXHST/MECH (GEN) SCRUBBER OR TRAP IF POSS TO MAINTAIN EXPOS TO LESS THAN PERMISSIBLE LIMITS FOR ELEMENTAL ARSENIC & ANY CMPDS BEING GENERATED.

Protective Gloves:
NEOPRENE OR PLASTIC.
Eye Protection: ANSI APPROVED CHEMICAL WORKERS GOGGLES (FP N).
Other Protective Equipment: ANSI APPROVED EYE WASH AND DELUGE SHOWER (FP N). LAB COAT.
Work Hygenic Practices: N/P
Supplemental Health & Safety Information: EFTS OF OVEREXP: 0.01 MG/M3 AS AS & INORGANIC CMPDS; 0.5 AS AS ORGANIC CMPDS. ACGIH TLV: 0.01 MG/M3 TWA ARSENIC, ELEMENTAL & INORGANIC CMPDS (EXCEPT ARSINE), AS AS. ALSO SEE TOXICOLOGICAL INFO. WASTE DISP METH: HAZ DEPENDING ON LEVEL OF TOX CHARACT OF ARSENIC. SEE 40 CFR 261.24 FOR DETERMINATION. (OTHER INFO)

Section 9 - Physical & Chemical Properties
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

HCC:
NRC/State License Number:
Net Property Weight for Ammo:
Boiling Point: =612.C, 1133.6F **Boiling Point Text:** SUBLIMES
Melting/Freezing Point: =814.C, ######F **Melting/Freezing Text:** @ 36 ATM. FP:N/A
Decomposition Point: Decomposition Text: N/P
Vapor Pressure: 1 MMHG @ 372C **Vapor Density:** N/A
Percent Volatile Organic Content:
Specific Gravity: 5.727
Volatile Organic Content Pounds per Gallon:
pH: NONE-0% IN H*2O
Volatile Organic Content Grams per Liter:
Viscosity: N/P
Evaporation Weight and Reference: N/A
Solubility in Water: INSOLUBLE
Appearance and Odor: SILVER GRAY CRYSTALLINE CHUNKS, RODS OR GRANULES; NO ODOR AS (ECOLOGICAL INFO)
Percent Volatiles by Volume: N/A (BY WT)
Corrosion Rate: N/P

Section 10 - Stability & Reactivity Data
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Stability Indicator: YES
Materials to Avoid:
INCOMPATIBLE W/BROMINE AZIDE, DIRUBIDIUM ACETYLIDE, HALOGENS, PALLADIUM ZINC, PLATINUM, NCL*3, AGNO*3, CRO*3, NA*2O*2, HEXAFLUOROISOPROPYLIDENEAMINO LITHIUM. CAN REACT W/ACIDS OR ACID FUMES & POWERFUL OXIDIZERS SUCH AS BROM
Stability Condition to Avoid:
AVOID OPEN CONTAINERS AND CONTACT WITH INCOMPATIBLE MATERIALS.
Hazardous Decomposition Products:
ARSENIC FUMES, ARSINE, OTHER ARSENIC COMPOUNDS.
Hazardous Polymerization Indicator: NO
Conditions to Avoid Polymerization:
N/P

Section 11 - Toxicological Information

ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Toxicological Information:
LD50: TDLO 605 ?G/KG. ORAL-MAN TDLO 7857 MG/KG/55Y SKIN. DERMAL IRRITATION-RABBIT: UNKNOWN; SUBCUTANEOUS IMPLANT RABBIT LTLO 75 MG/KG. EYE IRRITATION-RABBIT: UNKNOWN.

Section 12 - Ecological Information
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Ecological Information:
N/P. EXPLO HAZ: FLAME. IN EVENT OF A FIRE OR SPILL CONTACT THE STATE DEPARTMENT OF THE ENVIRONMENT & YOUR REGIONAL OFFICE OF THE FEDERAL EPA. PHYSICAL DATA - APPEAR/ODOR: METAL AS COMPOUND, ASH*3, HAS GARLIC ODOR. ODOR THRESHOLD: N/A. MATLS TO AVOID: CHLORATES, IODATES, PEROXIDES, LITHIUM, NACL*3, KMNO*3, RB*2C*2, AGNO*4, NOCL, IF*5, CRO*3, CLF*3, CLO, BRF*3, BRF*5, BRN*3, RBC*3BCH, CSC*3BCH.

Section 13 - Disposal Considerations
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Waste Disposal Methods:
SOLID WASTES SHOULD BE VITRIFIED, PLACED IN LABELED CNTNR & BURIED IN EPA SUPERVISED FACILITY. ETCHING SOLNS & CUTTING WASTES SHOULD BE PRECIPITATED, CEMENTED/VITRIFIED & PLACED IN METAL/PLASTIC LABEL ED CNTNRS & BURIED IN EPA SUPERVISED FACILITY. PASS GAS THRU POTASSIUM PERMANGANATE, PRECIPITATE & T REAT AS ABOVE. WASTE MAY BE CONSIDERED (SUPDAT)

Section 14 - MSDS Transport Information
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Transport Information:
DOT REGULATED: YES. RQ: (NA - PIECES ARE LARGER THAN 100 MICROMETERS IN DIAMETER). IF REGULATED, PROPER SHIPPING NAME: ARSENIC. HAZARD CLASS: (6.1). IDENTIFICATION NO: (UN1558). PACKING GROUP: (III). LABEL REQUIRED: (POISON). INLAND B/L: ARSENIC, 6.1, UN1558, PACKING GROUP II, POISON. EMERGENCY RESPONSE GUIDE NO: (152).

Section 15 - Regulatory Information
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

SARA Title III Information:
SARA TITLE III, SECT 313: LISTED.
Federal Regulatory Information:
TSCA: WE CERTIFY THAT ALL COMPONENTS OF THIS PRODUCT ARE REGISTERED UNDER THE REGULATIONS OF THE TOXIC SUBSTANCES CONTROL ACT. HMIS: HEALTH (4); FLAMMABILITY (0); REACTIVITY (1).
State Regulatory Information:

Section 16 - Other Information
ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE

Other Information:
WASTE DISP METH: HAZARDOUS DEPENDING ON LEVEL OF TOXICITY CHARACTERISTIC OF ARSENIC. SEE 40 CFR 261.24 FOR DETERMINATION. RCRA HAZARDOUS WASTE: YES RCRA @: D004; IF TESTED POSITIVE AS CHARACT OF TOXIC ITY FOR ARSENIC. CERCLA: YES. RQ (1 LB RQ IS APPLICABLE ONLY IF DIAMETER OF PIECES OF SOLID METAL RELEASED IS LESS THAN 100 MICROMETERS OR 0.004 INCH. THIS PROD FORM IS LARGER THAN 100 MICROMETERS & H AS NO RQ IN ITS CURRENT FORM. IF AS HAZ WASTE CHARACT OF ARSENIC, THEN RQ=1LB. FOLLOW ALL LOCAL, STATE AND FEDERAL INFO & REGULATIONS.

HAZCOM Label Information

Product Identification: ARSENIC METAL-MBE CHARGES, ARSENIC CHUNK & GRANULE
CAGE: 87730
Assigned Individual: N
Company Name: UNITED MINERAL & CHEMICAL CORP
Company PO Box:
Company Street Address1: 1100 VALLEYBROOK AVE
Company Street Address2: LYNDHURST, NJ 07071 US
Health Emergency Telephone: (800)424-9300
Label Required Indicator: Y
Date Label Reviewed: 09/01/1999
Status Code: A
Manufacturer's Label Number:
Date of Label:
Year Procured: N/K
Organization Code: F
Chronic Hazard Indicator: Y
Eye Protection Indicator: YES
Skin Protection Indicator: YES
Respiratory Protection Indicator: YES
Signal Word: DANGER
Health Hazard: Severe
Contact Hazard: Severe
Fire Hazard: None
Reactivity Hazard: Slight

8/9/2002 10:40:46 AM

SAFETY DATA SHEET

Version 4.5
Revision Date 03/02/2015
Print Date 05/24/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Barium

Product Number : 237094
Brand : Aldrich

CAS-No. : 7440-39-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 2), H261
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H261 In contact with water releases flammable gases.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.

P280	Wear protective gloves/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Ba
Molecular weight	:	137.33 g/mol
CAS-No.	:	7440-39-3
EC-No.	:	231-149-1

Hazardous components

Component	Classification	Concentration
Barium		
	Water-react. 2; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; H261, H315, H319, H335	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Barium oxide

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Store under inert gas.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Barium	7440-39-3	TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye, skin, & Gastrointestinal irritation Muscular stimulation Not classifiable as a human carcinogen		

		TWA	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Eye irritation Muscular stimulation Skin irritation Gastrointestinal irritation Not classifiable as a human carcinogen		
		TWA	0.500000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: Rods

		Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 725 °C (1,337 °F) - lit.
f)	Initial boiling point and boiling range	1,640 °C (2,984 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	3.6 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents, Water, acids, Oxygen, Chlorinated solvents, Carbon dioxide (CO2), Halogens, Halogenated hydrocarbon, Alcohols, Sulphur compounds, Hydrogen sulfide gas

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CQ8370000

Stomach/intestinal disorders, Nausea, Vomiting, Drowsiness, Dizziness, Gastrointestinal disturbance, Weakness, Tremors, Seizures.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality NOEC - Cyprinodon variegatus (sheepshead minnow) - 500 mg/l - 96 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - > 500 mg/l - 96 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1400 Class: 4.3 Packing group: II
Proper shipping name: Barium
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1400 Class: 4.3 Packing group: II EMS-No: F-G, S-O
Proper shipping name: BARIUM

IATA
UN number: 1400 Class: 4.3 Packing group: II
Proper shipping name: Barium

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Barium	7440-39-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date

Barium	7440-39-3	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
H261	In contact with water releases flammable gases.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	1
Special hazard.I:	W

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.5 Revision Date: 03/02/2015 Print Date: 05/24/2016

SAFETY DATA SHEET

Benzene

Section 1. Identification

GHS product identifier : Benzene

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

Product use : Synthetic/Analytical chemistry.

Synonym : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

SDS # : 001062

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
GERM CELL MUTAGENICITY - Category 1B
CARCINOGENICITY - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (bone marrow) - Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Highly flammable liquid and vapor.
May form explosive mixtures with air.
Causes serious eye irritation.
Causes skin irritation.
May cause genetic defects.
May cause cancer.
Causes damage to organs through prolonged or repeated exposure. (bone marrow)

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

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Section 2. Hazards identification

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response : Get medical attention if you feel unwell. IF exposed or concerned: Get medical attention. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Storage : Store locked up. Store in a well-ventilated place. Keep cool.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : benzene

Other means of identification : benzene, purebenzol; cyclohexatriene; phenyl hydride; phene; coal naphtha; pyrobenzol

CAS number/other identifiers

CAS number : 71-43-2

Product code : 001062

Ingredient name	%	CAS number
benzene	100	71-43-2

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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Section 4. First aid measures

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes skin irritation.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

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Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO_2, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
benzene	**ACGIH TLV (United States, 3/2012).** **Absorbed through skin.** STEL: 8 mg/m³ 15 minutes. STEL: 2.5 ppm 15 minutes. TWA: 1.6 mg/m³ 8 hours. TWA: 0.5 ppm 8 hours. **NIOSH REL (United States, 1/2013).** STEL: 1 ppm 15 minutes. TWA: 0.1 ppm 10 hours. **OSHA PEL (United States, 6/2010).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours. **OSHA PEL Z2 (United States, 11/2006).** AMP: 50 ppm 10 minutes. CEIL: 25 ppm TWA: 10 ppm 8 hours.

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Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Watery liquid.]

Color : Colorless. Yellowish.

Molecular weight : 78.12 g/mole

Molecular formula : C6-H6

Boiling/condensation point : 80.09°C (176.2°F)

Melting/freezing point : 5.49°C (41.9°F)

Critical temperature : 288.95°C (552.1°F)

Odor : Characteristic.

Odor threshold : Not available.

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Section 9. Physical and chemical properties

pH	:	Not available.
Flash point	:	Closed cup: -11°C (12.2°F)
Burning time	:	Not applicable.
Burning rate	:	Not applicable.
Evaporation rate	:	3.5 (butyl acetate = 1)
Flammability (solid, gas)	:	Not available.
Lower and upper explosive (flammable) limits	:	Lower: 1.2% Upper: 7.8%
Vapor pressure	:	10 kPa (75.006094245 mm Hg) [room temperature]
Vapor density	:	2.7 (Air = 1)
Specific Volume (ft^3/lb)	:	1.1403
Gas Density (lb/ft^3)	:	0.877 (20°C / 68 to °F)
Relative density	:	0.88
Solubility	:	Not available.
Solubility in water	:	1.88 g/l
Partition coefficient: n-octanol/water	:	2.13
Auto-ignition temperature	:	498°C (928.4°F)
Decomposition temperature	:	Not available.
SADT	:	Not available.
Viscosity	:	Dynamic (room temperature): 0.604 mPa·s (0.604 cP)

Section 10. Stability and reactivity

Reactivity	:	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	:	The product is stable.
Possibility of hazardous reactions	:	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	:	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatibility with various substances	:	Highly reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	:	Under normal conditions of storage and use, hazardous polymerization will not occur.

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Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
benzene	LC50 Inhalation Gas. LD50 Oral	Rat Rat	10000 ppm 930 mg/kg	7 hours -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
benzene	Eyes - Moderate irritant Eyes - Severe irritant Skin - Mild irritant Skin - Mild irritant Skin - Moderate irritant	Rabbit Rabbit Rat Rabbit Rabbit	- - - - -	88 milligrams 24 hours 2 milligrams 8 hours 60 microliters 24 hours 15 milligrams 24 hours 20 milligrams	- - - - -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
benzene	+	1	Known to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
benzene	Category 1	Not determined	bone marrow

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : No known significant effects or critical hazards.

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Section 11. Toxicological information

Skin contact : Causes skin irritation.

Ingestion : Harmful if swallowed. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
irritation
redness

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Causes damage to organs through prolonged or repeated exposure.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

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Section 12. Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
benzene	2.13	11	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Benzene (I,T)	71-43-2	Listed	U019

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1114	UN1114	UN114	UN1114	UN1114
UN proper shipping name	BENZENE	BENZENE	BENZENE	BENZENE	BENZENE
Transport hazard class(es)	3 	3 	3 	3 	3 
Packing group	II	II	II	II	II
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 10 lbs / 4.54 kg [1.3675 gal / 5.1767 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.	**Explosive Limit and Limited Quantity Index** 1 **Passenger Carrying Road or Rail Index** 5	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 5 L **Cargo Aircraft Only** Quantity limitation: 60 L **Limited Quantities - Passenger Aircraft** Quantity limitation: 1 L

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Section 14. Transport information

	Limited quantity Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 5 L **Cargo aircraft** Quantity limitation: 60 L **Special provisions** IB2, T4, TP1				

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Water Act (CWA) 307: benzene

Clean Water Act (CWA) 311: benzene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

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Section 15. Regulatory information

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
benzene	100	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	benzene	71-43-2	100
Supplier notification	benzene	71-43-2	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
benzene	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

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Section 15. Regulatory information

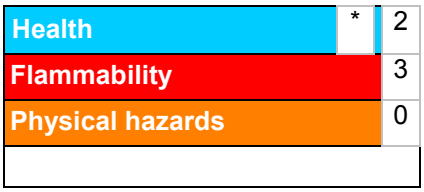
WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 4/26/2015.

Date of issue/Date of revision : 4/26/2015.

Date of previous issue : 10/16/2014.

Version : 0.03

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Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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SAFETY DATA SHEET

Based on Directive 2001/58/EC et seq. of the Commission of the European Communities

BENZO[b]FLUORANTHENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: benz[e]acephenanthrylene

CAS No.	: 205-99-2	**BCR number**	: BCR-47
EC index No.	: 601-034-00-4	**NFPA code**	: N.D.
EINECS No.	: 205-911-9	**Molecular weight**	: 252.32
RTECS No.	: CU1400000	**Formula**	: $C_{20}H_{12}$

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
benzo[b]fluoranthene	205-99-2 205-911-9	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water
- Do not apply neutralizing agents

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Remove clothing before washing
-- Do not apply (chemical) neutralizing agents

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell

- Immediately give lots of water to drink
-- Never give water to an unconscious person
- Do not induce vomiting

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Clean contaminated clothing

7.2 Storage:
- Keep container tightly closed.
- Store in a cool area
- Store in a dry area
- Store in a dark area
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature : N.D. **°C**
Quantity limits : N.D. **kg**
Storage life : N.D.
Materials for packaging : N.D.

7.3 Specific uses: N.D.

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	not listed
TLV-STEL	:	not listed
TLV-Ceiling	:	not listed
OES-LTEL	:	not listed
OES-STEL	:	not listed
MEL-LTEL	:	not listed
MEL-STEL	:	not listed
MAK	:	not listed
TRK	:	not listed
MAC-TGG 8 h	:	not listed
MAC-TGG 15 min.	:	not listed
MAC-Ceiling	:	not listed
VME-8 h	:	not listed
VLE-15 min.	:	not listed
GWBB-8 h	:	not listed
GWK-15 min.	:	not listed
Momentary value	:	not listed

Sampling methods:

- Benzo(b)fluoranthene (Polynuclear aromatic hydrocarbons) NIOSH 5515
- Benzo(b)fluoranthene (Polynuclear aromatic hydrocarbons) NIOSH 5506

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Needles
Odour	:	Odourless
Colour	:	Colourless to off-white

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	N.D.	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	0.00000067	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	N.D.	
Water solubility	:	0.00000012	**g/100 ml**
Soluble in	:	Acetone, oils/fats	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	6.57	
Evaporation rate			
ratio butyl acetate	:	N.D.	
ratio ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	168	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/l/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

benzo[b]fluoranthene

EC carc. cat.	:	2
EC muta. cat.	:	not listed
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A2
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	2B

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

- **AFTER SKIN CONTACT**
  Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- Not classified as toxic to reproduction (EC)

- **ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:**
  No specific information available

- SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
  Feeling of weakness
  Cracking of the skin
  Skin rash/inflammation
  Photoallergy
  Skin cancer
  Lung tissue affection/degeneration
  Enlargement/affection of the liver
  Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- - No data available

12.2 Mobility:

- **Volatile organic compounds (VOC):** 0%

- Photolysis in water
- Forming sediments in water
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
  - test: E 1/2 > 100 d.
- **soil** : **T ½:** > 87 **days**

12.4 Bioaccumulative potential:

- **log P_{ow}** : 6.57
- **BCF** : 168 h : 2800 (LAMELLIBRANCHIATA)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) No 3093/94, O.J. L333 of 22/12/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision 201/118/EC, O.J. L47 of 16/2/2001):16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

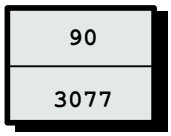
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council Decision 2455/2001/EC, O.J. L331 of 15/12/2001)

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (benz[e]acephenanthrylene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens



Toxic



Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

Institute for Reference Materials and Measurements

SAFETY DATA SHEET

Based on Regulation (EC) No. 1907/2006 (REACH) Article 31 and Annex II

BCR-048R: benzo[k]fluoranthene

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Product name: BCR-048R: benzo[k]fluoranthene

CAS number	207-08-9
EC index number	601-036-00-5
EINECS number	205-916-6
RTECS number	DF6350000
Molecular mass	252.32 g/mol
Formula	C20H12

1.2 Use of the substance/preparation:

Certified reference material for laboratory use only

1.3 Company/undertaking identification:

Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel: +32 14 57 12 11
Fax: +32 14 59 04 06
JRC-IRMM-RM-Sales@ec.europa.eu

1.4 Emergency telephone:

Poison Centre: +32 70 245 245

2. Hazards identification

NFPA: 1-1-2(*)

DSD/DPD

May cause cancer

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Other hazards

Its dust is explosive with air

Dust cloud can be ignited by a spark

Slightly irritant to skin

Slightly irritant to eyes

Caution! Substance is absorbed through the skin

No certainty about human mutagenic properties

Highly bioaccumulative

Not readily biodegradable in water

CLP

Carc. 1B	May cause cancer. (H350)
Aquatic Acute 1	Very toxic to aquatic life. (H400)
Aquatic Chronic 1	Very toxic to aquatic life with long lasting effects. (H410)

Other hazards

Its dust is explosive with air

Dust cloud can be ignited by a spark

Slightly irritant to skin

Slightly irritant to eyes

Caution! Substance is absorbed through the skin

No certainty about human mutagenic properties

Highly bioaccumulative

Not readily biodegradable in water

3. Composition/information on ingredients

Name	CAS No EINECS/ELINCS	Conc.	Classification according to DSD/DPD	Classification according to CLP	Note
benzo[k]fluoranthene	207-08-9 205-916-6		Carc. Cat. 2; R45 N; R50-53	Carc. 1B; H350 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	

4. First aid measures

4.1 After inhalation:

Remove the victim into fresh air

Respiratory problems: consult a doctor/medical service

4.2 Skin contact:

Rinse with water

Do not apply (chemical) neutralizing agents

Take victim to a doctor if irritation persists

4.3 Eye contact:

Rinse with water

Do not apply neutralizing agents

Take victim to an ophthalmologist if irritation persists

4.4 After ingestion:

Rinse mouth with water

Immediately after ingestion: give lots of water to drink

Do not induce vomiting

Consult a doctor/medical service if you feel unwell

5. Fire-fighting measures

5.1 Suitable extinguishing media:

Water spray

Polyvalent foam

ABC powder

Carbon dioxide

5.2 Unsuitable extinguishing media:

No unsuitable extinguishing media known

5.3 Special exposure hazards:

Heating increases the fire hazard

Dust cloud can be ignited by a spark

Upon combustion CO and CO2 are formed

5.4 Instructions:

Take account of toxic fire-fighting water

Use water moderately and if possible collect or contain it

5.5 Special protective equipment for fire-fighters:

Gloves

Protective clothing

Heat/fire exposure: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal precautions:

See heading 8.2

6.2 Environmental precautions:

Dam up the solid spill

Prevent soil and water pollution

Prevent spreading in sewers

See heading 13

6.3 Methods for cleaning up:

Scoop solid spill into closing containers
Carefully collect the spill/leftovers
Clean contaminated surfaces with an excess of water
Take collected spill to manufacturer/competent authority
Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:

Avoid raising dust
Warning! Avoid exposure
Keep away from naked flames/heat
Obtain special instructions before use
Observe strict hygiene
Keep container tightly closed
Do not discharge the waste into the drain

7.2 Storage:

Safe storage requirements:

Store in a cool area
Store in a dry area
Keep container in a well-ventilated place
Keep locked up
Unauthorized persons are not admitted
Meet the legal requirements

Keep away from:

oxidizing agents
(strong) acids

7.3 Specific use(s):

See information supplied by the manufacturer for the identified use(s)

8. Exposure controls/Personal protection

8.1 Exposure limit values:

8.1.1 Occupational exposure:

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods:

Product name	Test	Number	Sampling method	Remarks
Benz(a)Anthracene	OSHA	CSI		
Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH	5506	adsorption tubes	
Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH	5515	adsorption tubes	

8.2 Exposure controls:

8.2.1 Occupational exposure controls:

Measure the concentration in the air regularly
Carry operations in the open/under local exhaust/ventilation or with respiratory protection
Personal protective equipment:

a) Respiratory protection:

Dust production: dust mask with filter type P3

b) Hand protection:

Gloves

c) Eye protection:

Safety glasses
In case of dust production: protective goggles

d) Skin protection:

Protective clothing

8.2.2 Environmental exposure controls:

See headings 6.2, 6.3 and 13

9. Physical and chemical properties

9.1 General information:

Physical form	Crystalline solid
	Needles
Colour	Light yellow

9.2 Important health, safety and environmental information:

Boiling point	480 °C
Vapour pressure (20°C)	< 0.00001 hPa
Solubility in water	< 0.00001 g/100 ml
Solubility in solvents	Soluble in ethanol
	Soluble in acetic acid
	Soluble in oils/fats
Log Pow	6.84

9.3 Other information:

Melting point	217 °C

10. Stability and reactivity

10.1 Conditions to avoid:

Possible fire hazard

heat sources

ignition sources

Stability

No data available

Reactions

Reacts violently with (strong) oxidizers

10.2 Materials to avoid:

oxidizing agents

(strong) acids

10.3 Hazardous decomposition products:

Upon combustion CO and CO2 are formed

11. Toxicological information

11.1 Acute toxicity:

No (test)data available.

11.2 Chronic toxicity:

Probably human carcinogenic

No certainty about human mutagenic properties

Not classified as toxic to reproduction (EC)

BCR-048R: benzo[k]fluoranthene

EC carc cat	2
Listed in SZW - List of carcinogenic substances	yes
IARC - classification	2B
MAK - Krebserzeugend Kategorie	2
MAK - Keimzellmutagen Kategorie	3B
MAK - Schwangerschaft Gruppe	-
CLP carc cat	category 1B

11.3 Acute effects/symptoms:

Inhalation:

No data available

Skin contact:

Slight irritation

Eye contact:

Slight irritation

Ingestion:

No data available

11.4 Chronic effects:

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
No specific information available
SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
Feeling of weakness
Cracking of the skin
Skin rash/inflammation
Photoallergy
Skin cancer
Lung tissue affection/degeneration
Enlargement/affection of the liver
Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

No (test)data available.

12.2 Mobility:

Volatile organic compounds (VOC)	0 %
Solubility in/reaction with water	Insoluble in water
Water physicochemical processes	Forming sediments in water
Soil physicochemical processes	Adsorbs into the soil

12.3 Persistence and degradability:

Water abiotic degradation processes	Ozonation in water
Half-life soil	65 - 1400 days

Not readily biodegradable in water

12.4 Bioaccumulative potential:

Log Pow	6.84

Highly bioaccumulative

12.5 Results of PBT assessment:

Not applicable, based on available data

12.6 Other adverse effects:

Not dangerous for the ozone layer (Council Regulation (EC) no 1005/2009)

13. Disposal considerations

13.1 Provisions relating to waste:

Waste material code (Directive 2008/98/EC, decision 2001/118/EC)
16 05 06* : laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals
Depending on branch of industry and production process, also other EURAL codes may be applicable
Hazardous waste according to Directive 2008/98/EC

13.2 Disposal methods:

Dissolve or mix with a combustible solvent
Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber with energy recovery
Remove waste in accordance with local and/or national regulations
Do not discharge into surface water (2000/60/EC, Council decision 2455/2001/EC, O.J. L331 of 15/12/2001)

13.3 Packaging/Container:

Waste material code packaging (Directive 2008/98/EC)
15 01 10* : packaging containing residues of or contaminated by dangerous substances

{13.4 Entsorgung verschmutzter Gebinde:}

14. Transport information

ADR

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ADR	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Hazard identification number	90
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

RID

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name RID	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

ADNR

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ADNR	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Classification code	M7
Labels	9
Environmentally hazardous substance mark	yes

IMO

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name IMO	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Labels	9
Marine pollutant	P
Environmentally hazardous substance mark	yes

ICAO

Proper shipping name	Environmentally hazardous substance, solid, n.o.s.
Techn./chem. name ICAO	benzo[k]fluoranthene
UN number	3077
Class	9
Packing group	III
Labels	9
Environmentally hazardous substance mark	yes

15. Regulatory information

15.1 EU Legislation:

DSD/DPD

Enumerated in substance list Annex I of directive 67/548/EEC et sequens





Dangerous for the environment

R-phrases

45	May cause cancer
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S-phrases

53	Avoid exposure - obtain special instructions before use
45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
60	This material and its container must be disposed of as hazardous waste
61	Avoid release to the environment. Refer to special instructions/safety data sheets.

Additional recommendations

	Restricted to professional users.

CLP

Classification and labelling according to Regulation (EC) No 1272/2008 – Annex VI and after evaluation of available test data





Signal word

Dgr	Danger

H-statements

H350	May cause cancer.
H410	Very toxic to aquatic life with long lasting effects.

P-statements

P202	Do not handle until all safety precautions have been read and understood.
P281	Use personal protective equipment as required.
P273	Avoid release to the environment.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P391	Collect spillage.
P405	Store locked up.

Supplemental information

	Restricted to professional users.

15.2 National provisions:

15.3 Specific community rules:

Enumerated in Annex XVII of Regulation (EC) No. 1907/2006: Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

Legislation	Reference legislation
EG/552/2009	See column 1: 28.
EG/552/2009	See column 1: 50. g)

16. Other information

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question.

Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult your BIG licence agreement for details.

(*) = INTERNAL CLASSIFICATION (NFPA)

PBT-substances = persistent, bioaccumulative and toxic substances

DSD Dangerous Substance Directive
DPD Dangerous Preparation Directive
CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)

Full text of any R-phrases referred to under headings 2 and 3:

R45	May cause cancer
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Full text of any H-statements referred to under headings 2 and 3:

H350	May cause cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of any classes referred to under headings 2 and 3:

Aquatic Acute	Hazardous to the aquatic environment - acute
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Carc.	Carcinogenicity

SAFETY DATA SHEET

Based on Directive 2001/58/EC et seq. of the Commission of the European Communities

BENZ[a]ANTHRACENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: benzo(a)anthracene

CAS No.	: 56-55-3	**BCR number**	: BCR-271
EC index No.	: 601-033-00-9	**NFPA code**	: N.D.
EINECS No.	: 200-280-6	**Molecular weight**	: 228.30
RTECS No.	: CV9275000	**Formula**	: C18H12

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
Benzo[a]anthracene	56-55-3 200-280-6	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Remove clothing before washing

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Alcohol foam
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see heading 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately

7.2 Storage:
- Keep container tightly closed. Store in a cool area. Store in a dry area.
- Store in a dark area.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature : N.D. **°C**
Quantity limits : N.D. **kg**
Storage life : N.D.
Materials for packaging :
- suitable : no data available

- to avoid : no data available

7.3 Specific uses:
See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	**mg/m³**	-	**ppm**
TLV-STEL	:	**mg/m³**	-	**ppm**
TLV-Ceiling	:	**mg/m³**		**ppm**
OES-LTEL	:	**mg/m³**		**ppm**
OES-STEL	:	**mg/m³**		**ppm**
MAK	:	**mg/m³**		**ppm**
TRK	:	**mg/m³**		**ppm**
MAC-TGG 8 h	:	**mg/m³**		
MAC-TGG 15 min.	:	**mg/m³**		
MAC-Ceiling	:	**mg/m³**		
VME-8 h	:	**mg/m³**		**ppm**
VLE-15 min.	:	**mg/m³**		**ppm**
GWBB-8 h	:	**mg/m³**		**ppm**
GWK-15 min.	:	**mg/m³**		**ppm**
Momentary value	:	**mg/m³**		**ppm**
EC	:	**mg/m³**		**ppm**
EC-STEL	:	**mg/m³**		**ppm**

Sampling methods:

-	Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH 5506
-	Benz(a)Anthracene (Polynuclear aromatic hydrocarbons)	NIOSH 5515
-	Benz(a)Anthracene	OSHA CSI

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Scales
Odour	:	Odourless
Colour	:	Colourless to fluorescent yellow-green

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	N.A.	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	0.00007	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	1.3	
Water solubility	:	0.00001	**g/100 ml**
Soluble in	:	Ether, acetone, oils/fats	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	5.61/5.79	
Evaporation rate			
ratio to butyl acetate	:	N.D.	
ratio to ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	160	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/l/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

EC carc. cat.	:	2
EC muta. cat.	:	not listed
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A2
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	2A

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

AFTER SKIN CONTACT
- Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- Mutagenicity: AMES test positive
- Probably human mutagenic

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
- No specific information available

SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
- Feeling of weakness
- Photoallergy
- Skin rash/inflammation
- Cracking of the skin
- Skin cancer
- Lung tissue affection/degeneration
- Enlargement/affection of the liver
- Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- LC50 (65 h) : 0.0018 mg/l (PIMEPHALES PROMELAS)
- EC50 (96 h) : 0.01 mg/l (DAPHNIA PULEX)

12.2 Mobility:

- **Volatile organic compounds (VOC):** 0%

- Photolysis in water
- Ozonation in water
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
- **soil** : **T ½:** > 100 **days**

12.4 Bioaccumulative potential:
- **log P_{ow}** : 5.61/5.79
- **BCF** : 72 h : 350 (LEUCISCUS IDUS)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) 3093/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

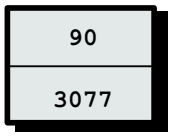
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council Decision 2455/2001/EC)

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (benzo[a]anthracene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens



Toxic



Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

Material Safety Data Sheet

Benzo[a]pyrene, 98%

ACC# 37175

Section 1 - Chemical Product and Company Identification

MSDS Name: Benzo[a]pyrene, 98%
Catalog Numbers: AC105600000, AC105600010, AC105601000, AC377200000, AC377200010, AC377201000 AC377201000
Synonyms: 3,4-Benzopyrene; 3,4-Benzpyrene; Benzo[def]chrysene.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
50-32-8	Benzo[a]pyrene	>96	200-028-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: yellow to brown powder.
Danger! May cause harm to the unborn child. May impair fertility. May cause eye, skin, and respiratory tract irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Cancer hazard. May cause allergic skin reaction. May cause heritable genetic damage.
Target Organs: Reproductive system, skin.

Potential Health Effects

Eye: May cause eye irritation.
Skin: May cause skin irritation. May be harmful if absorbed through the skin. May cause an allergic reaction in certain individuals.
Ingestion: May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated. May be harmful if swallowed.
Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated. May be harmful if inhaled.
Chronic: May cause cancer in humans. May cause reproductive and fetal effects. Laboratory experiments have resulted in mutagenic effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: Not available.
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.
Storage: Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs

Benzo[a]pyrene	0.2 mg/m3 TWA (as benzene soluble aerosol) (listed under Coal tar pitches).	0.1 mg/m3 TWA (cyclohexane-extractable fraction) (listed under Coal tar pitches).80 mg/m3 IDLH (listed under Coal tar pitches).	0.2 mg/m3 TWA (as benzene soluble fraction) (listed under Coal tar pitches).

OSHA Vacated PELs: Benzo[a]pyrene: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Powder
Appearance: yellow to brown
Odor: faint aromatic odor
pH: Not available.
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 495 deg C @ 760 mm Hg
Freezing/Melting Point:175 - 179 deg C
Decomposition Temperature: Not available.
Solubility: 1.60x10-3 mg/l @25°C
Specific Gravity/Density: Not available.
Molecular Formula:C20H12
Molecular Weight:252.31

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.
Conditions to Avoid: Dust generation.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxide.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 50-32-8: DJ3675000
LD50/LC50:

Not available.

Carcinogenicity:
CAS# 50-32-8:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 7/1/87
- **NTP:** Suspect carcinogen
- **IARC:** Group 1 carcinogen (listed as Coal tar pitches).

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.
Mutagenicity: Mutagenic effects have occurred in humans.Mutagenic effects have occurred in experimental animals.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 50-32-8: waste number U022.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	NOT REGULATED FOR DOMESTIC TRANSPORT	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOL (Benzo{a} pyrene)
Hazard Class:		9
UN Number:		UN3077
Packing Group:		III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 50-32-8 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 50-32-8: 1 lb final RQ; 0.454 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 50-32-8: immediate, delayed.

Section 313

This material contains Benzo[a]pyrene (CAS# 50-32-8, >96%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

Clean Air Act:

This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.
CAS# 50-32-8 is listed as a Priority Pollutant under the Clean Water Act.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 50-32-8 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Benzo[a]pyrene, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 50-32-8: 0.06 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T N

Risk Phrases:

R 43 May cause sensitization by skin contact.
R 45 May cause cancer.
R 46 May cause heritable genetic damage.
R 60 May impair fertility.
R 61 May cause harm to the unborn child.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.
S 60 This material and its container must be disposed of as hazardou
s waste.
S 61 Avoid release to the environment. Refer to special instructions
/safety data sheets.

WGK (Water Danger/Protection)
CAS# 50-32-8: No information available.

Canada - DSL/NDSL
CAS# 50-32-8 is listed on Canada's DSL List.

Canada - WHMIS
This product has a WHMIS classification of D2A.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List
CAS# 50-32-8 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997
Revision #7 Date: 6/30/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Benzo[ghi]perylene**

Cat No. : **AC105550000; AC105550050; AC105550250; AC105551000**

Synonyms 1,12-Benzoperylene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Benzo(ghi)perylene	191-24-2	> 98

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Clean mouth with water. Get medical attention.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
0	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	276 - 280 °C / 528.8 - 536 °F
Boiling Point/Range	No information available > @ 760 mmHg
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C22 H12
Molecular Weight	276.33

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable.
Conditions to Avoid	Excess heat. Exposure to light. Incompatible products.
Incompatible Materials	Strong oxidizing agents
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO_2)
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	No acute toxicity information is available for this product
Component Information	
Toxicologically Synergistic	No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Benzo(ghi)perylene	191-24-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Benzo(ghi)perylene	7.23

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL

Benzo(ghi)perylene	-	-	-	205-883-8	-		-	-	-	-	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzo(ghi)perylene	191-24-2	> 98	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzo(ghi)perylene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzo(ghi)perylene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzo(ghi)perylene	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security

This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 5.11
Revision Date 06/18/2015
Print Date 02/11/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Bis(2-ethylhexyl) phthalate

Product Number : 80030
Brand : Sigma-Aldrich
Index-No. : 607-317-00-9

CAS-No. : 117-81-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Endocrine disrupting chemical(s)

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	'Dioctyl' phthalate Phthalic acid bis(2-ethylhexyl ester) DEHP
Formula	:	$C_{24}H_{38}O_4$
Molecular weight	:	390.56 g/mol
CAS-No.	:	117-81-7
EC-No.	:	204-211-0
Index-No.	:	607-317-00-9
Registration number	:	01-2119484611-38-XXXX

Hazardous components

Component	Classification	Concentration
bis(2-Ethylhexyl) phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; H360	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
bis(2-Ethylhexyl) phthalate	117-81-7	TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lower Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 480 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 230 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-50.0 °C (-58.0 °F)
f)	Initial boiling point and boiling range	386 °C (727 °F) - lit.
g)	Flash point	207.0 °C (404.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 0.3 %(V)
k)	Vapour pressure	1.6 hPa (1.2 mmHg) at 93.0 °C (199.4 °F)
l)	Vapour density	No data available
m)	Relative density	0.985 g/cm3 at 20 °C (68 °F)
n)	Water solubility	insoluble

o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	390.0 °C (734.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 30,000 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - 25,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (bis(2-Ethylhexyl) phthalate)

NTP: Reasonably anticipated to be a human carcinogen (bis(2-Ethylhexyl) phthalate)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
May cause congenital malformation in the fetus.
Presumed human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: TI0350000

Effects due to ingestion may include:, Gastrointestinal disturbance

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.67 mg/l - 96 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - > 0.32 mg/l - 96 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - > 0.17 mg/l - 96 h
	LC50 - Lepomis macrochirus (Bluegill) - > 0.20 mg/l - 96 h
	NOEC - other fish - > 0.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - > 0.16 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	Result: - Readily biodegradable (OECD Test Guideline 301)

12.3 Bioaccumulative potential

Bioaccumulation	Oncorhynchus mykiss (rainbow trout) - 100 d - 0.014 mg/l Bioconcentration factor (BCF): 113 Remarks: Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (bis(2-Ethylhexyl) phthalate)
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
bis(2-Ethylhexyl) phthalate	117-81-7	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. bis(2-Ethylhexyl) phthalate	CAS-No. 117-81-7	Revision Date 2009-02-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. bis(2-Ethylhexyl) phthalate	CAS-No. 117-81-7	Revision Date 2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H360	May damage fertility or the unborn child.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	1
Reactivity Hazard:	0

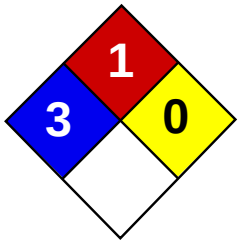
Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.11 Revision Date: 06/18/2015 Print Date: 02/11/2016



Health	3
Fire	1
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Cadmium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Cadmium

Catalog Codes: SLC3484, SLC5272, SLC2482

CAS#: 7440-43-9

RTECS: EU9800000

TSCA: TSCA 8(b) inventory: Cadmium

CI#: Not applicable.

Synonym:

Chemical Name: Cadmium

Chemical Formula: Cd

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Cadmium	7440-43-9	100

Toxicological Data on Ingredients: Cadmium: ORAL (LD50): Acute: 2330 mg/kg [Rat.]. 890 mg/kg [Mouse]. DUST (LC50): Acute: 50 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2 (Reasonably anticipated.) by NTP. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, lungs, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact: No known effect on eye contact, rinse with water for a few minutes.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 570°C (1058°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Non-flammable in presence of open flames and sparks, of heat, of oxidizing materials, of reducing materials, of combustible materials, of moisture.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Material in powder form, capable of creating a dust explosion. When heated to decomposition it emits toxic fumes.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Keep container tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.01 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 112.4 g/mole

Color: Silvery.

pH (1% soln/water): Not applicable.

Boiling Point: 765°C (1409°F)

Melting Point: 320.9°C (609.6°F)

Critical Temperature: Not available.

Specific Gravity: 8.64 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity: Reacts violently with potassium.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 890 mg/kg [Mouse]. Acute toxicity of the dust (LC50): 229.9 mg/m3 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2 (Reasonably anticipated.) by NTP. The substance is toxic to kidneys, lungs, liver.

Other Toxic Effects on Humans:
Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (irritant, sensitizer).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: An allergen. 0047 Animal: embryotoxic, passes through the placental barrier.

Special Remarks on other Toxic Effects on Humans: May cause allergic reactions, exzema and/or dehydration of the skin.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification:

Identification:

Special Provisions for Transport:

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Cadmium California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Cadmium Pennsylvania RTK: Cadmium Massachusetts RTK: Cadmium TSCA 8(b) inventory: Cadmium SARA 313 toxic chemical notification and release reporting: Cadmium CERCLA: Hazardous substances.: Cadmium

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R26- Very toxic by inhalation. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -Liste des produits purs tératogènes, mutagènes, cancérogènes. Répertoire toxicologique de la Commission de la Santé et de la Sécurité du Travail du Québec. -Material safety data sheet emitted by: la Commission de la Santé et de la Sécurité du Travail du Québec. -SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur le transport des marchandises dangeureuses au canada. Centre de conformité internatinal Ltée. 1986.

Other Special Considerations: Not available.

Created: 10/09/2005 04:29 PM

Last Updated: 11/01/2010 12:00 PM

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Material Safety Data Sheet

Calcium

MSDS# 03840

Section 1 - Chemical Product and Company Identification

MSDS Name:	Calcium
Catalog Numbers:	AC201180000, AC201180050, AC201181000, AC201185000, AC201380000, AC201381000 AC201381000, AC201385000, AC318100000, AC318100050, AC365740000, AC365741000 AC365741000, AC365745000
Synonyms:	Calcium metal, turnings, crystals, granular; Calcicat.
Company Identification:	Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	201-796-7100
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#:	7440-70-2
Chemical Name:	Calcium
%:	99+
EINECS#:	231-179-5

Hazard Symbols: F



Risk Phrases: 15

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Flammable solid. Causes burns by all exposure routes. Contact with water liberates extremely flammable gases.
Target Organs: Respiratory system, gastrointestinal system, eyes, skin.

Potential Health Effects

Eye:	Causes eye burns.
Skin:	Causes skin burns. May be harmful if absorbed through the skin.
Ingestion:	Causes gastrointestinal tract burns. May be harmful if swallowed.
Inhalation:	Causes chemical burns to the respiratory tract. May be harmful if inhaled.
Chronic:	No information found.

Section 4 - First Aid Measures

Eyes:	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.
Skin:	Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion:	Do not induce vomiting. Get medical aid immediately. Call a poison control center.
	Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance;

Inhalation: induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

Notes to Physician:

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Will burn if involved in a fire. Water reactive. Material will react with water and may release a flammable and/or toxic gas. Flammable solid.

Extinguishing Media: Use foam, dry chemical, or carbon dioxide. DO NOT USE WATER!

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: ; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Do not expose spill to water. Place under an inert atmosphere. Do not get water inside containers. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Do not allow water to get into the container because of violent reaction. Minimize dust generation and accumulation. Use spark-proof tools and explosion proof equipment. Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Handle under an inert atmosphere. Do not allow contact with water. Use only in a chemical fume hood.

Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Water free area. Store protected from moisture. Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Calcium	none listed	none listed	none listed

OSHA Vacated PELs: Calcium: None listed

Engineering Controls:

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State:	Solid
Color:	grey
Odor:	none reported
pH:	14 (4g/L aq.sol.)
Vapor Pressure:	13 mbar @ 983 deg C
Vapor Density:	Not available
Evaporation Rate:	Not available
Viscosity:	Not available
Boiling Point:	1484 deg C @ 760 mmHg (2,703.20°F)
Freezing/Melting Point:	845 deg C (1,553.00°F)
Decomposition Temperature:	Not available
Solubility in water:	Reacts
Specific Gravity/Density:	Not available.
Molecular Formula:	Ca
Molecular Weight:	40.07

Section 10 - Stability and Reactivity

Chemical Stability:	Reacts with water. Water contact produces hydrogen gas.
Conditions to Avoid:	Incompatible materials, ignition sources, dust generation, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials	Strong oxidizing agents, acids, alcohols, ammonia, halogens, sulfur, oxygen, phosphorus oxide, mercury, alkali hydroxides, metal oxides, alkali halides, nitrogen oxide.
Hazardous Decomposition Products	Hydrogen gas.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#:	CAS# 7440-70-2: EV8500000
LD50/LC50:	RTECS: Not available.
Carcinogenicity:	Calcium - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Other:	See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Other: Do not empty into drains.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: CALCIUM
Hazard Class: 4.3
UN Number: UN1401
Packing Group: II
Canada TDG
Shipping Name: CALCIUM
Hazard Class: 4.3
UN Number: UN1401
Packing Group: II

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: F

Risk Phrases:

R 15 Contact with water liberates extremely flammable gases.

Safety Phrases:

S 8 Keep container dry.

S 24/25 Avoid contact with skin and eyes.

S 43C In case of fire, use limestone powder, sodium chloride or dry sand (never use water).

WGK (Water Danger/Protection)

CAS# 7440-70-2: 1

Canada

CAS# 7440-70-2 is listed on Canada's DSL List

Canadian WHMIS Classifications: E, B6

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 7440-70-2 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

CAS# 7440-70-2 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 5/19/1999

Revision #7 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantibility or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

SAFETY DATA SHEET

Version 3.8
Revision Date 10/12/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbazole

Product Number : C5132
Brand : Sigma

CAS-No. : 86-74-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Carcinogenicity (Category 2), H351
Chronic aquatic toxicity (Category 4), H413

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H351 Suspected of causing cancer.
H413 May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{12}H_9N$
Molecular weight	:	167.21 g/mol
CAS-No.	:	86-74-8
EC-No.	:	201-696-0

Hazardous components

Component	Classification	Concentration
Carbazole		
	Carc. 2; Aquatic Chronic 4; H351, H413	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Nitrogen oxides (NOx)

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 243 - 246 °C (469 - 475 °F)
f)	Initial boiling point and boiling range	355 °C (671 °F)
g)	Flash point	220.0 °C (428.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	533 hPa (400 mmHg) at 323 °C (613 °F)
l)	Vapour density	No data available
m)	Relative density	1.1 g/cm3 at 18 °C (64 °F)
n)	Water solubility	0.00091 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 3.72 at 22 °C (72 °F)
p)	Auto-ignition temperature	> 600 °C (> 1,112 °F) at 1,013 hPa (760 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD0 Oral - Rat - > 16,000 mg/kg
(OECD Test Guideline 401)

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Mouse - male and female - Oral
hepatocellular carcinoma

Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Carbazole)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: FE3150000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - > 0.93 mg/l - 96.0 h Remarks: No toxicity at the limit of solubility
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 2.30 - 4.90 mg/l - 48 h Remarks: No toxicity at the limit of solubility
Toxicity to algae	Growth inhibition NOEC - Scenedesmus acuminatus - > 0.4 mg/l - 96 h Remarks: No toxicity at the limit of solubility

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Cyprinus carpio (Carp) - 42 d - 0.05 mg/l Bioconcentration factor (BCF): 241 Cyprinus carpio (Carp) - 42 d - 0.005 mg/l Bioconcentration factor (BCF): 200

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Carbazole)
Marine pollutant:yes
IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Carbazole)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Carbazole	86-74-8	2009-07-17

New Jersey Right To Know Components

	CAS-No.	Revision Date
Carbazole	86-74-8	2009-07-17

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Carbazole	86-74-8	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H351	Suspected of causing cancer.
H413	May cause long lasting harmful effects to aquatic life.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0
Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.8 Revision Date: 10/12/2015 Print Date: 01/29/2016

SAFETY DATA SHEET

Version 5.6
Revision Date 12/10/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon disulfide

Product Number : 180173
Brand : Sigma-Aldrich
Index-No. : 006-003-00-3

CAS-No. : 75-15-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.

H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	CS_2
Molecular weight	:	76.14 g/mol
CAS-No.	:	75-15-0
EC-No.	:	200-843-6
Index-No.	:	006-003-00-3

Hazardous components

Component	Classification	Concentration
Carbon disulphide		
	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Repr. 2; STOT RE 1; Aquatic Acute 2; H225, H315, H319, H332, H361, H372, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions., Vapours may form explosive mixture with air., May explode when heated.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Refrigerate before opening.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Carbon disulphide	75-15-0	TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	1.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Peripheral Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	20.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		CEIL	30.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		Peak	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		TWA	1.000000 ppm 3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		ST	10.000000 ppm 30.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		See Table Z-2		
		TWA	20 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		
		CEIL	30 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		

		Peak	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.3-1968		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Carbon disulphide	75-15-0	2-Thiothiazolidine-4-carboxylix acid (TTCA)	0.5000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	Stench.
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -112 °C (-170 °F) - lit.
f)	Initial boiling point and boiling range	46 °C (115 °F) - lit.
g)	Flash point	-30 °C (-22 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 50 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	394.956 hPa (296.241 mmHg) at 20 °C (68 °F) 1,342.711 hPa (1,007.116 mmHg) at 55 °C (131 °F)
l)	Vapour density	2.63 - (Air = 1.0)
m)	Relative density	1.266 g/mL at 25 °C (77 °F)
n)	Water solubility	2.9 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	log Pow: 2.7 at 25 °C (77 °F)
p)	Auto-ignition temperature	97 - 107 °C (207 - 225 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	71.9 mN/m at 19.5 °C (67.1 °F)
Relative vapour density	2.63 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Alkali metals, Zinc, Amines, Azides, Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 423)

LC50 Inhalation - Rat - male and female - 4 h - 10.35 mg/l
(OECD Test Guideline 403)

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Ames test
Salmonella typhimurium
Result: negative

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Suspected human reproductive toxicant

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: FF6650000

May cause convulsions.

Liver - Irregularities - Based on Human Evidence
Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Poecilia reticulata (guppy) - 4 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 2.1 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	Growth inhibition EC50 - Chlorella pyrenoidosa - 21 mg/l - 96 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability: aerobic - Exposure time 28 d
Result: > 80 % - Readily biodegradable
(OECD Test Guideline 301D)

12.3 Bioaccumulative potential

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1131 Class: 3 (6.1) Packing group: I
Proper shipping name: Carbon disulfide
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1131 Class: 3 (6.1) Packing group: I EMS-No: F-E, S-D
Proper shipping name: CARBON DISULPHIDE

IATA
UN number: 1131 Class: 3 (6.1)
Proper shipping name: Carbon disulphide
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2007-07-01

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

	CAS-No.	Revision Date
Carbon disulphide	75-15-0	2008-06-17

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H401	Toxic to aquatic life.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.6 Revision Date: 12/10/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 5.10
Revision Date 01/06/2016
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon tetrachloride

Product Number : 319961
Brand : Sigma-Aldrich
Index-No. : 602-008-00-5

CAS-No. : 56-23-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Skin sensitisation (Sub-category 1B), H317
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), Liver, Kidney, H372
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412
Hazardous to the ozone layer (Category 1), H420

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if inhaled.

H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.
P502	Refer to manufacturer/ supplier for information on recovery/ recycling.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Rapidly absorbed through skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Tetrachloromethane
Formula	:	CCl_4CCl_4
Molecular weight	:	153.82 g/mol
CAS-No.	:	56-23-5
EC-No.	:	200-262-8
Index-No.	:	602-008-00-5

Hazardous components

Component	Classification	Concentration
Tetrachloromethane		
	Acute Tox. 3; Skin Sens. 1B; Carc. 2; STOT RE 1; Aquatic Acute 3; Aquatic Chronic 3; Ozone 1; H301 + H311 + H331, H317, H351, H372, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrachloromethane	56-23-5	TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		STEL	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		ST	2.000000 ppm 12.600000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		TWA	10.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		CEIL	25.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		Peak	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		See Table Z-2		
		TWA	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		STEL	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Liver damage Suspected human carcinogen Danger of cutaneous absorption		
		ST	2 ppm 12.6 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	10 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		CEIL	25 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		Peak	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.17-1967		
		TWA	2 ppm 12.6 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	sweet
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -23 °C (-9 °F) - lit.
f)	Initial boiling point and boiling range	76 - 77 °C (169 - 171 °F) - lit.
g)	Flash point	does not flash
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	45 hPa (34 mmHg) at 0.3 °C (32.5 °F) 120 hPa (90 mmHg) at 19.8 °C (67.6 °F) 14,549 hPa (10,913 mmHg) at 24 °C (75 °F)
l)	Vapour density	No data available
m)	Relative density	1.594 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.8461 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.83 at 25 °C (77 °F)
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	26.7 mN/m at 20 °C (68 °F) 19.5 mN/m at 80 °C (176 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 2,350 mg/kg

LC50 Inhalation - Rat - 4 h - 8000 ppm

LD50 Dermal - Rabbit - > 20,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
(Draize Test)

Respiratory or skin sensitisation
- Mouse
Result: The product is a skin sensitiser, sub-category 1B.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Limited evidence of carcinogenicity in animal studies

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Tetrachloromethane)
NTP:	Reasonably anticipated to be a human carcinogen (Tetrachloromethane)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Inhalation - Causes damage to organs through prolonged or repeated exposure. - Liver, Kidney

Aspiration hazard
No data available

Additional Information
RTECS: FG4900000

Vomiting, Diarrhoea, Abdominal pain, Nausea, Dizziness, Headache, Damage to the eyes., Liver injury may occur., Kidney injury may occur., Exposure to and/or consumption of alcohol may increase toxic effects., Contact with skin can cause:, Pain, Erythema, hyperemia

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Danio rerio (zebra fish) - 24.3 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 35 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	Growth inhibition EC50 - Algae - 20 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 52.3 µg/l
	Bioconcentration factor (BCF): 30

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1846 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: CARBON TETRACHLORIDE
Marine pollutant: yes

IATA
UN number: 1846 Class: 6.1 Packing group: II
Proper shipping name: Carbon tetrachloride

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tetrachloromethane	56-23-5	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer.	56-23-5	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H301	Toxic if swallowed.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled
H311	Toxic in contact with skin.
H317	May cause an allergic skin reaction.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

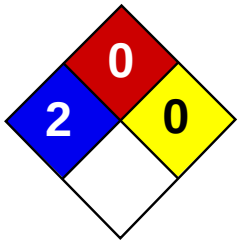
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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.10 Revision Date: 01/06/2016 Print Date: 03/03/2016







Material Safety Data Sheet
Chloroform MSDS

Section 1: Chemical Product and Company Identification

Product Name: Chloroform

Catalog Codes: SLC1888, SLC5044

CAS#: 67-66-3

RTECS: FS9100000

TSCA: TSCA 8(b) inventory: Chloroform

CI#: Not available.

Synonym: Trichloromethane; Methane, trichlor-

Chemical Name: Chloroform

Chemical Formula: CHCl3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Chloroform	67-66-3	100

Toxicological Data on Ingredients: Chloroform: ORAL (LD50): Acute: 695 mg/kg [Rat]. 36 mg/kg [Mouse]. 820 mg/kg [Guinea pig]. DERMAL (LD50): Acute: >20000 mg/kg [Rabbit]. VAPOR (LC50): Acute: 47702 mg/m 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects: CARCINOGENIC EFFECTS: Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. Classified 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, heart. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. WARM water MUST be used. Get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact: Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: May explode if it comes in contact with aluminum powder, lithium, perchlorate, pentoxide, bis(dimethylamino)dimethylstannane, potassium, potassium-sodium alloy, sodium (or sodium hydroxide or sodium methoxide), and methanol

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions: Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as metals, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection: Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: TWA: 10 (ppm) [Australia] Inhalation TWA: 2 (ppm) from OSHA (PEL) [United States] Inhalation STEL: 9.78 (mg/m3) from NIOSH Inhalation STEL: 2 (ppm) from NIOSH Inhalation TWA: 9.78 (mg/m3) from OSHA (PEL) [United States] Inhalation TWA: 10 (ppm) from ACGIH (TLV) [United States] [1999] Inhalation TWA: 2 (ppm) [United Kingdom (UK)] Inhalation TWA: 9.9 (mg/m3) [United Kingdom (UK)] InhalationConsult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pleasant. Sweetish. Etheric. Non-irritating

Taste: Burning. Sweet.

Molecular Weight: 119.38 g/mole

Color: Colorless. Clear

pH (1% soln/water): Not available.

Boiling Point: 61°C (141.8°F)

Melting Point: -63.5°C (-82.3°F)

Critical Temperature: 263.33°C (506°F)

Specific Gravity: 1.484 (Water = 1)

Vapor Pressure: 21.1 kPa (@ 20°C)

Vapor Density: 4.36 (Air = 1)

Volatility: Not available.

Odor Threshold: 85 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 2

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, Light

Incompatibility with various substances: Reactive with metals, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Light Sensitive. Incompatible with triisopropyl phosphine, acetone, disilane, fluorine, strong bases and reactive metals (aluminum, magnesium in powdered form), light.

Special Remarks on Corrosivity: It will attack some forms of plastics, rubber, and coatings.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation.

Toxicity to Animals: WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 36 mg/kg [Mouse]. Acute dermal toxicity (LD50): >20000 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 47702 mg/m 4 hours [Rat]. 3

Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified + (Proven.) by NIOSH. Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. Classified 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, heart.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May affect genetic material (possible mutangen) and cause adverse reproductive effects(embryotoxicity and fetotoxicity) Suspected carcinogen (tumorigenic) and teratogen based on animal data. Human: passes the placental barrier, detected in maternal milk.

Special Remarks on other Toxic Effects on Humans: Acute Potential Health Effects: Skin: Causes skin irritation and may cause chemical burns. Eye: Causes eye irritation, burning pain and reversible injury to corneal epithelium. Inhalation: Causes irritation of the respiratory system (mucous membranes). May affect behavior/Nervous system (CNS depressant, fatigue, dizziness, nervousness, giddiness, euphoria, loss of coordination and judgement, weakness, hallucinations, muscle contraction/spasticity, general anesthetic, spastic paralysis, headache), anorexia (neurological and gastrointestinal symtoms resembling chronic alcoholism), and possibly coma and death. May affect the liver, kidneys and gastrointestinal tract (nausea, vomiting). Ingestion: Causes gastrointestinal tract irritation (nausea, vomiting). May affect the liver, urinary system (kidneys), respiration, behavior/nervous system (symptoms similar to inhalation),and heart. Chronic Potential Health Effects: Inhalation: Prolonged or repeated inhalation may affect the liver (hepatitis, jaundice, hepatocellular necrosis), metabolism (weight loss), respiration (fibrosis, pneumoconoisis), behavior/central nervous system (symptoms similar to acute inhalation), blood, musculoskeletal system, and kidneys. Ingestion: Prolonged or repeated ingestion may affect the liver, kidneys, metabolism (weight loss), endocrine system (spleen), blood (changes in cell count).

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 43.8 mg/l 96 hours [Trout].

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal: Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Chloroform UNNA: UN1888 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations: California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Chloroform California prop. 65 (no significant risk level): Chloroform: 0.02 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Chloroform New York release reporting list: Chloroform Rhode Island RTK hazardous substances: Chloroform Pennsylvania RTK: Chloroform Massachusetts RTK: Chloroform New Jersey: Chloroform California Director's List of Hazardous Subtances (8 CCR 339): Chloroform Tennessee: Chloroform TSCA 8(b) inventory: Chloroform TSCA 8(d) H and S data reporting: Chloroform: effective: 6/1/87; sunset: 6/1/97 SARA 302/304/311/312 extremely hazardous substances: Chloroform SARA 313 toxic chemical notification and release reporting: Chloroform CERCLA: Hazardous substances.: Chloroform: 10 lbs. (4.536 kg)

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): R20/22- Harmful by inhalation and if swallowed. R38- Irritating to skin. R40- Possible risks of irreversible effects. S36/37- Wear suitable protective clothing and gloves.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment: Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

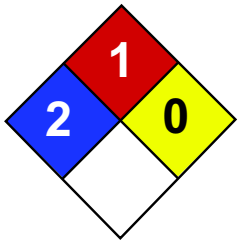
Other Special Considerations: Not available.

Created: 10/10/2005 08:16 PM

Last Updated: 05/21/2013 12:00 PM

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Material Safety Data Sheet
Chromium MSDS

Section 1: Chemical Product and Company Identification

Product Name: Chromium

Catalog Codes: SLC4711, SLC3709

CAS#: 7440-47-3

RTECS: GB4200000

TSCA: TSCA 8(b) inventory: Chromium

CI#: Not applicable.

Synonym: Chromium metal; Chrome; Chromium Metal Chips 2" and finer

Chemical Name: Chromium

Chemical Formula: Cr

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Chromium	7440-47-3	100

Toxicological Data on Ingredients: Chromium LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation. Slightly hazardous in case of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, lungs, liver, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 580°C (1076°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Moderate fire hazard when it is in the form of a dust (powder) and burns rapidly when heated in flame. Chromium is attacked vigorously by fused potassium chlorate producing vivid incandescence. Pyrophoric chromium unites with nitric oxide with incandescence. Incandescent reaction with nitrogen oxide or sulfur dioxide.

Special Remarks on Explosion Hazards:
Powdered Chromium metal +fused ammonium nitrate may react violently or explosively. Powdered Chromium will explode spontaneously in air.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.5 (mg/m3) from ACGIH (TLV) [United States] TWA: 1 (mg/m3) from OSHA (PEL) [United States] TWA: 0.5 (mg/m3) from NIOSH [United States] TWA: 0.5 (mg/m3) [United Kingdom (UK)] TWA: 0.5 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 52 g/mole

Color: Silver-white to Grey.

pH (1% soln/water): Not applicable.

Boiling Point: 2642°C (4787.6°F)

Melting Point: 1900°C (3452°F) +/- !0 deg. C

Critical Temperature: Not available.

Specific Gravity: 7.14 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Insoluble in cold water, hot water. Soluble in acids (except Nitric), and strong alkalies.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, acids, alkalis.

Corrosivity: Not available.

Special Remarks on Reactivity:
Incompatible with molten Lithium at 180 deg. C, hydrogen peroxide, hydrochloric acid, sulfuric acid, most caustic alkalies and alkali carbonates, potassium chlorate, sulfur dioxide, nitrogen oxide, bromine pentafluoride. It may react violently or ignite with bromine pentafluoride. Chromium is rapidly attacked by fused sodium hydroxide + potassium nitrate. Potentially hazardous incompatibility with strong oxidizers.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. May cause damage to the following organs: kidneys, lungs, liver, upper respiratory tract.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May cause cancer based on animal data. There is no evidence that exposure to trivalent chromium causes cancer in man.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: May cause skin irritation. Eyes: May cause mechanical eye irritation. Inhalation: May cause irritation of the respiratory tract and mucous membranes of the respiratory tract. Ingestion: May cause gastrointestinal tract irritation with nausea, vomiting, diarrhea. Chronic Potential Health Effects: Inhalation: The effects of chronic exposure include irritation , sneezing, reddness of the throat, bronchospasm, asthma, cough, polyps, chronic inflammation, emphysema, chronic bronchitis, pharyngitis, bronchopneumonia, pneumoconoisis. Effects on the nose from chronic chromium exposure include irritation, ulceration, and perforation of the nasal septum. Inflammation and ulceration of the larynx may also occur. Ingestion or Inhalation: Chronic exposure may cause liver and kidney damage.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Chromium Illinois toxic substances disclosure to employee act: Chromium Illinois chemical safety act: Chromium New York release reporting list: Chromium Rhode Island RTK hazardous substances: Chromium Pennsylvania RTK: Chromium Minnesota: Chromium Michigan critical material: Chromium Massachusetts RTK: Chromium Massachusetts spill list: Chromium New Jersey: Chromium New Jersey spill list: Chromium Louisiana spill reporting: Chromium California Director's List of Hazardous Substances: Chromium TSCA 8(b) inventory: Chromium SARA 313 toxic chemical notification and release reporting: Chromium CERCLA: Hazardous substances.: Chromium: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC):
R40- Limited evidence of carcinogenic effect S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:16 PM

Last Updated: 11/06/2008 12:00 PM

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SAFETY DATA SHEET

Based on Directive 2001/58/EC of the Commission of the European Communities

CHRYSENE

1. Identification of the substance/preparation and of the company/undertaking

1.1 Identification of the substance or preparation:

Synonyms: none
CAS No. : 218-01-9
EC index No. : 601-048-00-0
EINECS No. : 205-923-4
RTECS No. : GC0700000
BCR number : BCR-269
NFPA code : N.D.
Molecular weight : 228.30
Formula : C18H12

1.2 Use of the substance or the preparation:
Certified reference material for laboratory use only

1.3 Company/undertaking identification:
Institute for Reference Materials and Measurements
Retieseweg
B-2440 Geel
Tel. : +32 14 57 12 11
Fax : +32 14 58 42 73

1.4 Telephone number for emergency:
+32 70 245 245
Antigifcentrum
p/a Militair Hospitaal Koningin Astrid, Bruynstraat, B-1120 Brussel

2. Composition/information on ingredients

Hazardous ingredients	CAS No. EINECS No.	Conc. in %	Hazard symbol	Risks (R-phrases)
chrysene	218-01-9 205-923-4	100	T;N	45-50/53 (1)

(1) For R-phrases in full: see heading 16

3. Hazards identification

- May cause cancer
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

4. First aid measures

4.1 Eye contact:
- Consult a doctor/medical service if irritation persists
- Rinse immediately with water

4.2 Skin contact:
- Consult a doctor/medical service if irritation persists
- Wash with water and soap
- Wipe off dry product from skin
- Remove clothing before washing

4.3 After inhalation:
- Consult a doctor/medical service if breathing problems develop
- Remove the victim into fresh air
- Unconscious: maintain adequate airway and respiration

4.4 After ingestion:
- Consult a doctor/medical service if you feel unwell
- Immediately give lots of water to drink
- Never give water to an unconscious person

- Do not induce vomiting

5. Fire-fighting measures

5.1 Suitable extinguishing media:
- Water spray
- Alcohol foam
- Polymer foam
- ABC powder
- Carbon dioxide

5.2 Unsuitable extinguishing media:
- Solid water jet ineffective as extinguishing medium

5.3 Special exposure hazards:
- Not easily combustible
- Upon combustion CO and CO2 are formed

5.4 Instructions:
- Take account of toxic firefighting water
- Use firefighting water moderately and contain it

5.5 Special protective equipment for firefighters:
- Heat/fire exposure: compressed air/oxygen apparatus
- Dust cloud production: compressed air/oxygen apparatus

6. Accidental release measures

6.1 Personal protection/precautions: see heading 8.1/8.3/10.3

6.2 Environmental precautions:
- Prevent soil and water pollution
- Substance must not be discharged into the sewer
- Dam up the solid spill

6.3 Methods for cleaning up:
- Stop dust cloud by covering with sand/earth
- Carefully collect the spill/leftovers
- Scoop solid spill into closing containers
- Spill must not return in its original container
- Take collected spill to manufacturer/competent authority
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. Handling and storage

7.1 Handling:
- Observe strict hygiene
- Avoid prolonged and repeated contact with skin
- Avoid raising dust
- Do not discharge the waste into the drain
- Remove contaminated clothing immediately

7.2 Storage:
- Keep container tightly closed. Store only in a limited quantity. Store in a dry area. Store in a dark area.
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

Storage temperature	:	N.D.	**°C**
Quantity limits	:	N.D.	**kg**
Storage life	:	N.D.	
Materials for packaging	:		

- suitable : no data available
- to avoid : no data available

7.3 Specific uses:
- See information supplied by the manufacturer

8. Exposure controls/Personal protection

8.1 Exposure limit values:

TLV-TWA	:	not listed
TLV-STEL	:	not listed
TLV-Ceiling	:	not listed
OES-LTEL	:	not listed
OES-STEL	:	not listed
MEL-LTEL	:	not listed
MEL-STEL	:	not listed
MAK	:	not listed
TRK	:	not listed
MAC-TGG 8 h	:	not listed
MAC-TGG 15 min.	:	not listed
MAC-Ceiling	:	not listed
VME-8 h	:	not listed
VLE-15 min.	:	not listed
GWBB-8 h	:	not listed
GWK-15 min.	:	not listed
Momentary value	:	not listed
EC	:	not listed
EC-STEL	:	not listed

Sampling methods:

- Chrysene (Polynuclear aromatic Hydrocarbons)	NIOSH 5515
- Chrysene	OSHA 58
- Chrysene (Polynuclear aromatic Hydrocarbons)	NIOSH 5506

8.2 Exposure controls:

8.2.1 Occupational exposure controls:
- Measure the concentration in the air regularly
- Work under local exhaust/ventilation

8.2.2 Environmental exposure controls: see heading 13

8.3 Personal protection:

8.3.1 respiratory protection:
- Dust production: dust mask with filter type P3
- High dust production: compressed air/oxygen apparatus

8.3.2 hand protection:
- Gloves
  Suitable materials: No data available

- Breakthrough time: N.D.

8.3.3 eye protection:
- Safety glasses
- In case of dust production: protective goggles

8.3.4 skin protection:
- Protective clothing
- In case of dust production: head/neck protection
  Suitable materials: No data available

9. Physical and chemical properties

9.1 General information:

Appearance (at 20°C)	:	Crystalline solid / Flakes
Odour	:	Odourless
Colour	:	White

9.2 Important health, safety and environmental information:

pH value	:	N.D.	
Boiling point/boiling range	:	448	**°C**
Flashpoint	:	N.D.	**°C**
Explosion limits	:	N.D.	**vol%** (**°C**)
Vapour pressure (at 20°C)	:	N.D.	**hPa**
Vapour pressure (at 50°C)	:	N.D.	**hPa**
Relative density (at 20°C)	:	1.27	
Water solubility	:	< 0.001	**g/100 ml**
Soluble in	:	N.D.	
Relative vapour density	:	N.D.	
Viscosity	:	N.D.	**Pa.s**
Partition coëfficient n-octanol/water	:	5.61/5.73	
Evaporation rate			
ratio to butyl acetate	:	N.D.	
ratio to ether	:	N.D.	

9.3 Other information:

Melting point/melting range	:	256	**°C**
Auto-ignition point	:	N.D.	**°C**
Saturation concentration	:	N.D.	**g/m^3**

10. Stability and reactivity

10.1 Conditions to avoid/reactivity:
- Stable under normal conditions

10.2 Materials to avoid:
- Keep away from: heat sources, ignition sources, oxidizing agents, acids

10.3 Hazardous decomposition products:
- Upon combustion CO and CO2 are formed
- Reacts violently with (strong) oxidizers
- Decomposes on exposure to (strong) acids

11. Toxicological information

11.1 Acute toxicity:

LD50 oral rat	:	N.D.	**mg/kg**
LD50 dermal rat	:	N.D.	**mg/kg**
LD50 dermal rabbit	:	N.D.	**mg/kg**
LC50 inhalation rat	:	N.D.	**mg/1/4 h**
LC50 inhalation rat	:	N.D.	**ppm/4 h**

11.2 Chronic toxicity:

EC carc. cat.	:	2
EC muta. cat.	:	3
EC repr. cat.	:	not listed
Carcinogenicity (TLV)	:	A3
Carcinogenicity (MAC)	:	K
Carcinogenicity (VME)	:	not listed
Carcinogenicity (GWBB)	:	not listed
Carcinogenicity (MAK)	:	2
Mutagenicity (MAK)	:	not listed
Teratogenicity (MAK)	:	-
IARC classification	:	3

11.3 Routes of exposure: ingestion, inhalation, eyes and skin
Caution! Substance is absorbed through the skin

11.4 Acute effects/symptoms:

AFTER SKIN CONTACT
- Slight irritation

11.5 Chronic effects:

- Probably human carcinogenic
- No certainty about human mutagenic properties

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
- No specific information available

SIMILAR PRODUCTS CAUSE FOLLOWING SYMPTOMS:
- Feeling of weakness
- Photoallergy
- Cracking of the skin
- Skin rash/inflammation
- Skin cancer
- Lung tissue affection/degeneration
- Enlargement/affection of the liver
- Affection of the renal tissue

12. Ecological information

12.1 Ecotoxicity:

- LC50 (24 h) : 0.0007 mg/l (DAPHNIA MAGNA)
- LC50 (24 h) : >6.7 mg/l (RANA SP.)

12.2 Mobility:

- **Volatile organic compounds (VOC):** N.D.%

- Forming sediments in water
- Adsorbs into the soil
- Insoluble in water

For other physicochemical properties see heading 9.

12.3 Persistence and degradability:

- **biodegradation BOD_5** : N.D. **% ThOD**
- **water** : - Not readily biodegradable in water
- **soil** : **T ½:** > 77 **days**

12.4 Bioaccumulative potential:
- **log P_{ow}** : 5.61/5.73
- **BCF** : 4440 (LAMELLIBRANCHIATA)
- Highly bioaccumulative

12.5 Other adverse effects:

- **WGK** : 3 (Classification based on the R-phrases in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 17 May 1999)
- **Effect on the ozone layer** : Not dangerous for the ozone layer (Council Regulation (EC) 3093/94)
- **Greenhouse effect** : no data available
- **Effect on waste water purification** : no data available

13. Disposal considerations

13.1 Provisions relating to waste:

- Waste material code (91/689/EEC, Council Decision
- 2001/118/EC, O.J. L47 of 16/2/2001): 16 05 06 (laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory)
- Waste material code (Flanders): 001, 045, 691
- Waste code (Germany): 59302
- Hazardous waste (91/689/EEC)

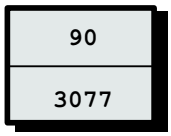
13.2 Disposal methods:

- Dissolve or mix with a combustible solvent
- Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber
- Do not discharge into surface water (2000/60/EEC, Council

13.3 Packaging/Container:

- Waste material code packaging (91/689/EEC, Council Decision
- 2001/118/EC, O.J. L47 of 16/2/2001): 15 01 10 (packaging containing residues of or contaminated by dangerous substances)

14. Transport information



14.1 Classification of the substance in compliance with UN Recommendations

UN number	: 3077
CLASS	: 9
SUB RISKS	: -
PACKING	: III
PROPER SHIPPING NAME	: UN 3077, Environmentally hazardous substance, solid, n.o.s. (chrysene)

14.2 ADR (transport by road)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.3 RID (transport by rail)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.4 ADNR (transport by inland waterways)

CLASS	: 9
PACKING	: III
DANGER LABEL TANKS	: 9
DANGER LABEL PACKAGES	: 9

14.5 IMDG (maritime transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
MFAG	: -
EMS	: -
MARINE POLLUTANT	: P

14.6 ICAO (air transport)

CLASS	: 9
SUB RISKS	: -
PACKING	: III
PACKING INSTRUCTIONS PASSENGER AIRCRAFT	:
PACKING INSTRUCTIONS CARGO AIRCRAFT	:

14.7 Special precautions in connection with transport : none

14.8 Limited quantities (LQ) :

When substances and their packaging meet the conditions established by ADR/RID/ADNR in chapter 3.4, **only** the following prescriptions shall be complied with:
each package shall display a diamond-shaped figure with the following inscription:
- 'UN 3077'
or, in the case of different goods with different identification numbers within a single package:
- the letters 'LQ'

15. Regulatory information

Enumerated in substance list Annex I of directive 67/548/EEC et sequens



Toxic



Dangerous for the environment

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S53 : Avoid exposure - obtain special instructions before use
S45 : In case of accident or if you feel unwell, seek medical advice (show the label where possible)
S60 : This material and/or its container must be disposed of as hazardous waste
S61 : Avoid release to the environment. Refer to special instructions/safety data sheets.

16. Other information

The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

N.A. = NOT APPLICABLE
N.D. = NOT DETERMINED
***** = INTERNAL CLASSIFICATION

Full text of any R-phrases referred to under heading 2:

R45 : May cause cancer
R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Exposure limits:
TLV : Threshold Limit Value - ACGIH USA 2000
OES : Occupational Exposure Standards - United Kingdom 1999
MEL : Maximum Exposure Limits - United Kingdom 1999
MAK : Maximale Arbeitsplatzkonzentrationen - Germany 2001
TRK : Technische Richtkonzentrationen - Germany 2001
MAC : Maximale aanvaarde concentratie - The Netherlands 2002
VME : Valeurs limites de Moyenne d'Exposition - France 1999
VLE : Valeurs limites d'Exposition à court terme - France 1999
GWBB : Grenswaarde beroepsmatige blootstelling - Belgium 1998
GWK : Grenswaarde kortstondige blootstelling - Belgium 1998
EC : Indicative occupational exposure limit values - directive 2000/39/EC

Chronic toxicity:
K : List of the carcinogenic substances and processes - The Netherlands 2002

SAFETY DATA SHEET

Version 5.4
Revision Date 12/01/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *cis*-1,2-Dichloroethylene

Product Number : D62004
Brand : Aldrich
Index-No. : 602-026-00-3

CAS-No. : 156-59-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Inhalation (Category 4), H332
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H332 Harmful if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.

P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	cis-Acetylene dichloride
Formula	:	$C_2H_2Cl_2$
Molecular weight	:	96.94 g/mol
CAS-No.	:	156-59-2
EC-No.	:	205-859-7
Index-No.	:	602-026-00-3

Hazardous components

Component	Classification	Concentration
cis-Dichloroethylene		
	Flam. Liq. 2; Acute Tox. 4; Aquatic Acute 3; Aquatic Chronic 3; H225, H332, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. Air and moisture sensitive. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
cis-Dichloroethylene	156-59-2	TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Eye irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: light yellow
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -80 °C (-112 °F) - lit.
f)	Initial boiling point and boiling range	60 °C (140 °F) - lit.
g)	Flash point	6.0 °C (42.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.284 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available

p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 13700 ppm
Remarks: Behavioral:Somnolence (general depressed activity). Liver:Fatty liver degeneration.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: KV9420000

narcosis, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

Poison Inhalation Hazard: No

IMDG
UN number: 1150 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: 1,2-DICHLOROETHYLENE

IATA
UN number: 1150 Class: 3 Packing group: II
Proper shipping name: 1,2-Dichloroethylene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
cis-Dichloroethylene	156-59-2	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H332	Harmful if inhaled.
H402	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	1

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 12/01/2015 Print Date: 03/03/2016

Material Safety Data Sheet

Product Name: COBALT-BASED ALLOYS **ID: 1147**

* * * Section 1 - Chemical Product and Company Identification * * *

Chemical Formula: Cobalt (Co), chromium (Cr) and other alloying elements
Product Use: Cast aerospace parts
Other Designations: 694, 98M2, CoCrNiMoFe, ECY 768, F75, FSX 414, G34, How 1, How 3, How 6, How 12, How 19, How 21, How 25 (L605), How 31 (X40), How 36, How F, How J, Mar-M 302, Mar-M 509, Mar-M 918, Merle 72, MP35N, S 816, PT1377, PT1508, WI 52, X 45 and other Cobalt-Based Alloys

Alcoa Inc.
201 Isabella Street
Pittsburgh, PA 15212-5858

Phone: Health and Safety: 1-412-553-4649

Emergency Information: USA: Chemtrec: 1-800-424-9300 or 1-703-527-3887 Alcoa: 1-412-553-4001
Website: For a current MSDS, refer to Alcoa websites: www.alcoa.com or Internally at my.alcoa.com EHS Community

* * * Section 2 - Hazards Identification * * *

EMERGENCY OVERVIEW

Solid. Metallic appearance. Odorless. Non-combustible as supplied.

Explosion/fire hazards may be present when (See Sections 5, 7 and 10 for additional information):
***** Molten metal is in contact with water/moisture.
***** Heavily concentrated dust clouds are dispersed in the air.

Dust and fume from processing can cause irritation of eyes, skin and upper respiratory tract.

POTENTIAL HEALTH EFFECTS

The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11.
The health effects listed below are not likely to occur unless processing or recycling/combustion generate dusts or fumes.

Eyes Dust or fume from processing: Can cause irritation.

Skin Dust or fume from processing: Can cause irritation, sensitization and allergic contact dermatitis.

Inhalation Health effects from mechanical processing (e.g., cutting, grinding): Can cause upper respiratory tract irritation. **Chronic overexposures:** Can cause asthma, respiratory sensitization, scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Additional health effects from elevated temperature processing (e.g., welding, melting): **Acute overexposures:** Can cause nausea, fever, chills, shortness of breath and malaise (metal fume fever). **Chronic overexposures:** Can cause the accumulation of fluid in the lungs (pulmonary edema) and lung cancer.

Carcinogenicity and Reproductive Hazard

Product as shipped: Does not present any cancer or reproductive hazards.
Dust and fumes from mechanical processing: Can present a cancer hazard (nickel, cobalt). Can present a reproductive hazard for males (manganese).
Dust and fumes from welding or elevated temperature processing: Can present a cancer hazard (hexavalent chromium compounds, nickel compounds, welding fumes, cobalt compounds). Can present a reproductive hazard for males (manganese).

Medical Conditions Aggravated By Exposure to Product, Components or Compounds Formed During Processing

Dust or fume from processing: Asthma, chronic lung disease, skin rashes and secondary Parkinson's disease.

* * * Section 3 - Composition / Information on Ingredients * * *

Complete composition is provided below and may include some components classified as non-hazardous.

CAS #	Component	Percent
7440-48-4	Cobalt	35-65
7440-47-3	Chromium	15-35
7440-02-0	Nickel	0-35
7440-33-7	Tungsten	0-25
7439-89-6	Iron	0-20
7439-98-7	Molybdenum	0-15
7440-25-7	Tantalum	0-10
7440-62-2	Vanadium	0-5
7439-96-5	Manganese	0-5
7429-90-5	Aluminum	0-5
7440-03-1	Niobium	0-5
7440-21-3	Silicon	0-5
7440-44-0	Carbon	0-5

Component Information

Additional compounds which may be formed during processing are listed in Section 8.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Dust or fume from processing: Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician.

First Aid: Skin

Dust or fume from processing: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists.

First Aid: Inhalation

Dust or fume from processing: Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

* * * Section 5 - Fire Fighting Measures * * *

Flammable/Combustible Properties

This product does not present fire or explosion hazards as shipped. Dust and fines may be ignitable.

Fire/Explosion

May be a potential hazard under the following conditions:

***** Molten metal in contact with water/moisture. Moisture entrapped by molten metal can be explosive. ***** Dust or fines dispersed in the air can be explosive. Heavily concentrated dusts in air can be explosive if subjected to a strong ignition source.

Extinguishing Media

Use a Class D agent, fluxing salts, graphite or dry sand on dust or fine fires. Otherwise, use fire fighting methods and materials that are appropriate for surrounding fire.

Unsuitable Extinguishing Media

DO NOT USE:

***** Water around molten metal.

These agents will react with the burning material.

Fire Fighting Equipment/Instructions

Fire fighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.

* * * Section 6 - Accidental Release Measures * * *

Small/Large Spill: Avoid generating dust. Recover using mechanical means. Collect scrap for recycling.

* * * Section 7 - Handling and Storage * * *

Handling/Storage

Avoid generating dust. Avoid contact with sharp edges or heated metal. Product should be kept dry. Do not eat, drink, apply cosmetics, or smoke when handling or using.

Requirements for Remelting of Scrap Material and/or Ingot

Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off the water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment. If confined, even a few drops of water can lead to violent explosions.

During melting operations, the following minimum guidelines should be observed:
***** Inspect all materials prior to furnace charging and completely remove surface contamination such as water, ice, snow, deposits of grease and oil or other surface contamination resulting from weather exposure, shipment, or storage.
***** Store materials in dry, heated areas with any cracks or cavities pointed downwards.
***** Preheat and dry large or heavy items such as ingot adequately before charging into a furnace containing molten metal. This is typically done by use of a drying oven or homogenizing furnace. The drying cycle should bring the internal metal temperature of the coldest item of the batch to 400°F and then hold at that temperature for 6 hours.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Engineering Controls

If dust or fumes are generated through processing: Use with adequate ventilation to meet the limits listed in Section 8, Exposure Guidelines.

Personal Protective Equipment

Respiratory Protection

If dust or fumes are generated through processing: Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8, Exposure Guidelines. Suggested respiratory protection: N95

Eye Protection Wear safety glasses/goggles to avoid eye injury.

Skin Protection Wear appropriate gloves to avoid any skin injury.

General

Personnel who handle and work with **molten metal** should utilize primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries. In addition to primary protection, secondary or day-to-day work clothing that is fire resistant and sheds metal splash is recommended for use with molten metal. Synthetic materials should never be worn even as secondary clothing (undergarments).

Exposure Guidelines

A: General Product Information

No Occupational Exposure Limit has been developed specifically for this product.
Alcoa recommends an Occupational Exposure Limit for **Cobalt** of 0.02 mg/m3 TWA.
Alcoa recommends an Occupational Exposure Limit for **Chromium (VI) Compounds [both soluble and insoluble forms]** of 0.25 ug/m3 TWA as chromium.
Alcoa recommends an Occupational Exposure Limit for **Nickel Compounds** of 0.1 mg/m3 TWA.
Alcoa recommends Occupational Exposure Limits for **Manganese** of 0.05 mg/m3 TWA (total particulate) and 0.02 mg/m3 TWA (respirable fraction).

B: Component Exposure Limits

Cobalt (7440-48-4)
ACGIH 0.02 mg/m3 TWA
OSHA 0.1 mg/m3 TWA (dust and fume)

Chromium (7440-47-3)
ACGIH 0.5 mg/m3 TWA
OSHA 1 mg/m3 TWA

Nickel (7440-02-0)
ACGIH 1.5 mg/m3 TWA (inhalable fraction)
OSHA 1 mg/m3 TWA

Tungsten (7440-33-7)
ACGIH 5 mg/m3 TWA
ACGIH 10 mg/m3 STEL

Molybdenum (7439-98-7)
ACGIH 10 mg/m3 TWA (inhalable fraction); 3 mg/m3 TWA (respirable fraction)
OSHA 15 mg/m3 TWA (total dust)

Tantalum (7440-25-7)
ACGIH 5 mg/m3 TWA (dust)
OSHA 5 mg/m3 TWA

Vanadium (7440-62-2)
OSHA 0.5 mg/m3 Ceiling (respirable dust, as V2O5); 0.1 mg/m3 Ceiling (fume, as V2O5)

Manganese (7439-96-5)
ACGIH 0.2 mg/m3 TWA
OSHA 5 mg/m3 Ceiling (fume)

Aluminum (7429-90-5)
ACGIH 10 mg/m3 TWA (metal dust)
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Silicon (7440-21-3)
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

C: Exposure Limits for Additional Compounds Which May Be Formed During Processing

Chromium (II) compounds (Not Available)
OSHA 0.5 mg/m3 TWA (as Cr)

Chromium (III) Compounds (Not Available)
ACGIH 0.5 mg/m3 TWA (as Cr)
OSHA 0.5 mg/m3 TWA (as Cr)

Chromium (VI) compounds- water soluble (Not Available)
ACGIH 0.05 mg/m3 TWA (as Cr)

Chromium (VI) compounds (certain water insoluble forms) (Not Available)
ACGIH 0.01 mg/m3 TWA (as Cr)

Chromium (VI) (18540-29-9)
OSHA 2.5 µg/m3 Action Level; 5 µg/m3 TWA (Cancer hazard - See 29 CFR 1910.1026)

Nickel insoluble compounds (Not Available)
ACGIH 0.2 mg/m3 TWA (inhalable fraction, as Ni)
OSHA 1 mg/m3 TWA (as Ni)

Tungsten, insoluble compounds (Not Available)
ACGIH 5 mg/m3 TWA (as W)
ACGIH 10 mg/m3 STEL (as W)

Iron oxide (1309-37-1)
ACGIH 5 mg/m3 TWA (respirable fraction)
OSHA 10 mg/m3 TWA

Molybdenum insoluble compounds (Not Available)
ACGIH 10 mg/m3 TWA (inhalable fraction, as Mo); 3 mg/m3 TWA (respirable fraction, as Mo)
OSHA 15 mg/m3 TWA (total dust)

Tantalum oxide (1314-61-0)
ACGIH 5 mg/m3 TWA (dust, as Ta)
OSHA 5 mg/m3 TWA (dust)

Vanadium pentoxide (1314-62-1)
ACGIH 0.05 mg/m3 TWA (dust or fume, respirable fraction)
OSHA 0.5 mg/m3 Ceiling (respirable dust, as V2O5); 0.1 mg/m3 Ceiling (fume, as V2O5)

Manganese compounds, inorganic (Not Available)
ACGIH 0.2 mg/m3 TWA (as Mn)
OSHA 5 mg/m3 Ceiling (as Mn) (related to Manganese compounds)

Aluminum oxide (1344-28-1)
ACGIH 10 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica)
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

* * * Section 9 - Physical & Chemical Properties * * *

Physical State:	Solid	**Appearance:**	Metallic appearance
Boiling Point:	Not determined	**Melting Point:**	2719ºF (1493ºC) Cobalt
Vapor Pressure:	Not applicable	**Vapor Density:**	Not applicable
Solubility in Water:	Not soluble	**Specific Gravity:**	See Density
Density:	550 lb/ft3 (8.8 g/cm3)	**pH Level:**	Not applicable
Odor:	Odorless	**Odor Threshold:**	Not applicable
Octanol-Water Coefficient:	Not applicable		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Stability Stable under normal conditions of use, storage, and transportation.

Conditions to Avoid

In powder form, can react with strong oxidizers such as concentrated nitric acid. Molten metal can react violently/explosively with water or moisture, particularly when the water is entrapped.

* * * Section 11 - Toxicological Information * * *

Health Effects Associated with Individual Ingredients

Cobalt Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause allergic reactions. Acute and chronic overexposures: Can cause respiratory sensitization, asthma, scarring of the lungs (pulmonary fibrosis) and damage to the heart muscle (cardiomyopathy). **Cobalt and certain cobalt compounds** IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B)*.

Chromium dust and mist Can cause irritation of eyes, skin and respiratory tract. **Chromium and trivalent chromium** IARC/NTP: Listed as "unclassifiable as to carcinogenicity in humans" by IARC (Group 3).

Nickel dust and fumes Can cause irritation of eyes, skin and respiratory tract. Eye contact: Can cause inflammation of the eyes and eyelids (conjunctivitis). Skin contact: Can cause sensitization and allergic contact dermatitis. Chronic overexposures: Can cause perforation of the nasal septum, inflammation of the nasal passages (sinusitis), respiratory sensitization, asthma and scarring of the lungs (pulmonary fibrosis). **Nickel alloys** IARC/NTP: Reviewed but not recommended for listing by the NTP. Listed as possibly carcinogenic to humans by IARC (Group 2B)*.

Tungsten dust Can cause irritation of eyes, skin and upper respiratory tract.

Molybdenum dust and fumes Can cause irritation of mucous membranes, skin and respiratory tract. Acute overexposures: Can cause headache, backache and sore joints. Chronic overexposures: Can cause deformities of the joints, blood disorders, kidney damage, lung damage and liver damage.

Tantalum and tantalum oxide Can cause mechanical irritation of eyes, skin and upper respiratory tract. Generally of low toxicity.

Manganese dust or fumes Chronic overexposures: Can cause inflammation of the lung tissue, scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males.

Aluminum dust, fines and fumes Low health risk by inhalation. Generally considered to be biologically inert.

Niobium dust and fumes Acute overexposures: Generally of low toxicity. Chronic overexposures: Can cause lung damage.

Silicon, inert dusts Chronic overexposures: Can cause chronic bronchitis and narrowing of the airways.

Health Effects Associated with Individual Compounds Formed During Processing

(The following could be expected if welded, remelted or otherwise processed at elevated temperatures.)

Hexavalent chromium (Chrome VI) Can cause irritation of eyes, skin and respiratory tract. Skin contact: Can cause irritant dermatitis, allergic reactions and skin ulcers. Chronic overexposures: Can cause perforation of the nasal septum, respiratory sensitization, asthma, the accumulation of fluid in the lungs (pulmonary edema), lung damage, kidney damage, lung cancer, nasal cancer and cancer of the gastrointestinal tract. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)*.

Nickel compounds Associated with lung cancer, cancer of the vocal cords and nasal cancer. IARC/NTP: Listed as "known to be a human carcinogen" by the NTP. Listed as carcinogenic to humans by IARC (Group 1)*.

Iron oxide Chronic overexposures: Can cause benign lung disease (siderosis). Ingestion: Can cause irritation of gastrointestinal tract, bleeding, changes in the pH of the body fluids (metabolic acidosis) and liver damage.

Molybdenum trioxide Can cause irritation of eyes, mucous membranes and upper respiratory tract. Chronic overexposures: Can cause reduction in the number of red blood cells (anemia), predisposition to gout, thyroid function changes, liver damage and lung damage. Additional information: Studies with experimental animals by inhalation have found lung cancer.

Vanadium pentoxide Can cause irritation of eyes, skin and respiratory tract. Skin contact (prolonged or repeated): Can cause sensitization and dermatitis. Acute overexposures: Can cause inflammation of the eyes and eyelids (conjunctivitis), bronchitis and the accumulation of fluid in the lungs (pulmonary edema). Effects can be delayed for several days. Chronic overexposures: Can cause kidney damage, blindness, asthma and emphysema. IARC/NTP: Listed as possibly carcinogenic to humans by IARC (Group 2B)*.

Manganese oxide fumes Can cause irritation of eyes, skin and respiratory tract. Acute overexposures: Can cause nausea, fever, chills, shortness of breath and malaise (metal fume fever).

Alumina (aluminum oxide) Low health risk by inhalation. Generally considered to be biologically inert.

Silica, amorphous Acute overexposures: Can cause dryness of eyes, nose and upper respiratory tract.

Acute Toxicity of Ingredients/Formed Compounds

A: General Product Information No information available for product.

B: Component Analysis - LD50/LC50

Cobalt (7440-48-4) Inhalation LC50 Rat: >10 mg/L/1H; Oral LD50 Rat:6170 mg/kg

Nickel (7440-02-0) Oral LD50 Rat: >9000 mg/kg
Iron (7439-89-6) Oral LD50 Rat: 984 mg/kg
Manganese (7439-96-5) Oral LD50 Rat: 9 g/kg
Silicon (7440-21-3) Oral LD50 Rat: 3160 mg/kg
Carbon (7440-44-0) Oral LD50 Rat: >10000 mg/kg

C: Formed Compound Toxicity - LD50s/LC50s

Iron oxide (1309-37-1) Oral LD50 Rat: >10000 mg/kg
Tantalum oxide (1314-61-0) Oral LD50 Rat: 8 g/kg
Vanadium pentoxide (1314-62-1)
Inhalation LC50 Rat: 2.21 mg/L/4H; Oral LD50 Rat:10 mg/kg; Dermal LD50 Rat:>2500 mg/kg
Aluminum oxide (1344-28-1) Oral LD50 Rat: >5000 mg/kg
Silicon dioxide (amorphous) (69012-64-2)
Oral LD50 Rat: >5000 mg/kg; Inhalation LC50 Rat:>2.2 mg/L/1H; Dermal LD50 Rabbit:>2000 mg/kg (related to Silica, amorphous)

Carcinogenicity of Ingredients
A: Ingredient Carcinogenicity - IARC/NTP

Component	CAS	IARC 1	IARC 2A	IARC 2B	IARC 3	IARC 4	NTP K	NTP RA
Cobalt	7440-48-4	No	No	Yes	No	No	No	No
Chromium	7440-47-3	No	No	No	Yes	No	No	No
Nickel	7440-02-0	No	No	Yes	No	No	No	No

B: Ingredient Carcinogenicity - ACGIH

Cobalt (7440-48-4)
ACGIH A3 - Confirmed animal carcinogen with unknown relevance to humans
Chromium (7440-47-3)
ACGIH A4 - Not Classifiable as a Human Carcinogen
Nickel (7440-02-0)
ACGIH A5 - Not Suspected as a Human Carcinogen

C: Ingredient References

Cobalt (7440-48-4)
IARC Monograph 86 [2006] (without tungsten carbide), Monograph 52 [1991]
Chromium (7440-47-3)
IARC Monograph 49 [1990] (listed under Chromium and Chromium compounds), Supplement 7 [1987]
Nickel (7440-02-0)
IARC Monograph 49 [1990], Supplement 7 [1987]

Carcinogenicity of Compounds Formed During Processing
A: Formed Compound Carcinogenicity - IARC/NTP

Component	CAS	IARC 1	IARC 2A	IARC 2B	IARC 3	IARC 4	NTP K	NTP RA
Chromium (III) Compounds	Not Available	No	No	No	Yes	No	No	No
Chromium (VI) compounds (certain water insoluble forms)	Not Available	Yes	No	No	No	No	Yes	No
Nickel compounds	Not Available	Yes	No	No	No	No	Yes	No
Iron oxide	1309-37-1	No	No	No	Yes	No	No	No
Vanadium pentoxide	1314-62-1	No	No	Yes	No	No	No	No
Silicon dioxide (amorphous) (related to Silica, amorphous)	69012-64-2	No	No	No	Yes	No	No	No

B: Formed Compound Carcinogenicity - ACGIH

Chromium (III) Compounds (Not Available)
ACGIH A4 - Not Classifiable as a Human Carcinogen

Chromium (VI) compounds- water soluble (Not Available)
ACGIH A1 - Confirmed Human Carcinogen

Chromium (VI) compounds (certain water insoluble forms) (Not Available)
ACGIH A1 - Confirmed Human Carcinogen

Nickel insoluble compounds (Not Available)
ACGIH A1 - Confirmed Human Carcinogen

Iron oxide (1309-37-1)
ACGIH A4 - Not Classifiable as a Human Carcinogen

Vanadium pentoxide (1314-62-1)
ACGIH A4 - Not Classifiable as a Human Carcinogen (dust and fume)

Aluminum oxide (1344-28-1)
ACGIH A4 - Not Classifiable as a Human Carcinogen

C: Formed Compound References

Chromium (III) Compounds (Not Available)
IARC Monograph 49 [1990] (listed under Chromium and Chromium compounds), Supplement 7 [1987]

Chromium (VI) compounds (certain water insoluble forms) (Not Available)
IARC Monograph 49 [1990] (evaluated as a group)

Chromium (VI) (18540-29-9)
IARC Monograph 49 [1990] (evaluated as a group)

Nickel compounds (Not Available)
IARC Monograph 49 [1990] (evaluated as a group)

Iron oxide (1309-37-1)
IARC Supplement 7 [1987], Monograph 1 [1972]

Vanadium pentoxide (1314-62-1)
IARC Monograph 86 [2006]

Silicon dioxide (amorphous) (69012-64-2)
IARC Monograph 68 [1997], Supplement 7 [1987] (related to Silica, amorphous)

Descriptions of IARC and NTP Classifications

IARC 1: The agent is carcinogenic to humans. There is sufficient evidence that a causal relationship existed between exposure to the agent and human cancer.

IARC 2A: The agent is probably carcinogenic to humans. Generally includes agents for which there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.

IARC 2B: The agent is possibly carcinogenic to humans. Generally includes agents for which there is limited evidence in humans and less than sufficient evidence in experimental animals.

IARC 3: The agent is not classifiable as to its carcinogenicity to humans. Generally includes agents for which there is inadequate evidence in humans and inadequate or limited evidence in experimental animals.

IARC 4: The agent is probably not carcinogenic to humans. Generally includes agents for which there is evidence suggesting lack of carcinogenicity in humans and in experimental animals.

NTP K: Known to be a human carcinogen.

NTP RA: Reasonably anticipated to be a human carcinogen.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information No information available for product.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Cobalt (7440-48-4) 96 Hr LC50 Brachydanio rerio: >100 mg/L [static]

Nickel (7440-02-0)
96 Hr LC50 Oncorhynchus mykiss: 31.7 mg/L (adult); 96 Hr LC50 Pimephales promelas: 3.1 mg/L; 96 Hr LC50 Brachydanio rerio: >100 mg/L
72 Hr EC50 freshwater algae (4 species): 0.1 mg/L; 72 Hr EC50 Selenastrum capricornutum: 0.18 mg/L
96 Hr EC50 water flea: 510 µg/L
Iron (7439-89-6) 96 Hr LC50 Morone saxatilis: 13.6 mg/L [static]

Environmental Fate No information available for product.

* * * Section 13 - Disposal Considerations * * *

Disposal Instructions Reuse or recycle material whenever possible.
US EPA Waste Number & Descriptions
A: General Product Information
If reuse or recycle is not possible, then characterize in accordance with applicable regulations (40 CFR 261 or state equivalent in the U.S.) prior to disposal. TCLP testing is recommended for chromium.
B: Component Waste Numbers
RCRA waste codes other than described under Section A may apply depending on use of product. Refer to 40 CFR 261 or state equivalent in the U.S.

* * * Section 14 - Transportation Information * * *

Special Transportation

	PSN #1	PSN #2	PSN #3	PSN #4
Notes:	(1)			
UN NA Number:	-			
Proper Shipping Name:	Not regulated			
Hazard Class:	-			
Packing Group:	-			
RQ:	-			
Other - Tech Name:	-			
Other - Marine Pollutant:	-			

Notes:
(1) When "Not regulated," enter the proper freight classification, "MSDS Number," and "Product Name" on the shipping paperwork.

Canadian Controlled Products Regulation PIN:	Not regulated

* * * Section 15 - Regulatory Information * * *

US Federal Regulations
A: General Product Information
In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals.
B: Component Analysis
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).
Cobalt (7440-48-4)
SARA 313: 0.1 % de minimis concentration
Chromium (7440-47-3)
SARA 313: 1.0 % de minimis concentration
CERCLA: 5000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 2270 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

Nickel (7440-02-0)
SARA 313: 0.1 % de minimis concentration
CERCLA: 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is larger than 100 micrometers)

Vanadium (7440-62-2)
SARA 313: 1.0 % de minimis concentration (except when contained in an alloy)

Manganese (7439-96-5)
SARA 313: 1.0 % de minimis concentration

Aluminum (7429-90-5)
SARA 313: 1.0 % de minimis concentration (dust or fume only)

SARA 311/312 Physical and Health Hazard Categories:

Immediate (acute) Health Hazard:	Yes, if particulates/fumes generated during processing
Delayed (chronic) Health Hazard:	Yes, if particulates/fumes generated during processing
Fire Hazard:	No
Sudden Release of Pressure:	No
Reactive:	No

State Regulations

A: General Product Information PENNSYLVANIA "Special Hazardous Substance": Chromium, Nickel
Chemical(s) known to the State of California to cause cancer: Chromium (hexavalent compounds), Cobalt metal powder, Nickel (metallic) and nickel compounds

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Cobalt	7440-48-4	Yes	No	Yes	Yes	Yes	Yes
Chromium	7440-47-3	Yes	No	Yes	Yes	Yes	Yes
Nickel	7440-02-0	Yes	No	Yes	Yes	Yes	Yes
Tungsten	7440-33-7	Yes	No	Yes	Yes	Yes	Yes
Iron	7439-89-6	Yes	No	No	No	No	No
Molybdenum	7439-98-7	Yes	No	Yes	Yes	Yes	Yes
Tantalum	7440-25-7	Yes	No	Yes	Yes	Yes	Yes
Vanadium	7440-62-2	Yes	No	Yes	No	Yes	Yes
Manganese	7439-96-5	Yes	No	Yes	Yes	Yes	Yes
Aluminum	7429-90-5	Yes	No	Yes	Yes	Yes	Yes
Silicon	7440-21-3	No	No	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer.

Other Regulations

A: General Product Information Material meets the criteria for inclusion in WHMIS Class D2A.

B: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Cobalt	7440-48-4	0.1 %
Chromium	7440-47-3	0.1 %
Nickel	7440-02-0	0.1 %
Tungsten	7440-33-7	1 %
Molybdenum	7439-98-7	1 %
Tantalum	7440-25-7	1 %
Vanadium	7440-62-2	1 %
Manganese	7439-96-5	1 %
Aluminum	7429-90-5	1 %

C: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	EINECS	AUST.	MITI
Cobalt	7440-48-4	Yes	Yes	Yes	Yes	No
Chromium	7440-47-3	Yes	Yes	Yes	Yes	No
Nickel	7440-02-0	Yes	Yes	Yes	Yes	No
Tungsten	7440-33-7	Yes	Yes	Yes	Yes	No
Iron	7439-89-6	Yes	Yes	Yes	Yes	No
Molybdenum	7439-98-7	Yes	Yes	Yes	Yes	No
Tantalum	7440-25-7	Yes	Yes	Yes	Yes	No
Vanadium	7440-62-2	Yes	Yes	Yes	Yes	No
Manganese	7439-96-5	Yes	Yes	Yes	Yes	No
Aluminum	7429-90-5	Yes	Yes	Yes	Yes	No
Niobium	7440-03-1	Yes	Yes	Yes	Yes	No
Silicon	7440-21-3	Yes	Yes	Yes	Yes	No
Carbon	7440-44-0	Yes	Yes	Yes	Yes	No

Inventory information

MITI Inventory: Pure metals are not specifically listed by CAS or MITI number on the MITI Inventory. However, the class of compounds for each of these metals is listed.

* * * Section 16 - Other Information * * *

MSDS History

Original: June 18, 2001
Supersedes: October 11, 2004
Revised: April 22, 2008

MSDS Status

04/22/2008: Reviewed on a periodic basis in accordance with Alcoa policy. Changes in Sections 1, 2, 3, 4, 5, 8, 11, 12, 13, 14 & 15.
10/11/2004: Combined with Alcoa MSDS #'s 1148 and 1149. Changes in Sections 1, 2, 3, 8 and 15. Covers some products formerly on Howmet MSDSs 201, 202, 203, 204, 205, 206 and 504.
06/18/2001: New MSDS; covers some products formerly on Howmet MSDS 201.

Prepared By

Hazardous Materials Control Committee
Preparer: Stephanie Williams, 412-553-1479/Jon N. Peace, 412-553-2293

MSDS System Number

159242

Other Information

***** Guide to Occupational Exposure Values-2007, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
***** Documentation of the Threshold Limit Values and Biological Exposure Indices, Sixth Edition, 1991, Compiled by the American Conference of Governmental Industrial Hygienists, Inc. (ACGIH).
***** NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, February 2004.
***** Patty's Industrial Hygiene and Toxicology: Volume II: Toxicology, 4th ed., 1994, Patty, F. A.; edited by Clayton, G. D. and Clayton, F. E.: New York: John Wiley & Sons, Inc.
***** expub, www.expub.com, Expert Publishing, LLC.

Key-Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
EPA	Environmental Protection Act
IARC	International Agency for Research on Cancer
LC_{50}	Lethal concentration (50 percent kill)
LC_{Lo}	Lowest published lethal concentration
LD_{50}	Lethal dose (50 percent kill)
LD_{Lo}	Lowest published lethal dose
LFL	Lower Flammable Limit
MITI	Ministry of International Trade & Industry
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NORM	Naturally Occurring Radioactive Materials
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PIN	Product Identification Number
PSN	Proper Shipping Name
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
UFL	Upper Flammable Limit
WHMIS	Workplace Hazardous Materials Information System
atm	atmosphere
cm	centimeter
g, gm	gram
in	inch
kg	kilogram
lb	pound
m	meter
mg	milligram
ml, ML	milliliter
mm	millimeter
mppcf	million particles per cubic foot
n.o.s.	not otherwise specified
ppb	parts per billion
ppm	parts per million
psia	pounds per square inch absolute
u	micron
ug	microgram

INFORMATION HEREIN IS GIVEN IN GOOD FAITH AS AUTHORITATIVE AND VALID; HOWEVER, NO WARRANTY, EXPRESS OR IMPLIED, CAN BE MADE.

This is the end of MSDS # 1147

COBALT-BASED ALLOYS

⚠ WARNING

Physical Hazards: Non-combustible as supplied. Dust and fines from processing may be ignitable. Explosion/fire hazards may be present when (1) molten metal is in contact with water or moisture or (2) heavily concentrated dust clouds are dispersed in air.

Health Hazards: Health effects generally expected in cases of overexposures:

EYES: Dust or fume from processing: Can cause irritation.

SKIN: Dust or fume from processing: Can cause irritation, sensitization and allergic contact dermatitis.

INHALATION: Health effects from mechanical processing (e.g., cutting, grinding): Can cause upper respiratory tract irritation. **Chronic overexposures:** Can cause asthma, respiratory sensitization, scarring of the lungs (pulmonary fibrosis), central nervous system damage, secondary Parkinson's disease and reproductive harm in males. Additional health effects from elevated temperature processing (e.g., welding, melting): **Acute overexposures:** Can cause nausea, fever, chills, shortness of breath and malaise (metal fume fever). **Chronic overexposures:** Can cause the accumulation of fluid in the lungs (pulmonary edema) and lung cancer.

WARNING: Cobalt metal powder, Chromium (hexavalent compounds) and nickel (metallic) and nickel compounds are chemicals known to the State of California to cause cancer (Proposition 65).

Precautions: Avoid generating dust. Use with adequate ventilation. Keep material dry. Use appropriate personal protective equipment (safety glasses/gloves) to avoid injury. Use appropriate NIOSH approved respiratory protection (N95) if concentrations exceed the permissible limits.

First Aid (dust or fume from processing): EYES: Flush eyes with plenty of water or saline for at least 15 minutes. Consult a physician. SKIN: Wash skin with soap and water for at least 15 minutes. Consult a physician if irritation persists. INHALATION: Remove to fresh air. If unconscious or severely injured, check for clear airway, breathing and presence of pulse. Perform CPR if there is no pulse or respiration. Consult a physician.

In case of fire: Use a Class D agent, fluxing salts, graphite or dry sand on dust or fine fires. Otherwise, use fire fighting methods and materials that are appropriate for surrounding fire. Do NOT use water around molten metal. This will react with the burning material.

Read Alcoa Material Safety Data Sheet No. 1147 for more information about use and disposal.

Emergency Phone: (412) 553-4001.

INGREDIENTS:	CAS No:	INGREDIENTS:	CAS No:
Cobalt	(7440-48-4)	Vanadium	(7440-62-2)
Chromium	(7440-47-3)	Manganese	(7439-96-5)
Nickel	(7440-02-0)	Aluminum	(7429-90-5)
Tungsten	(7440-33-7)	Niobium	(7440-03-1)
Iron	(7439-89-6)	Silicon	(7440-21-3)
Molybdenum	(7439-98-7)	Carbon	(7440-44-0)
Tantalum	(7440-25-7)		

Alcoa Inc.
201 Isabella Street, Pittsburgh, PA 15212-5858 USA

ALCOA

4/08 1147

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ERROR: undefined
OFFENDING COMMAND: get

STACK:

/quit
-dictionary-
-mark-
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SAFETY DATA SHEET

Version 4.8
Revision Date 12/01/2015
Print Date 05/13/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Cumene

Product Number : 36698
Brand : Sigma-Aldrich
Index-No. : 601-024-00-X

CAS-No. : 98-82-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Isopropylbenzene
Formula	:	C_9H_{12}
Molecular weight	:	120.19 g/mol
CAS-No.	:	98-82-8
EC-No.	:	202-704-5
Index-No.	:	601-024-00-X

Hazardous components

Component	Classification	Concentration
Cumene		
	Flam. Liq. 3; Carc. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 2; Aquatic Chronic 2; H226, H304, H335, H351, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cumene	98-82-8	TWA	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Skin irritation		
		TWA	50.000000 ppm 245.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		
		TWA	50.000000 ppm 245.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -96 °C (-141 °F) - lit.
f)	Initial boiling point and boiling range	152 - 154 °C (306 - 309 °F) - lit.
g)	Flash point	31.0 °C (87.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 6.5 %(V) Lower explosion limit: 0.9 %(V)
k)	Vapour pressure	10.7 hPa (8.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.864 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.06 g/l at 25 °C (77 °F) - slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.55 at 23 °C (73 °F)
p)	Auto-ignition temperature	425.0 °C (797.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	27.69 mN/m at 25 °C (77 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 2,260 mg/kg

Inhalation: No data available

Dermal: No data available

NOAEL Feed - Rat - male - > 535.8 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
- Guinea pig
Result: Did not cause sensitisation on laboratory animals.
(OECD Test Guideline 406)

Germ cell mutagenicity
in vitro assay
S. typhimurium
Result: negative

Mutagenicity (micronucleus test)
Mouse - male and female
Result: negative

Carcinogenicity

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Cumene)
NTP:	Reasonably anticipated to be a human carcinogen (Cumene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: GR8575000

narcosis, Central nervous system depression, Dermatitis, Gastrointestinal disturbance, Damage to the lungs., Liver injury may occur., Kidney injury may occur.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 4.8 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia (water flea) - 2.14 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 2.60 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability Result: - According to the results of tests of biodegradability this product is not readily biodegradable.

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1918 Class: 3 Packing group: III
Proper shipping name: Isopropylbenzene
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1918 Class: 3 Packing group: III EMS-No: F-E, S-E
Proper shipping name: ISOPROPYLBENZENE
Marine pollutant:yes
IATA

UN number: 1918 Class: 3 Packing group: III
Proper shipping name: Isopropylbenzene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Cumene	98-82-8	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Cumene	98-82-8	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Cumene	98-82-8	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Cumene	98-82-8	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Cumene	98-82-8	2010-06-11

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Carc.	Carcinogenicity
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.8 Revision Date: 12/01/2015 Print Date: 05/13/2016

Click **http://www.guidechem.com/cas-57/57-12-5.html** for suppliers of this product

Cyanide (cas 57-12-5) MSDS

MSDS : Cyanide

CAS : 57-12-5

SYNONYMS : * Carbon nitride ion (CN(sup 1-))

* Cyanide(1-)

* Cyanide, dry (UN1588)

* Cyanide anion

* Cyanide (CN(sup 1-))

* Cyanide ion

* Cyanide(1-) ion

* Cyanure

* Isocyanide

* RCRA waste number P030

Catalog of Chemical Suppliers, Buyers, Custom Synthesis Companies And Equipment Manufacturers
[Cyanide 57-12-5]

*** CHEMICAL IDENTIFICATION ***

RTECS NUMBER : GS7175000

CHEMICAL NAME : Cyanide

CAS REGISTRY NUMBER : 57-12-5

BEILSTEIN REFERENCE NO. : 1900509

LAST UPDATED : 199710

DATA ITEMS CITED : 31

MOLECULAR FORMULA : C-N

MOLECULAR WEIGHT : 26.02

WISWESSER LINE NOTATION : H CN

SYNONYMS/TRADE NAMES :

* Carbon nitride ion (CN(sup 1-))

* Cyanide(1-)

* Cyanide, dry (UN1588)

* Cyanide anion

* Cyanide (CN(sup 1-))

* Cyanide ion

* Cyanide(1-) ion

* Cyanure

* Isocyanide

* RCRA waste number P030

*** HEALTH HAZARD DATA ***

** ACUTE TOXICITY DATA **

TYPE OF TEST : LD50 - Lethal dose, 50 percent kill

ROUTE OF EXPOSURE : Intraperitoneal

SPECIES OBSERVED : Rodent - mouse

DOSE/DURATION : 3 mg/kg

TOXIC EFFECTS :

Behavioral - tremor

Behavioral - convulsions or effect on seizure threshold

Lungs, Thorax, or Respiration - dyspnea

REFERENCE :

NATUAS Nature. (Nature Subscription Dept., POB 1018, Manasguan, NJ 08736) V.1- 1869- Volume(issue)/page/year: 228,1315,1970

*** REVIEWS ***

TOXICOLOGY REVIEW

CLCHAU Clinical Chemistry (Winston-Salem, NC). (American Assoc. for Clinical Chemistry, 1725 K St., NW, Washington, DC 20006) V.1- 1955- Volume(issue)/page/year: 19,361,1973

*** U.S. STANDARDS AND REGULATIONS ***

MSHA STANDARD-air:TWA 5 mg/m3 (skin)

DTLVS* The Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs) booklet issues by American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, OH, 1996 Volume(issue)/page/year: 3,64,1971

OSHA PEL (Gen Indu):8H TWA 5 mg(CN)/m3

CFRGBR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 29,1910.1000,1994

OSHA PEL (Construc):8H TWA 5 mg(CN)/m3

CFRGBR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 29,1926.55,1994

OSHA PEL (Shipyard):8H TWA 5 mg(CN)/m3

CFRGBR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 29,1915.1000,1993

OSHA PEL (Fed Cont):8H TWA 5 mg(CN)/m3

CFRGBR Code of Federal Regulations. (U.S. Government Printing Office, Supt. of Documents, Washington, DC 20402) Volume(issue)/page/year: 41,50-204.50,1994

*** OCCUPATIONAL EXPOSURE LIMITS ***

OEL-ARAB Republic of Egypt:TWA 5 mg/m3;Skin JAN 1993

OEL-AUSTRALIA:TWA 5 mg/m3;Skin JAN 1993

OEL-AUSTRIA:TWA 5 mg/m3;Skin JAN 1993

OEL-DENMARK:TWA 5 mg/m3;Skin JAN 1993

OEL-FINLAND:TWA 5 mg/m3;STEL 10 mg/m3 JAN 1993

OEL-FRANCE:TWA 5 mg/m3;Skin JAN 1993

OEL-GERMANY:TWA 5 mg/m3;Skin JAN 1993

OEL-HUNGARY:TWA 0.3 mg/m3;STEL 0.6 mg/m3;Skin JAN 1993

OEL-INDIA:TWA 4 mg/m3;Skin JAN 1993

OEL-THE NETHERLANDS:TWA 5 mg/m3;Skin JAN 1993

OEL-THE PHILIPPINES:TWA 5 mg/m3;Skin JAN 1993

OEL-POLAND:TWA 0.3 mg/m3 JAN 1993

OEL-SWEDEN:STEL 5 mg/m3;Skin JAN 1993

OEL-SWITZERLAND:TWA 5 mg/m3;STEL 10 mg/m3;Skin JAN 1993

OEL-THAILAND:TWA 5 mg/m3 JAN 1993

OEL-UNITED KINGDOM:TWA 5 mg/m3;Skin JAN 1993

*** NIOSH STANDARDS DEVELOPMENT AND SURVEILLANCE DATA ***

NIOSH RECOMMENDED EXPOSURE LEVEL (REL) :

NIOSH REL TO CYANIDE-air:CL 4.7 ppm(CN)/10M

REFERENCE :

NIOSH* National Institute for Occupational Safety and Health, U.S. Dept. of Health, Education, and Welfare, Reports and Memoranda.

Volume(issue)/page/year: DHHS #92-100,1992

NIOSH OCCUPATIONAL EXPOSURE SURVEY DATA :

NOES - National Occupational Exposure Survey (1983)

NOES Hazard Code - X3010

No. of Facilities: 8 (estimated)

No. of Industries: 1

No. of Occupations: 1

No. of Employees: 367 (estimated)

No. of Female Employees: 120 (estimated)

*** STATUS IN U.S. ***

ATSDR TOXICOLOGY PROFILE

NTIS** National Technical Information Service. (Springfield, VA 22161)

Formerly U.S. Clearinghouse for Scientific & Technical Information.

Volume(issue)/page/year: PB/90/162058/AS

EPA TSCA Section 8(b) CHEMICAL INVENTORY

EPA TSCA Section 8(d) unpublished health/safety studies

On EPA IRIS database

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1998

OSHA ANALYTICAL METHOD #ID-120

*** END OF RECORD ***

SAFETY DATA SHEET

Version 5.8
Revision Date 03/07/2015
Print Date 02/23/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Cyclohexane

Product Number : 320633
Brand : Aldrich
Index-No. : 601-017-00-1

CAS-No. : 110-82-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6H_{12}
Molecular weight	:	84.16 g/mol
CAS-No.	:	110-82-7
EC-No.	:	203-806-2
Index-No.	:	601-017-00-1

Hazardous components

Component	Classification	Concentration
Cyclohexane		
	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; H225, H304, H315, H336, H400	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cyclohexane	110-82-7	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment		
		TWA	300.000000 ppm 1,050.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	300.000000 ppm 1,050.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 35 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 4 - 7 °C (39 - 45 °F) - lit.
f)	Initial boiling point and boiling range	80.7 °C (177.3 °F) - lit.
g)	Flash point	-17.99 °C (-0.38 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 9 %(V) Lower explosion limit: 1 %(V)
k)	Vapour pressure	225.0 hPa (168.8 mmHg) at 37.7 °C (99.9 °F) 102.7 hPa (77.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.779 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.44
p)	Auto-ignition temperature	260.0 °C (500.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 12,705 mg/kg

LC50 Inhalation - Rat - 4 h - 34,000 mg/l
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: GU6300000

Central nervous system depression, Drowsiness, Irritability, Dizziness, Gastrointestinal disturbance, Lung irritation, chest pain, pulmonary edema

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 4.53 mg/l -

	96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 0.9 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 3.4 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability Result: - Readily biodegradable

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 1145 Class: 3 Packing group: II
Proper shipping name: Cyclohexane
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1145 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: CYCLOHEXANE
Marine pollutant:yes

IATA

UN number: 1145 Class: 3 Packing group: II
Proper shipping name: Cyclohexane

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Cyclohexane	110-82-7	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
Skin Irrit.	Skin irritation
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/07/2015 Print Date: 02/23/2016

Chem Service Inc. Material Safety Data Sheet

Last Revised On: **11/3/2011**

SECTION 1 - CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Catalog Number: S-10875M1
Description: 4,4'-DDE
Product is: Solution
Other Name(s): 1,1-Dichloro-2,2-bis[p-chlorophenyl]ethylene/p,p'-DDE/1,1 -(Dichloroethenylidene)bis[4-chlorobenzene]
Supplied by CHEM SERVICE, Inc. PO BOX 599, WEST CHESTER, PA 19381 (610)-692-3026
EMERGENCY PHONE: 1-610-692-3026

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS

CAS No.: 72-55-9
Description: 4,4'-DDE Solution
Concentration: 100ug/mL in Methanol
EINECS No.: 200-784-6
Hazard Symbols: XN

SECTION 3 - HAZARDS IDENTIFICATION

Contact lenses should not be worn in the laboratory. All chemicals should be considered hazardous - Avoid direct physical contact!

For the solvent: Methanol

Health Risks: May be fatal if absorbed through the skin! Repeated exposure to vapors and/or dust can cause eye injury. May be fatal if inhaled! Can cause cardiovascular system injury. Exposure can cause liver damage. Exposure can cause kidney damage. May be fatal or cause blindness if swallowed. Can cause gastro-intestinal disturbances. Can cause convulsions.

Property 65: Data Not Available

SECTION 4 - FIRST AID MEASURES

An antidote is a substance intended to counteract the effect of a poison. It should be administered only by a physician or trained emergency personnel. Medical advice can be obtained from a POISON CONTROL CENTER.

For the solvent: Methanol
First Aid: In case of contact: Flush eyes continuously with water for 15-20 minutes. Flush skin with water for 15-20 minutes. If patient has stopped breathing administer artificial respiration. If patient is in cardiac arrest administer CPR. Continue life supporting measures until medical assistance has arrived. Do not wear shoes or clothing until absolutely free of all chemical odors. Get medical attention if necessary. If no burns have occurred-use soap and water to cleanse skin. If inhaled remove patient to fresh air. Administer oxygen if patient is having difficulty breathing. If swallowed do not induce vomiting.

SECTION 5 - FIRE AND EXPLOSION DATA
For the solvent: Methanol

Flash Point: 11°C This is a flammable chemical.
Extinguishing Media: Carbon dioxide or dry chemical powder. DO NOT USE WATER!
Upper Explosion Limit: 36%
Lower Explosion Limit: 6.0%
Autoignition Temperature: 464°C

NFPA Scale: 0 - Least, 1 - Slight, 2 - Moderate, 3 - High, 4 - Severe
NFPA Hazard Rating: Health: 1. Reactivity: 0. Flammability: 3. Special: No Data.

SECTION 6 - ACCIDENTAL RELEASE MEASURES
Spills or Leaks: Evacuate area. Wear appropriate OSHA regulated equipment. Ventilate area. Absorb on vermiculite or similar material. Sweep up and place in an appropriate container. Hold for disposal.

Wash contaminated surfaces to remove any residue.
Remove contaminated clothing and wash before reuse.

SECTION 7 - HANDLING AND STORAGE
Handling: This chemical should be handled only in a hood. Eye shields should be worn. Use appropriate OSHA/MSHA approved safety equipment. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation. Wash thoroughly after handling.

Storage:
Store in a cool dry place. Store only with compatible chemicals.
Keep tightly closed.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION
For the solvent: Methanol

OSHA PEL (TWA):	200 ppm (260 mg/m3)
ACGIH TLV (TWA):	200 ppm (262 mg/m3)
ACGIH TLV (STEL):	Data Not Available

<u>Personal Protective Equipment</u>
Eyes: Wear Safety Glasses.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 requirements must be followed whenever workplace conditions warrant a respirators use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES
For the solvent: Methanol

Color:	Colorless
Phase:	Liquid
Melting Point:	-98°C
Boiling Point:	64.6°C
Specific Gravity:	0.791g/mL
Vapor Density:	1.11
Vapor Pressure:	130.3 hPa @ 20°C
Solubility in Water:	Completely miscible.
Odor:	Data Not Available

Evaporation Rate (Butyl acetate=1): Data Not Available

Molecular Weight: 32.05
Molecular Formula: CH4O

SECTION 10 - STABILITY AND REACTIVITY
For the solvent: Methanol

Reacts with Acid halides and anhydrides. Flammable. Incompatible with strong acids. Incompatible with strong reducing agents. Incompatible with strong oxidizing agents. Decomposition liberates toxic fumes. Hygroscopic. Incompatible with active metals (e.g. Sodium).

SECTION 11 - TOXICOLOGY INFORMATION
The primary hazards for this solution are predominantly from the solvent.

For the solvent: Methanol

RTECS: PC1400000
Oral Rat or Mouse LD50: 5628 mg/kg
Dermal Rat or Mouse LD50: N/A mg/kg
Rat or Mouse LC50 : 64000 ppm/8H
Carcinogenicity
OSHA: NO
IARC: NO
NTP: NO
ACGIH: NO
NIOSH: NO
Other: NO

Property 65: Data Not Available

SECTION 12 - ECOLOGICAL INFORMATION
Ecotoxicity: Not Available
Environmental Fate: Not Available

SECTION 13 - DISPOSAL CONSIDERATIONS
Disposal: Dispose in accordance with Federal, State and Local regulations.

SECTION 14 - TRANSPORTATION INFORMATION
For the solvent: Methanol

UN Number: UN1230
Class: 3
Packing Group: II
Proper Shipping Name: Methanol

SECTION 15 - REGULATORY INFORMATION
For the solvent: Methanol

European Labeling in Accordance with EC Directives
Hazard Symbols: T F
Risk Phrases
R11 Highly Flammable.
R23/25 Toxic by inhalation and if swallowed.

Safety Phrases
S16 Keep away from sources of ignition- No smoking.
S2 Keep out of reach of children.

S24	Avoid contact with the skin.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
S7	Keep container tightly closed

SECTION 16 - OTHER INFORMATION

The above information is believed to be correct on the date it was last revised and must not be considered all inclusive. The information has been obtained only by a search of available literature and is only a guide for handling the chemicals. OSHA regulations require that if other hazards become evident, an upgraded MSDS must be made available to the employee within three months. RESPONSIBILITY for updates lies with the employer and not with
CHEM SERVICE, Inc.

Persons not specifically and properly trained should not handle this chemical or its container. This product is furnished FOR LABORATORY USE ONLY! Our products may NOT BE USED as drugs, cosmetics, agricultural or pesticide products, food additives or as household chemicals.
This Material Safety Data Sheet (MSDS) is intended only for use with Chem Service, Inc. products and should not be relied on for use with materials from any other supplier even if the chemical name(s) on the product are identical! Whenever using an MSDS for a solution or mixture the user should refer to the MSDS for every component of the solution or mixture. Chem Service warrants that this MSDS is based upon the most current information available to Chem Service at the time it was last revised. THIS WARRANTY IS EXCLUSIVE, AND CHEM SERVICE, INC. MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. This MSDS is provided gratis and CHEM SERVICE, INC. SHALL NOT BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR CONTINGENT DAMAGES.
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Safety data for dibenz(a,h)anthracene



Glossary of terms on this data sheet.

The information on this web page is provided to help you to work safely, but it is intended to be an overview of hazards, not a replacement for a full Material Safety Data Sheet (MSDS). MSDS forms can be downloaded from the web sites of many chemical suppliers.

General

Synonyms: 1,2:5,6-benzanthracene, 1,2:5,6-dibenzanthracene, dibenzo(a,h) anthracene, DBA, 1,2,5,6-DBA
Use: a common pollutant in smoke and used oils
Molecular formula: $C_{22}H_{14}$
CAS No: 53-70-3
EINECS No: 200-181-8
Annex I Index. No: 601-041-00-2

Physical data

Appearance: white to light yellow crystalline solid
Melting point: 266 - 267 C
Boiling point: 524 C
Vapour density:
Vapour pressure:
Density (g cm^{-3}): 1.28
Flash point:
Explosion limits:
Autoignition temperature:
Water solubility:

Stability

Stable. Combustible. Incompatible with strong oxidizing agents.

Toxicology

Harmful if swallowed or inhaled. Experimental carcinogen, tumorigen and neoplastigen. IARC probable human carcinogen.

Toxicity data

(The meaning of any toxicological abbreviations which appear in this section is given here.)

IVN-MUS LDLO 10 mg kg^{-1}

Risk phrases

(The meaning of any risk phrases which appear in this section is given here.)

R45 R50 R53.

Environmental information

Harmful in the environment - may cause long-term damage.

Transport information

(The meaning of any UN hazard codes which appear in this section is given here.)

Non-hazardous for air, sea and road freight.

Personal protection

Safety glasses, gloves, good ventilation. Handle as a possible carcinogen.

Safety phrases

(The meaning of any safety phrases which appear in this section is given here.)

S45 S53 S60 S61.

[Return to Physical & Theoretical Chemistry Lab. Safety home page.]

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SAFETY DATA SHEET

Version 3.11
Revision Date 03/03/2015
Print Date 05/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dibutyl phthalate

Product Number : 152439
Brand : Aldrich
Index-No. : 607-318-00-4

CAS-No. : 84-74-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360
Acute aquatic toxicity (Category 1), H400

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	n-Butyl phthalate Phthalic acid dibutyl ester DBP
Formula	:	$C_{16}H_{22}O_4$
Molecular weight	:	278.34 g/mol
CAS-No.	:	84-74-2
EC-No.	:	201-557-4
Index-No.	:	607-318-00-4
Registration number	:	01-2119493042-44-XXXX

Hazardous components

Component	Classification	Concentration
Dibutyl phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; Aquatic Acute 1; H360, H400	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Dibutyl phthalate	84-74-2	TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Testicular damage		
		TWA	5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation Testicular damage		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 120 min
Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -35 °C (-31 °F) - lit.
f)	Initial boiling point and boiling range	340 °C (644 °F) - lit.
g)	Flash point	171.0 °C (339.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Lower explosion limit: 0.47 %(V)

	flammability or explosive limits	
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 147.0 °C (296.6 °F)
l)	Vapour density	No data available
m)	Relative density	1.043 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.0114 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	402.0 °C (755.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	18.8 mm2/s at 20 °C (68 °F) -
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Nitrates, Bases, acids, Chlorine

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 8,000 mg/kg

LC50 Inhalation - Rat - 4,250 mg/m3

LD50 Dermal - Rabbit - > 20,860 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Presumed human reproductive toxicant

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: TI0875000

Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Central nervous system -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.85 mg/l - 96.0 h
	NOEC - Pimephales promelas (fathead minnow) - 0.32 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 3.7 mg/l - 48 h

12.2 Persistence and degradability

Biodegradability	Result: 81 % - Readily biodegradable (C.4-C of the COUNCIL REGULATION (EC) No 440/2008)

12.3 Bioaccumulative potential

Bioaccumulation	Pimephales promelas (fathead minnow) - 11 d - 0.0348 mg/l Bioconcentration factor (BCF): 2,165 Remarks: Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)
Reportable Quantity (RQ): 10 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG

UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dibutyl phthalate)
Marine pollutant:yes

IATA

UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Dibutyl phthalate)

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

SARA 311/312 Hazards

Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dibutyl phthalate	84-74-2	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	84-74-2	2008-06-17
Dibutyl phthalate		

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
H360	May damage fertility or the unborn child.
H400	Very toxic to aquatic life.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.11 Revision Date: 03/03/2015 Print Date: 05/01/2016

SAFETY DATA SHEET

Halocarbon R-12 (Dichlorodifluoromethane)

Section 1. Identification

GHS product identifier : Halocarbon R-12 (Dichlorodifluoromethane)

Chemical name : dichlorodifluoromethane

Other means of identification : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

Product use : Synthetic/Analytical chemistry.

Synonym : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

SDS # : 001018

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Liquefied gas
HAZARDOUS TO THE OZONE LAYER - Category 1

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.
Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Refer to manufacturer/supplier for information on recovery/recycling.

Powered by IHS

Section 2. Hazards identification

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : dichlorodifluoromethane

Other means of identification : ASPEN R-12, Methane, dichlorodifluoro-; Refrigerant 12; Propellant 12; Halon 122; Genetron 12; Freon 12; Fluorocarbon 12; Difluorodichloromethane; DICHLORODIFLUOROMETHANE (FC 12); CFC-12

CAS number/other identifiers

CAS number : 75-71-8

Product code : 001018

Ingredient name	%	CAS number
Methane, dichlorodifluoro-	100	75-71-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

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Section 4. First aid measures

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
frostbite

Ingestion : Adverse symptoms may include the following:
frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
halogenated compounds
carbonyl halides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

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Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Avoid release to the environment. Refer to special instructions/safety data sheet. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

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Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Methane, dichlorodifluoro-	**ACGIH TLV (United States, 3/2012).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **NIOSH REL (United States, 1/2013).** TWA: 4950 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 6/2010).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 4950 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Liquefied gas]

Color : Colorless.

Molecular weight : 120.91 g/mole

Molecular formula : C-Cl2-F2

Boiling/condensation point : -29.8°C (-21.6°F)

Melting/freezing point : -158°C (-252.4°F)

Critical temperature : 111.85°C (233.3°F)

Odor : Characteristic.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 84.9 (psia)

Vapor density : 4.2 (Air = 1)

Specific Volume (ft^3/lb) : 3.1746

Gas Density (lb/ft^3) : 0.315

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 0.3 g/l

Partition coefficient: n-octanol/water : 2.16

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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Section 10. Stability and reactivity

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
frostbite

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Section 11. Toxicological information

Ingestion : Adverse symptoms may include the following:
frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Methane, dichlorodifluoro-	2.16	6.17	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

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Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Dichlorodifluoromethane; Methane, dichlorodifluoro-	75-71-8	Listed	U075

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1028	UN1028	UN1028	UN1028	UN1028
UN proper shipping name	DICHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE; OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE OR REFRIGERANT GAS R 12	DICHLORODIFLUOROMETHANE (REFRIGERANT GAS R 12)	DICHLORODIFLUOROMETHANE
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 5000 lbs / 2270 kg Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements. **Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg **Special provisions** T50	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft** Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

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Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

TSCA 12(b) annual export notification: dichlorodifluoromethane

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Methane, dichlorodifluoro-	100	No.	Yes.	No.	No.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	dichlorodifluoromethane	75-71-8	100
Supplier notification	dichlorodifluoromethane	75-71-8	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : This material is listed.

New York : This material is listed.

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Section 15. Regulatory information

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: This material is listed or exempted.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

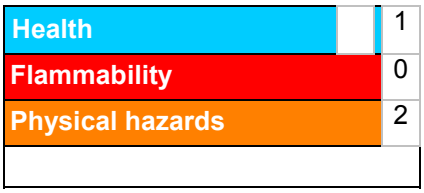
Canada

WHMIS (Canada) : Class A: Compressed gas.
CEPA Toxic substances: This material is listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 5/21/2015.

Date of issue/Date of revision : 5/21/2015.

Date of previous issue : 5/21/2015.

Version : 2

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Other special considerations : WARNING: Contains (Dichlorodifluoromethane), a substance which harms the public health and environment by destroying ozone in the upper atmosphere.

Notice to reader

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Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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MSDS SUMMARY SHEET

Manufacturer:
Name: PHILLIPS PETROLEUM COMPANY
Address 1:
Address 2:
Address 3:
CSZ: BARTLESVILLE **State:** OK **Zipcode:** 74004
Emergency phone: (800) 424-9300
Business phone: 800-762-0942

Product:

Ferndale MSDS#: 1354 **Version # :** 6
Manufacturer MSDS#: 0041
Current? : 2002
Name:

NO. 2 DIESEL FUEL

Synonyms:

CARB **Diesel** TF3
CARB **Diesel**
CARB **Diesel** 10%
Diesel Fuel Oil
EPA Low Sulfur **Diesel** Fuel
EPA Low Sulfur **Diesel** Fuel – Dyed
EPA Off Road High Sulfur **Diesel –** Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 **Diesel** Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur **Diesel** – Dyed
No. 2 Low Sulfur **Diesel** - Dyed
No. 2 Low Sulfur **Diesel** - Undyed
Crude column 3rd IR
Crude column 3rd side cut
Atmospheric tower 3rd side cut
Ultra Low Sulfur **Diesel** No. 2
Finished **Diesel**
DHT Reactor Feed
Straight Run **Diesel**
Diesel
Middle Distillate

Product/Catalog Numbers:
MSDS Date: 01/01/2002 **(received:** 01/14/2002**)**

NFPA codes:
Health: 0 **Flammability:** 2 **Reactivity:** 0

MATERIAL SAFETY DATA SHEET
No. 2 Diesel Fuel

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: No. 2 Diesel Fuel
Product Code: Multiple
SAP Code:
Synonyms: 1354
CARB Diesel TF3
CARB Diesel
CARB Diesel 10%
Diesel Fuel Oil
EPA Low Sulfur Diesel Fuel
EPA Low Sulfur Diesel Fuel – Dyed
EPA Off Road High Sulfur Diesel – Dyed
Fuel Oil No. 2 – CAS # 68476-30-2
No. 2 Diesel Fuel Oil
No. 2 Fuel Oil – Non Hiway – Dyed
No. 2 High Sulfur Diesel – Dyed
No. 2 Low Sulfur Diesel - Dyed
No. 2 Low Sulfur Diesel – Undyed
No. 2 Ultra Low Sulfur Diesel – Dyed
No. 2 Ultra Low Sulfur Diesel - Undyed
Intended Use: Fuel
Chemical Family:
Responsible Party: Phillip's Petroleum Company
Bartlesville, Oklahoma 74004
For Additional MSDSs: 800-762-0942
Technical Information:

The intended use of this product is indicated above. If any additional use is known, please contact us at the Technical Information number listed.

EMERGENCY OVERVIEW

24 Hour Emergency Telephone Numbers:
Spill, Leak, Fire or Accident
Call CHEMTREC
North America: (800) 424-9300
Others: (703) 527-3887 (collect)

California Poison Control System: 800-356-3120

Health Hazards/Precautionary Measures: Causes severe skin irritation. Aspiration hazard if swallowed. Can enter lungs and cause damage. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Wash thoroughly after handling.

Physical Hazards/Precautionary Measures: Flammable liquid and vapor. Keep away from heat, sparks, flames, static electricity or other sources of ignition.

Appearance: Straw-colored to dyed red
Physical Form: Liquid
Odor: Characteristic petroleum

HFPA Hazard Class:
Health: 0 (Least)
Flammability: 2 (Moderate)
Reactivity: 0 (Least)

HMIS Hazard Class
Not Evaluated

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS	% VOLUME		EXPOSURE GUIDELINE	
		Limits	Agency	Type
Diesel Fuel No. 2 CAS# 68476-34-6	100	100* mg/m3	ACGIH	TWA-SKIN
Naphthalene CAS# 91-20-3	<1	10ppm	ACGIH	TWA
		15ppm	ACGIH	STEL
		10ppm	OSHA	TWA
		250ppm	NIOSH	IDLH

All components are listed on the TSCA inventory

Tosco Low Sulfur No. 2 Diesel meets the specifications of 40 CFR 60.41 for low sulfur diesel fuel.

Note: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

*Proposed ACGIH (1999)

3. HAZARDS IDENTIFICATION

Potential Health Effects:

Eye: Contact may cause mild eye irritation including stinging, watering, and redness.

Skin: Severe skin irritant. Contact may cause redness, itching, burning, and severe skin damage. Prolonged or repeated contact can worsen irritation by causing drying and cracking of the skin, leading to dermatitis (inflammation). Not actually toxic by skin absorption, but prolonged or repeated skin contact may be harmful (see Section 11).

Inhalation (Breathing): No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

Ingestion (Swallowing): Low degree of toxicity by ingestion. ASPIRATION HAZARD – This material can enter lungs during swallowing or vomiting and cause lung inflammation and damage.

Signs and Symptoms: Effects of overexposure may include irritation of the nose and throat, irritation of the digestive tract, nausea, diarrhea and transient excitation followed by signs of nervous system depression (e.g., headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue).

Cancer: Possible skin cancer hazard (see Sections 11 and 14).

Target Organs: There is limited evidence from animal studies that overexposure may cause injury to the kidney (see Section 11).

Developmental: Inadequate data available for this material.

Pre-Existing Medical Conditions: Conditions aggravated by exposure may include skin disorders and kidney disorders.

4. FIRST AID MEASURES

Eye: If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

Skin: Immediately remove contaminated shoes, clothing, and constrictive jewelry and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek immediate medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops, seek immediate medical attention.

Inhalation (Breathing): If respiratory symptoms develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

Ingestion (Swallowing): Aspiration hazard; Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: >125°F/>52°
OSHA Flammability Class: Combustible liquid
LEL %: 0.3 / UEL %; 10.0
Autoignition Temperature: 500°F/260°C

Unusual Fire & Explosion Hazards: This material is flammable and can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, or mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

Extinguishing Media: Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

Fire Fighting Instructions: For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or confined spaces, or when explicitly required by DOT, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area, keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done with minimal risk. Avoid spreading burning liquid with water used for cooling purposes.

6. ACCIDENTAL RELEASE MEASURES

Flammable. Keep all sources of ignition and hot metal surfaces away from spill/release. The use of explosion-proof equipment is recommended.

Stay upwind and away from spill/release. Notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done with minimal risk. Wear appropriate protective equipment including respiratory protection as conditions warrant (see Section 8).

Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Dike far ahead of spill for later recovery or disposal. Use foam on spills to minimize vapors (see Section 5). Spilled material may be absorbed into an appropriate material.

Notify fire authorities and appropriate federal, state, and local agencies. Immediate cleanup of any spill is recommended. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, notify the National Response Center (phone number 800-424-8802).

7. HANDLING AND STORAGE

Handling: Open container slowly to relieve any pressure. Bond and ground all equipment when transferring from one vessel to another. Can accumulate static charge by flow or agitation. Can be ignited by static discharged. The use of explosion-proof equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-704 and/or API RP 2003 for specific bonding/grounding requirements.

Do not enter confined spaces such as tanks or pits without following proper entry procedures such ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits (see Sections 2 and 8).

Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames. Use good personal hygiene practices.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing or high pressure hydraulic oil equipment.

“Empty” containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. “Empty” drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSIZ49.1 and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

Storage: Keep container(s) tightly closed. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Post area “No Smoking or Open Flame.” Store only in approved containers. Keep away from incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls: If current ventilation practices are not adequate to maintain airborne concentration below the established exposure limits (see Section 2), additional ventilation or exhaust systems may be required. Where explosive mixtures may be present, electrical systems safe for such locations must be used (see appropriate electrical codes).

Personal Protective Equipment (PPE):

Respiratory: A NIOSH certified air purifying respirator with an organic vapor cartridge maybe used under conditions where airborne concentrations are expected to exceed exposure limits (see Section 2).

Protection provided by air purifying respirators is limited (see manufacturer's respirator selection guide). Use a positive pressure air supplied respirator if there is a potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrants a respirator's use.

Skin: The use of gloves impervious to the specific material handled is advised to prevent skin contact, possible irritation and skin damage (see glove manufacturer literature for information on permeability). Depending on conditions of use, apron and/or arm covers may be necessary.

Eyes/Face: Approved eye protection to safeguard against potential eye contact, irritation, or injury is recommended. Depending on conditions of use, a face shield may be necessary.

Other Protective Equipment: Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse. It is recommended that impervious clothing be worn when skin contact is possible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Note: Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1atm).

Appearance: Straw-colored to dyed red
Physical State: Liquid
Odor: Characteristic petroleum
pH: unavailable
Vapor Pressure (mm Hg): 0.40
Vapor Densisty (air=1):>3
Boiling Point/Range: 320-700°F /160-371°C
Freezing/Melting Point: No Data
Solubility in Water: Negligible
Specific Gravity: 0.81-0.88 @ 60°F
Percent Volatile: Negligible
Evaporation Rate (nBuAc=1): <1
Viscosity: 32.6-40.0 SUS @ 100°F
Bulk Density: 7.08 lbs/gal
Flash Point: >125°F / >52°C
Flammable/Expolsive Limits (%): LEL: 0.3 / UEL: 10.0

10. STABILITY AND REACTIVITY

Stability: Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. Flammable liquid and vapor. Vapor can cause flash fire.

Conditions To Avoid: Avoid all possible sources of ignition (see Sections 5 and 7).

Materials to Avoid (Incompatible Materials): Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite, calcium hypochlorite, etc.

Hazardous Decomposition Products: The use of hydrocarbon fuels in an area without adequate ventilation may result in hazardous levels of combustion products (e.g., oxides of carbon, sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels. ACGIH has included a TLV of 0.05 mg/m3 TWA for diesel exhaust particulate on its 1999 Notice of Intended Changes. See Section 11 for additional information on hazards of engine exhaust.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Diesel Fuel No. 2 (CAS# 68476-34-6)

Carcinogenicity: Chronic dermal application of certain middle distillate streams contained in diesel fuel No. 2 resulted in an increased incidence of skin tumors in mice. This material has not been identified as carcinogen by NTP, IARC, or OSHA. Diesel exhaust is a probable cancer hazard based on tests with laboratory animals.

Target Organ(s): Limited evidence of renal impairment has been noted from a few case reports involving excessive exposure to diesel fuel No. 2.

Naphthalene (CAS# 91-20-3)

Carcinogenicity: Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has not been identified as a carcinogen by IARC or OSHA.

12. ECOLOGICAL INFORMATION

Not evaluated at this time

13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, would be a RCRA “characteristic” hazardous waste due to the characteristic(s) of ignitability (D001) and benzene (D018). If the material is spilled to soil or water, characteristic testing of the contaminated materials is recommended. Further, this material, once it becomes a waste, is subject to the land disposal restrictions in 40 CFR 268.40 and may require treatment prior to disposal to meet specific standards. Consult state and local regulations to determine whether they are more stringent then the federal requirements.

Container contents should be completely used and containers should be emptied prior to discard. Container ?insate? could be considered a RCRA hazardous waste and must be disposed of with care and in compliance with federal, state and local regulations. Large empty containers, such as drums, should be returned to the distributor or to a drum reconditioner. To assure proper disposal of smaller containers, consult with state and local regulations and disposal authorities.

14. TRANSPORT INFORMATION

DOT Shipping Description: Diesel Fuel, NA1983
Non-Bulk Package Marking: Diesel Fuel, 3, NA 1993, III

15. REGULATORY INFORMATION

EPA SARA 311/312 (Title III Hazard Categories):

Acute Health:	Yes
Chronic Health:	Yes
Fire Hazard:	Yes
Pressure Hazard:	No
Reactive Hazard:	No

SARA 313 and 40 CFR 372:

This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372:

Component	CAS Number	Weight %
-- None known --		

California Proposition 65:

Warning: This material contains the following chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Component	Effect
Benzene	Cancer, Developmental and Reproductive Toxicant
Toluene	Developmental Toxicant

Diesel engine exhaust, while not a component of this material, is on the Proposition 65 list of chemicals known to the State of California to cause cancer.

Carcinogen Identification:

This material has not been identified as a carcinogen by NTP, IARC, or OSHA. See Section 11 for carcinogenicity information of individual components, if any. Diesel exhaust is a probable cancer hazard based on tests in laboratory animals. It has been identified as carcinogen by IARC.

EPA (CERCLA Reportable Quantity: None

16. OTHER INFORMATION

Issue Date: 01/01/02
Previous Issue Date: 05/15/01
Product Code: Multiple
Revised Sections: None
Previous Product Code: Multiple
MSDS Number: 0041

Disclaimer of Expressed and Implied Warranties:

The information presented in this Material Data Safety Sheet is based on data believed to be accurate as of the date this Material Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THE PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.

Tosco Refining Company ***Ferndale Refinery***

UltraLow Sulfur Diesel Product Specification

Ferndale Product Code:34380xx (5) Product Code: ULSD2

(COMETS)

Specification	Unit	Limit	Test Procedure	Typical
Appearance				
Water & Sediment	Vol %	0.05 Max	D 2709	
Color	Number	3.0 Max	D 1500	
Haze Rating	Rating	2 Max	D 4176	
Composition				
Carbon Residue (Ramsbottom)	Wt %	0.35 Max	D 524, D 189	
Volatility				
90% Recovered	Deg; F	540 Min	D 86	
	Deg; F	640 Min	D 86	
Flash Point	Deg; F	125 Min (1)	D 93	130 F
Gravity	API	30 Min	D 287, D4052	
Fluidity				
Pour Point	Deg; F	See Season Table (6)	D 97	
Cloud Point	Deg; F	See Season Table (6)	D 2500	10 F
Viscosity @ 104F	cSt	1.9 Min	D 445	
	cSt	4.1 Max	D 445	
Lubricity, SLBOCLE	grams	3100 Min	D 6078	3300gm
Lubricity, HFRR	mm	.45	D 6079	
Combustion				
Cetane Index or Cetane Number (3,4)	Number	40.0 Min	D 976, D613	47.0
Corrosion				
Copper Strip, 3hr @ 50 deg C	Number	3 Max (2)	D 130	
Aromatics (4)	Vol %	35 Max	D 1319	25 %
Contaminants				
Total Sulfur	PPM	30 Max	D 2622, D4294	15-20ppm
Water & Sediment	Vol %	0.05 Max	D 1796	
Ash	Wt %	0.01 Max	D 482	
Additives				
Cetane Improver	Lb/MBbl	675 Max		
Dye		Undyed		

1. Minimum release specification is 125 deg. F. The refinery should target 135 deg. F.
2. Test result reported as a number and letter (e.g. 1a). Any letter is allowable as long as the number meets the spec shown.
3. Either specification must be met.
4. Either cetane index minimum or aromatics maximum must be met.
5. Winter cloud and pour specifications may be relaxed to the summer specifications by agreement with the customer.
6. Season Table

Month	Product Code	Pour Point	Cloud Point
Jan, Feb, Nov, Dec	WI	0 max (5)	14 max (5)
Mar - Oct	SU	15 max	24 max

SAFETY DATA SHEET

Version 3.12
Revision Date 02/26/2015
Print Date 04/30/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Ethyl acetate

Product Number : 154857
Brand : Sigma-Aldrich
Index-No. : 607-022-00-5

CAS-No. : 141-78-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Repeated exposure may cause skin dryness or cracking.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_4H_8O_2$
Molecular weight	:	88.11 g/mol
CAS-No.	:	141-78-6
EC-No.	:	205-500-4
Index-No.	:	607-022-00-5
Registration number	:	01-2119475103-46-XXXX

Hazardous components

Component	Classification	Concentration
Ethyl acetate		
	Flam. Liq. 2; ; Eye Irrit. 2A; STOT SE 3; H225,, H319, H336	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Ethyl acetate	141-78-6	TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation		

		TWA	400.000000 ppm 1,400.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	400.000000 ppm 1,400.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Inhalation	Acute systemic effects	1468 mg/m3
Workers	Inhalation	Acute local effects	1468 mg/m3
Workers	Skin contact	Long-term systemic effects	63mg/kg BW/d
Workers	Inhalation	Long-term systemic effects	734 mg/m3
Workers	Inhalation	Long-term local effects	734 mg/m3
Consumers	Inhalation	Acute local effects, Acute systemic effects	734 mg/m3
Consumers	Skin contact	Long-term systemic effects	37mg/kg BW/d
Consumers	Inhalation	Long-term systemic effects	367 mg/m3
Consumers	Ingestion	Long-term systemic effects	4.5mg/kg BW/d
Consumers	Inhalation	Long-term local effects	367 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	0.24 mg/kg
Marine water	0.026 mg/l
Fresh water	0.26 mg/l
Marine sediment	0.125 mg/kg
Fresh water sediment	1.25 mg/kg

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 113 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	-84.0 °C (-119.2 °F)
f)	Initial boiling point and boiling range	76.5 - 77.5 °C (169.7 - 171.5 °F) - lit.
g)	Flash point	-2.99 °C (26.62 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	May form explosive dust-air mixture.
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 11.5 %(V) Lower explosion limit: 2.2 %(V)
k)	Vapour pressure	97.3 hPa (73.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.90 g/cm3 at 20 °C (68 °F)
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.73
p)	Auto-ignition temperature	427.0 °C (800.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	24.0 mN/m at 20.0 °C (68.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,620 mg/kg

LC50 Inhalation - Mouse - 2 h - 45,000 mg/m3

LD50 Dermal - Rabbit - > 18,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: AH5425000

Inhalation of high concentrations may cause:, Headache, Drowsiness, Dizziness, Vomiting, narcosis, anemia, Central nervous system depression

Kidney - Irregularities - Based on Human Evidence
Kidney - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 350.00 - 600.00 mg/l - 96 h
	LC50 - Pimephales promelas (fathead minnow) - 220.00 - 250.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 2,300.00 - 3,090.00 mg/l - 24 h
	LC50 - Daphnia magna (Water flea) - 560 mg/l - 48 h
Toxicity to algae	EC50 - Algae - 4,300.00 mg/l - 24 h
	EC50 - SELENASTRUM - 1,800.00 - 3,200.00 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	Result: 79 % - Readily biodegradable (OECD Test Guideline 301D)

12.3 Bioaccumulative potential

Bioaccumulation	- 3 d
	Bioconcentration factor (BCF): 30

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1173 Class: 3 Packing group: II
Proper shipping name: Ethyl acetate
Reportable Quantity (RQ): 5000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1173 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ETHYL ACETATE

IATA

UN number: 1173 Class: 3 Packing group: II
Proper shipping name: Ethyl acetate

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Ethyl acetate	141-78-6	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Ethyl acetate	141-78-6	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Ethyl acetate	141-78-6	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

	Combustible dust
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.12 Revision Date: 02/26/2015 Print Date: 04/30/2016

MATHESON
ask. . .The Gas Professionals™

Safety Data Sheet

Material Name: ETHYL BENZENE **SDS ID: MAT08780**

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
ETHYL BENZENE
Synonyms
MTG MSDS 185; EB; PHENYLETHANE; ETHYLBENZENE; ETHYLBENZOL; ALPHA-METHYLTOLUENE; UN 1175; C8H10
Chemical Family
Hydrocarbons, aromatic
Product Use
industrial.
Restrictions on Use
None known.
Details of the supplier of the safety data sheet
MATHESON TRI-GAS, INC.
150 Allen Road, Suite 302
Basking Ridge, NJ 07920
General Information: 1-800-416-2505
Emergency #: 1-800-424-9300 (CHEMTREC)
Outside the US: 703-527-3887 (Call collect)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
Flammable Liquids - Category 2
Aspiration Hazard - Category 1
Acute Toxicity - Inhalation - Dust/Mist - Category 4
Acute Toxicity - Inhalation - Vapor - Category 4
Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Eye Irritation - Category 2A
Carcinogenicity - Category 2
Reproductive Toxicity - Category 1B
Specific target organ toxicity - Single exposure - Category 2
Specific target organ toxicity - Single exposure - Category 3
Specific Target Organ Toxicity - Repeated Exposure - Category 2 (ears , Ears)
Hazardous to the Aquatic Environment - Acute - Category 2
Hazardous to the Aquatic Environment - Chronic - Category 2
GHS Label Elements
Symbol(s)



Signal Word
Danger
Hazard Statement(s)

Highly flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
Suspected of causing cancer.
May damage fertility or the unborn child.
May cause damage to organs. (central nervous system)
May cause respiratory irritation.
May be fatal if swallowed and enters airways.
Toxic to aquatic life.

Precautionary Statement(s)

Prevention

Keep away from heat, sparks, open flame, and hot surfaces - No smoking.
Keep container tightly closed.
Ground/Bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Use Personal Protective equipment as required.
Do not breathe vapor or mist.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.

Response

In case of fire, use media appropriate for extinction.
IF exposed or concerned: Get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
If eye irritation persists: Get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
Do NOT induce vomiting.

Storage

Store in a well-ventilated place.
Keep cool.
Keep container tightly closed.
Store locked up.

Disposal

Dispose in accordance with all applicable regulations.

Statement(s) of Unknown Acute Toxicity

Inhalation 0% of the mixture consists of ingredient(s) of unknown acute toxicity.

Statement(s) of Unknown Aquatic Toxicity
0% of the mixture consists of ingredient(s) of unknown acute aquatic toxicity.
0% of the mixture consists of ingredient(s) of unknown chronic aquatic toxicity.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
100-41-4	ETHYL BENZENE	100

Section 4 - FIRST AID MEASURES

Inhalation
If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.
Skin
Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
Eyes
Flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Then get immediate medical attention.
Ingestion
aspiration hazard. Do NOT induce vomiting. When vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention immediately. Give artificial respiration if not breathing.
Most Important Symptoms/Effects
Acute
respiratory tract irritation, skin irritation, eye irritation, central nervous system damage, lung damage (from aspiration)
Delayed
cancer, Reproductive Effects
Note to Physicians
For inhalation, consider oxygen.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media
regular dry chemical, carbon dioxide, water spray, regular foam, Large fires: Use water spray, fog or regular foam.
Unsuitable Extinguishing Media
Do not use high-pressure water streams.
Special Hazards Arising from the Chemical
Severe fire hazard. Vapor/air mixtures are explosive above flash point. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Electrostatic discharges may be generated by flow or agitation resulting in ignition or explosion.
Hazardous Combustion Products
Oxides of carbon
Fire Fighting Measures
Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. For fires in cargo or storage area: Cool containers with water from unmanned hose holder or monitor nozzles until well after fire is out. If this is impossible then take the following precautions: Keep unnecessary people away, isolate hazard area and deny entry. Let the fire burn. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank,

rail car or tank truck: Evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Water may be ineffective.

Special Protective Equipment and Precautions for Firefighters

Wear full protective fire fighting gear including self contained breathing apparatus (SCBA) for protection against possible exposure.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Avoid heat, flames, sparks and other sources of ignition. Eliminate all ignition sources if safe to do so. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Stop leak if possible without personal risk. Prevent entry into waterways, sewers, basements, or confined areas. Reduce vapors with water spray. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Dike for later disposal. Remove sources of ignition. Use water spray to reduce vapors or divert vapor cloud drift. Keep unnecessary people away, isolate hazard area and deny entry. Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).

Environmental Precautions

Avoid release to the environment.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Keep away from heat, sparks, open flame, and hot surfaces - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use Personal Protective equipment as required. Do not breathe vapor or mist. Use only outdoors or in a well-ventilated area. Wear protective gloves/eye protection/face protection. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment.

Conditions for Safe Storage, Including any Incompatibilities

Store in a well-ventilated place.
Keep cool.
Keep container tightly closed.
Store locked up.
Store and handle in accordance with all current regulations and standards. Store in a well-ventilated area. Keep cool. Keep container tightly closed. Keep locked up. Grounding and bonding required. Keep separated from incompatible substances. Protect from physical damage. Store outside or in a detached building. Store with flammable liquids. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106.

Incompatible Materials

Acids, bases, oxidizing materials, combustible materials

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

ETHYL BENZENE	**100-41-4**

ACGIH:	20 ppm TWA
NIOSH:	100 ppm TWA ; 435 mg/m3 TWA
	125 ppm STEL ; 545 mg/m3 STEL
	800 ppm IDLH (10% LEL)
Europe:	100 ppm TWA ; 442 mg/m3 TWA
	Possibility of significant uptake through the skin
	200 ppm STEL ; 884 mg/m3 STEL
OSHA (US):	100 ppm TWA ; 435 mg/m3 TWA
Mexico:	100 ppm TWA VLE-PPT ; 435 mg/m3 TWA VLE-PPT
	125 ppm STEL [PPT-CT]; 545 mg/m3 STEL [PPT-CT]

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)
ETHYL BENZENE (100-41-4)
0.15 g/g creatinine Medium: urine Time: end of shift Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific)

Engineering Controls
Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust or process enclosure ventilation system. Ensure compliance with applicable exposure limits.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection
Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin Protection
Wear appropriate chemical resistant clothing.

Respiratory Protection
The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA. 800 ppm. Any air-purifying half-mask respirator equipped with organic vapor cartridge(s). Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any powered, air-purifying respirator with organic vapor cartridge(s). Any supplied-air respirator. Any self-contained breathing apparatus with a full facepiece. Emergency or planned entry into unknown concentrations or IDLH conditions -. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Escape -. Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister. Any appropriate escape-type, self-contained breathing apparatus. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

Glove Recommendations
Wear appropriate chemical resistant gloves.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid	**Physical State**	liquid
Odor	aromatic odor	**Color**	colorless
Odor Threshold	140 ppm	**pH**	Not available
Melting Point	-95 °C (-139 °F)	**Boiling Point**	136 °C (277 °F)
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	<1 (Butyl acetate = 1)	**Flammability (solid, gas)**	Not available
Autoignition Temperature	432 °C (810 °F)	**Flash Point**	15 °C Closed Cup (59 °F)
Lower Explosive Limit	0.8 %	**Decomposition temperature**	Not available
Upper Explosive Limit	6.7 %	**Vapor Pressure**	7.1 mmHg @ 20 °C
Vapor Density (air=1)	3.66	**Specific Gravity (water=1)**	0.867
Water Solubility	0.015 %	**Partition coefficient: n-octanol/water**	154170.05
Viscosity	0.64 cp	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Bioconcentration Factor (BCF)**	36.39
Density	Not available	**Henry's Law Constant**	0.00788 atm-m3/mole
KOC	520 (Estimated)	**Physical Form**	liquid
Volatility	100 %	**Molecular Formula**	C-H3-C-H2-C6-H5
Molecular Weight	106.17	**OSHA Flammability Class**	IB

Solvent Solubility
Soluble
alcohol, ether, Benzene, sulfur dioxide, carbon tetrachloride
Insoluble
ammonia

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.
Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.
Conditions to Avoid
Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat. Keep out of water supplies and sewers.
Incompatible Materials
Acids, bases, oxidizing materials, combustible materials
Hazardous decomposition products
Oxides of carbon

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Inhalation
irritation (possibly severe), chest pain, difficulty breathing, emotional disturbances, headache, drowsiness, dizziness, loss of coordination, coma, cancer
Skin Contact
irritation
Eye Contact
irritation
Ingestion
nausea, vomiting, stomach pain, aspiration hazard
Acute and Chronic Toxicity
Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
ETHYL BENZENE (100-41-4)
Oral LD50 Rat 3500 mg/kg
Dermal LD50 Rabbit 15400 mg/kg
Inhalation LC50 Rat 17.4 mg/L 4 h
Product Toxicity Data
Acute Toxicity Estimate

Dermal	> 2000 mg/kg
Inhalation - Vapor	17.4 mg/L
Oral	> 2000 mg/kg

Immediate Effects
respiratory tract irritation, skin irritation, eye irritation, central nervous system damage, lung damage (from aspiration)
Delayed Effects
Reproductive Effects, cancer
Irritation/Corrosivity Data
respiratory tract irritation, skin irritation, eye irritation
Respiratory Sensitization
No data available.
Dermal Sensitization
No data available.
Component Carcinogenicity

ETHYL BENZENE	**100-41-4**
ACGIH:	A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans
IARC:	Monograph 77 [2000] (Group 2B (possibly carcinogenic to humans))
DFG:	Category 4 (no significant contribution to human cancer)
OSHA:	Present

Germ Cell Mutagenicity
No data available.
Tumorigenic Data
No data available
Reproductive Toxicity
Available data characterizes components of this product as reproductive hazards.
Specific Target Organ Toxicity - Single Exposure
central nervous system, Respiratory system
Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.
Aspiration hazard
This material is an aspiration hazard.
Medical Conditions Aggravated by Exposure
kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies
Additional Data
May cross the placenta.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity
Toxic to aquatic life.
Component Analysis - Aquatic Toxicity

ETHYL BENZENE	**100-41-4**
Fish:	LC50 96 h Oncorhynchus mykiss 11 - 18 mg/L [static]; LC50 96 h Oncorhynchus mykiss 4.2 mg/L [semi-static]; LC50 96 h Pimephales promelas 7.55 - 11 mg/L [flow-through]; LC50 96 h Lepomis macrochirus 32 mg/L [static]; LC50 96 h Pimephales promelas 9.1 - 15.6 mg/L [static]; LC50 96 h Poecilia reticulata 9.6 mg/L [static]
Algae:	EC50 72 h Pseudokirchneriella subcapitata 4.6 mg/L IUCLID ; EC50 96 h Pseudokirchneriella subcapitata >438 mg/L IUCLID ; EC50 72 h Pseudokirchneriella subcapitata 2.6 - 11.3 mg/L [static] EPA ; EC50 96 h Pseudokirchneriella subcapitata 1.7 - 7.6 mg/L [static] EPA
Invertebrate:	EC50 48 h Daphnia magna 1.8 - 2.4 mg/L IUCLID

Persistence and Degradability
Not expected to undergo hydrolysis in the environment.
Bioaccumulative Potential
Bioconcentration potential in aquatic organisms is low based on a BCF value of 15.
Mobility

Expected to have moderate mobility in soil.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262.
Hazardous Waste Number(s): D001.
Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN/NA #: UN1175
Packing Group: II
Required Label(s): 3
Marine pollutant

IMDG Information:
Shipping Name: ETHYLBENZENE
Hazard Class: 3
UN#: UN1175
Packing Group: II
Required Label(s): 3
Marine pollutant
International Bulk Chemical Code
This material contains one or more of the following chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

ETHYL BENZENE	**100-41-4**
IBC Code:	Category Y

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

ETHYL BENZENE	**100-41-4**
SARA 313:	0.1 % de minimis concentration
CERCLA:	1000 lb final RQ ; 454 kg final RQ

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
Flammable; Carcinogenicity; Acute toxicity; Reproductive Toxicity; Skin Corrosion/Irritation; Serious Eye Damage/Eye Irritation; Specific Target Organ Toxicity; Aspiration Hazard
U.S. State Regulations
The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA
ETHYL BENZENE	**100-41-4**	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause cancer

ETHYL BENZENE	**100-41-4**
Carc:	carcinogen , 6/11/2004

Canada Regulations
Canadian WHMIS Ingredient Disclosure List (IDL)
Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which meet WHMIS criteria specified in the Controlled Products Regulations and are present above the threshold limits listed on the IDL

ETHYL BENZENE	**100-41-4**
	0.1 %

WHMIS Classification
B2
Component Analysis - Inventory
ETHYL BENZENE (100-41-4)

US	CA	EU	AU	PH	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2	KR - REACH CCA	CN	NZ	MX	TW	VN - NCI (Draft)
Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes

Section 16 - OTHER INFORMATION

NFPA Ratings
Health: 2 Fire: 3 Reactivity: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe
Summary of Changes
Updated: 05/01/2015
Key / Legend
ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research

on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; NDSL – Non-Domestic Substance List (Canada); NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN NCI (Draft) - Vietnam National Chemicals Inventory (NCI) (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada) .

Other Information

Disclaimer:

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MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS: NON-FLAMMABLE GAS MIXTURE

Containing One or More of the Following Components in a Nitrogen Balance Gas:Oxygen, 0.0015-23.5%;Methane, 0.0005-2.5%;Carbon Monoxide, 0.0005-1.0%; Hydrogen Sulfide, 0.001-0.025%

SYNONYMS: Not Applicable
CHEMICAL FAMILY NAME: Not Applicable
FORMULA: Not Applicable
Document Number: 50018

Note: The Material Safety Data Sheet is for this gas mixture supplied in cylinders with 33 cubic feet (935 liters) or less gas capacity (DOT - 39 cylinders). This MSDS has been developed for various gas mixtures with the composition of components within the ranges listed in Section 2 (Composition and Information on Ingredients). Refer to the product label for information on the actual composition of the product.

PRODUCT USE:	Calibration of Monitoring and Research Equipment
SUPPLIER/MANUFACTURER'S NAME:	CALGAZ
ADDRESS:	821 Chesapeake Drive Cambridge, MD 21613
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	1-410-228-6400
General MSDS Information	1-713/868-0440
Fax on Demand:	1-800/231-1366

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA		NIOSH	OTHER
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	ppm
Oxygen	7782-44-7	0.0015 - 23.5%	There are no specific exposure limits for Oxygen. Oxygen levels should be maintained above 19.5%.					
Methane	74-82-8	0.0005 - 2.5%	There are no specific exposure limits for Methane. Methane is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Hydrogen Sulfide	7783-06-4	0.001- 0.025 %	10 (NIC = 5)	15	10 (Vacated 1989 PEL)	20 (ceiling); 50 (ceiling, 10 min. peak once per 8-hour shift 15 (vacated 1989 PEL)	100	NIOSH REL: STEL = 10 (ceiling) 10 minutes DFG-MAKs: TWA = 10 PEAK = 2•MAK, 10 min., momentary value
Carbon Monoxide	630-08-0	0.0005 - 1.0%	25	NE	50 35 (Vacated 1989 PEL)	200 [ceiling] (Vacated 1989 PEL)	1200	NIOSH RELS: TWA = 35 STEL = 200 (ceiling) DFG MAKs: TWA = 30 PEAK = 2•MAK, 15 min., average value DFG MAK Pregnancy Risk Classification: B
Nitrogen	7727-37-9	Balance	There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					

NE = Not Established. NIC = Notice of Intended Change See Section 16 for Definitions of Terms Used.
NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This gas mixture has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This gas mixture is a colorless gas which has a rotten-egg odor (due to the presence of Hydrogen Sulfide). The odor cannot be relied on as an adequate warning of the presence of this gas mixture, because olfactory fatigue occurs after over-exposure to Hydrogen Sulfide. Hydrogen Sulfide and Carbon Monoxide (another component of this gas mixture) are toxic to humans in relatively low concentrations. Over-exposure to this gas mixture can cause skin or eye irritation, nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. Additionally, releases of this gas mixture may produce oxygen-deficient atmospheres (especially in small confined spaces or other poorly-ventilated environments); individuals in such atmospheres may be asphyxiated.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of over-exposure for this gas mixture is by inhalation.

INHALATION: Due to the small size of an individual cylinder of this gas mixture, no unusual health effects from over-exposure to the product are anticipated under routine circumstances of use. A potential health hazard associated with this gas mixture is the potential of inhalation of Hydrogen Sulfide, a component of this gas mixture. Such over-exposures may occur if this gas mixture is used in a confined space or other poorly-ventilated area. Over-exposures to Hydrogen Sulfide can cause dizziness, headache, and nausea. Over-exposure to this gas could result in respiratory arrest, coma, or unconsciousness, due to the presence of Hydrogen Sulfide. Continuous inhalation of low concentrations of Hydrogen Sulfide may cause olfactory fatigue, so that the odor is no longer an effective warning of the presence of this gas. A summary of exposure concentrations and observed effects are as follows:

CONCENTRATION OF HYDROGEN SULFIDE	**OBSERVED EFFECT**
0.3-30 ppm	Odor is unpleasant.
50 ppm	Eye irritation. Dryness and irritation of nose, throat.
Slightly higher than 50 ppm	Irritation of the respiratory system.
100-150 ppm	Temporary loss of smell.
200-250 ppm	Headache, vomiting nausea. Prolonged exposure may lead to lung damage. Exposures of 4-8 hours can be fatal.
300-500	Swifter onset of symptoms. Death occurs in 1-4 hours.
500 ppm	Headache, excitement, staggering, and stomach ache after brief exposure. Death occurs within 0.5 - 1 hour of exposure.
> 600 ppm	Rapid onset of unconsciousness, coma, death.
> 1000 ppm	Immediate respiratory arrest.

NOTE: This gas mixture contains a maximum of 250 ppm Hydrogen Sulfide. The higher concentration values here are presented to delineate the complete health effects which have been observed for humans after exposure to Hydrogen Sulfide.

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH HAZARD	(BLUE)	3
FLAMMABILITY HAZARD	(RED)	0
PHYSICAL HAZARD	(YELLOW)	0

PROTECTIVE EQUIPMENT

EYES	RESPIRATORY	HANDS	BODY

See Section 8

For Routine Industrial Use and Handling Applications

3. HAZARD IDENTIFICATION (continued)

Inhalation over-exposures to atmospheres containing more than the Threshold Limit Value of Carbon Monoxide (25 ppm), another component of this gas mixture, can result in serious health consequences. Carbon Monoxide is classified as a chemical asphyxiant, producing a toxic action by combining with the hemoglobin of the blood and replacing the available oxygen. Through this replacement, the body is deprived of the required oxygen, and asphyxiation occurs. Since the affinity of Carbon Monoxide for hemoglobin is about 200-300 times that of oxygen, only a small amount of Carbon Monoxide will cause a toxic reaction to occur. Carbon Monoxide exposures in excess of 50 ppm will produce symptoms of poisoning if breathed for a sufficiently long time. If this gas mixture is released in a small, poorly ventilated area (i.e. an enclosed or confined space), symptoms which may develop include the following:

CONCENTRATION OF CARBON MONOXIDE	**OBSERVED EFFECT**
All exposure levels:	Over-exposure to Carbon Monoxide can be indicated by the lips and fingernails turning bright red.
200 ppm:	Slight symptoms (i.e. headache) after several hours of exposure.
400 ppm:	Headache and discomfort experienced within 2-3 hours of exposure.
1,000 -2000 ppm:	Within 30 minutes, slight palpitations of the heart occurs. Within 1.5 hours, there is a tendency to stagger.
200-2500 ppm:	Within 2 hours, there is mental confusion, headaches, and nausea. Unconsciousness within 30 minutes.
>2500 ppm:	Potential for collapse and death before warning symptoms.

Additionally, if mixtures of this gas mixture contain less than 19.5% Oxygen and are released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with various levels of oxygen are as follows:

CONCENTRATION OF OXYGEN	**OBSERVED EFFECT**
12-16% Oxygen:	Breathing and pulse rate increased, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea, vomiting, collapse, or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

SKIN and EYE CONTACT: Hydrogen Sulfide, a component of this gas mixture, may be irritating to the skin. Inflammation and irritation of the eyes can occur at very low airborne concentration of Hydrogen Sulfide (less than 10 ppm). Exposure over several hours may result in "gas eyes" or "sore eyes" with symptoms of scratchiness, irritation, tearing and burning. Above 50 ppm of Hydrogen Sulfide, there is an intense tearing, blurring of vision, and pain when looking at light. Over-exposed individuals may see rings around bright lights. Most symptoms disappear when exposure ceases. However, in serious cases, the eye can be permanently damaged.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to this gas mixture may cause the following health effects:

ACUTE: Due to the small size of the individual cylinder of this gas mixture, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. However the Hydrogen Sulfide and Carbon Monoxide components of this gas mixture are toxic to humans. Over-exposure to this gas mixture can cause nausea, dizziness, headaches, collapse, unconsciousness, coma, and death. Due to the presence of Hydrogen Sulfide, over-exposures to this gas mixture can also irritate the skin and eyes; severe eye contamination can result in blindness.

CHRONIC: Severe over-exposures to the Hydrogen Sulfide component of this gas mixture, which do not result in death, may cause long-term symptoms such as memory loss, paralysis of facial muscles, or nerve tissue damage. In serious cases of over-exposure, the eyes can be permanently damaged. Skin disorders and respiratory conditions may be aggravated by repeated over-exposures to this gas product. Refer to Section 11 (Toxicology Information) for additional information on the components of this gas mixture. Chronic exposure to oxygen-deficient atmospheres (below 18% oxygen in air) may affect the heart and nervous system.

TARGET ORGANS: ACUTE: Respiratory system, blood system, central nervous system effects, cardiovascular system, skin, eyes. CHRONIC: Neurological system, reproductive system, eyes.

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS GAS MIXTURE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

No unusual health effects are anticipated after exposure to this gas mixture, due to the small cylinder size. If any adverse symptom develops after over-exposure to this gas mixture, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary.

SKIN EXPOSURE: If irritation of the skin develops after exposure to this gas mixture, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek immediate medical attention.

EYE EXPOSURE: If irritation of the eye develops after exposure to this gas mixture, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Seek medical assistance immediately, preferably an ophthalmologist.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Pre-existing respiratory conditions may be aggravated by over-exposure to this gas mixture. Carbon Monoxide, a component of this gas mixture, can aggravate some diseases of the cardiovascular system, such as coronary artery disease and angina pectoris. Because of the presence of Hydrogen Sulfide, eye disorders or skin problems may be aggravated by over-exposure to this gas mixture.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate over-exposure. Hyperbaric oxygen is the most efficient antidote to Carbon Monoxide poisoning, the optimum range being 2-2.5 atm. A special mask, or, preferably, a compression chamber to utilize oxygen at these pressures is required. Avoid administering stimulant drugs. Be observant for initial signs of pulmonary edema in the event of severe inhalation over-exposures.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

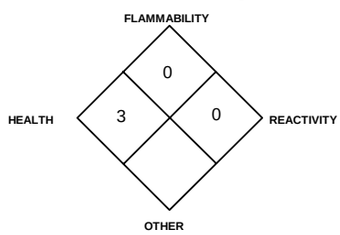
AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.

Upper (UEL): Not applicable.

NFPA RATING



FIRE EXTINGUISHING MATERIALS: Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This gas mixture contains toxic gases, Hydrogen Sulfide and Carbon Monoxide, and presents an health hazard to firefighters. This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not Sensitive.

Explosion Sensitivity to Static Discharge: Not Sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

6. ACCIDENTAL RELEASE MEASURES

LEAK RESPONSE: Due to the small size and content of the cylinder, an accidental release of this gas mixture presents significantly less risk of over-exposure to Hydrogen Sulfide and Carbon Monoxide, the toxic components of this gas mixture, and other safety hazards related to the remaining components of this gas mixture, than a similar release from a larger cylinder. However, as with any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediate area. Such releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel. For emergency disposal,

6. ACCIDENTAL RELEASE MEASURES (continued)

secure the cylinder and slowly discharge the gas to the atmosphere in a well-ventilated area or outdoors. Allow the gas mixture to dissipate. If necessary, monitor the surrounding area (and the original area of the release) for Hydrogen Sulfide, Carbon Monoxide, and Oxygen. Hydrogen Sulfide and Carbon Monoxide level must be below exposure level listed in Section 2 (Composition and Information on Ingredients) and Oxygen levels must be above 19.5% before non-emergency personnel are allowed to re-enter area. If leaking incidentally from the cylinder, contact your supplier.

7. HANDLING and USE

WORK PRACTICES AND HYGIENE PRACTICES: Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Do not attempt to repair, adjust, or in any other way modify cylinders containing a gas mixture with Hydrogen Sulfide or Carbon Monoxide. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Eye wash stations/safety showers should be near areas where this gas mixture is used or stored. All work operations should be monitored in such a way that emergency personnel can be immediately contacted in the event of a release. All work practices should minimize releases of Hydrogen Sulfide and Carbon Monoxide-containing gas mixtures.

STORAGE AND HANDLING PRACTICES: Cylinders should be firmly secured to prevent falling or being knocked-over. Cylinders must be protected from the environment, and preferably kept at room temperature (approximately 21°C (70°F). Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. These cylinders are not refillable. **WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.**

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: WARNING! Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: No special ventilation systems or engineering controls are needed under normal circumstances of use. As with all chemicals, use this gas mixture in well-ventilated areas. If this gas mixture is used in a poorly-ventilated area, install automatic monitoring equipment to detect the levels of Oxygen, Hydrogen Sulfide, and Carbon Monoxide.

RESPIRATORY PROTECTION: No special respiratory protection is required under normal circumstances of use. Use supplied air respiratory protection if the levels of components exceeds exposure limits presented in Section 2 (Composition and Information of Ingredients) and Oxygen levels are below 19.5%, or unknown, during emergency response to a release of this gas mixture. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.16.33% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998). The following NIOSH respiratory protection recommendations for Hydrogen Sulfide and Carbon Monoxide are provided for further information.

NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN SULFIDE CONCENTRATIONS IN AIR:

Up to 100 ppm:	Powered air-purifying respirator with cartridge(s) to protect against hydrogen sulfide; gas mask with canister to protect against hydrogen sulfide; or SAR; or full-facepiece SCBA.
Emergency or Planned Entry into Unknown Concentration or IDLH Conditions:	Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece SAR with an auxiliary positive pressure SCBA.
Escape:	Gas mask with canister to protect against hydrogen sulfide; or escape-type SCBA
NOTE:	The IDLH concentration for Hydrogen Sulfide is 100 ppm.

NIOSH/OSHA RECOMMENDATIONS FOR CARBON MONOXIDE CONCENTRATIONS IN AIR:

Up to 350 ppm	Supplied Air Respirator (SAR)
Up to 875 ppm	Supplied Air Respirator (SAR) operated in a continuous flow mode.
Up to 1200 ppm	Gas mask with canister to protect against carbon monoxide; or full-facepiece SCBA; or full-facepiece Supplied Air Respirator (SAR).
Emergency or Planned Entry into Unknown Concentration or IDLH Conditions:	Positive pressure, full-facepiece SCBA; or positive pressure, full-facepiece Supplied Air Respirator (SAR) with an auxiliary positive pressure SCBA.
Escape:	Gas mask with canister to protect against carbon monoxide; or escape-type SCBA. **NOTE**: End of Service Life Indicator (ESLI) required for gas masks.
NOTE:	The IDLH concentration for Carbon Monoxide is 1200 ppm.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Wear leather gloves when handling cylinders. Chemically resistant gloves should be worn when using this gas mixture. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: No special protection is needed under normal circumstances of use. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Nitrogen, the main component of this gas mixture.

GAS DENSITY @ 32°F (0°C) and 1 atm: .072 lbs/ ft^3 (1.153 kg/m^3)

FREEZING/MELTING POINT @ 10 psig: -345.8°F (-210°C)

SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C): 0.906

SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm: 0.023

EVAPORATION RATE (nBuAc = 1): Not applicable.

VAPOR PRESSURE @ 70°F (21.1°C) (psig): Not applicable.

COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

BOILING POINT: -320.4°F (-195.8°C)

pH: Not applicable.

MOLECULAR WEIGHT: 28.01

EXPANSION RATIO: Not applicable.

SPECIFIC VOLUME (ft^3/lb): 13.8

The following information is for this gas mixture.

ODOR THRESHOLD: 0.13 ppm (Hydrogen Sulfide)

APPEARANCE AND COLOR: This gas mixture is a colorless gas which has an rotten egg-like odor, due to the presence of Hydrogen Sulfide.

HOW TO DETECT THIS SUBSTANCE (warning properties): Continuous inhalation of low concentrations of this gas mixture may cause olfactory fatigue, due to the presence of Hydrogen Sulfide, so the odor is not a good warning property of a release of this gas mixture. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation. Wet lead acetate paper can be used for leak detection. The paper turns black in the presence of Hydrogen Sulfide. Cadmium chloride solutions can also be used. Cadmium solutions will turn yellow upon contact with Hydrogen Sulfide.

10. STABILITY and REACTIVITY

STABILITY: Normally stable in gaseous state.

DECOMPOSITION PRODUCTS: The thermal decomposition products of Methane include carbon oxides. The decomposition products of Hydrogen Sulfide include water and sulfur oxides. The other components of this gas mixture do not decompose, per se, but can react with other compounds in the heat of a fire.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Titanium will burn in Nitrogen (the main component of this gas mixture). Lithium reacts slowly with Nitrogen at ambient temperatures. Components of this gas mixture (Hydrogen Sulfide, Methane) are also incompatible with strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride). Carbon Monoxide is mildly corrosive to nickel and iron (especially at high temperatures and pressures). Hydrogen Sulfide is corrosive to most metals, because it reacts with these substances to form metal sulfides.

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology data are available for the components of this gas mixture:

NITROGEN:

There are no specific toxicology data for Nitrogen. Nitrogen is a simple asphyxiant, which acts to displace oxygen in the environment.

METHANE:

There are no specific toxicology data for Methane. Methane is a simple asphyxiant, which acts to displace oxygen in the environment.

CARBON MONOXIDE:

LC_{50} (Inhalation-Rat) 1807 ppm/4 hours
LC_{50} (Inhalation-Mouse) 2444 ppm/4 hours
LC_{50} (Inhalation-Guinea Pig) 5718 ppm/4 hours
LC_{50} (Inhalation-wild bird species) 1334 ppm
LCLo (Inhalation-Human) 4 mg/m^3/12 hours: Behavioral: coma; Vascular: BP lowering not characterized in autonomic section; Blood: methemoglobinemia-carboxyhemoglobin
LCLo (Inhalation-Man) 4000 ppm/30 minutes
LCLo (Inhalation-Human) 5000 ppm/5 minutes
LCLo (Inhalation-Dog) 4000 ppm/46 minutes
LCLo (Inhalation-Rabbit) 4000 ppm
LCLo (Inhalation-Mammal-species unspecified) 5000 ppm/5 minutes
TCLo (Inhalation-Human) 600 mg/m^3/10 minutes: Behavioral: headache
TCLo (Inhalation-Man) 650 ppm/45 minutes: Blood: methemoglobinemia-carboxyhemoglobin; Behavioral: changes in psychophysiological tests
TCLo (Inhalation-Rat) 1800 ppm/1 hour/14 days-intermittent: Cardiac: other changes
TCLo (Inhalation-Rat) 30 mg/m^3/8 hours/10 weeks-intermittent: Brain and Coverings: other degenerative changes; Behavioral: muscle contraction or spasticity
TCLo (Inhalation-Rat) 96 ppm/24 hours/90 days-continuous: Blood: pigmented or nucleated red blood cells, other changes
TCLo (Inhalation-Rat) 250 ppm/5 hours/20 days-intermittent: Blood :pigmented or nucleated red blood cells, changes in other cell count (unspecified), changes in erythrocyte (RBC) count
TDLo (Subcutaneous-Rat) 5983 mg/kg/18 weeks-intermittent: Blood: changes in serum composition (e.g. TP, bilirubin, cholesterol)
TCLo (Inhalation-Monkey) 200 ppm/24 hours/90 days-continuous: Blood: pigmented or nucleated red blood cells, other changes
TCLo (Inhalation-Rabbit) 200 mg/m^3/3 hours/13 weeks-intermittent: Brain and Coverings: other degenerative changes; Cardiac: other changes; Blood: hemorrhage
TCLo (Inhalation-Guinea Pig) 200 mg/m^3/5 hours/30 weeks-continuous: Cardiac: arrhythmias (including changes in conduction), EKG changes not diagnostic of specified effects, pulse rate increase, without fall in BP

CARBON MONOXIDE (continued):

TCLo (Inhalation-Mouse) 50 ppm/30 days-intermittent: Lungs, Thorax, or Respiration: structural or functional change in trachea or bronchi
TCLo (Inhalation-Guinea Pig) 200 mg/m^3/5 hours/4 weeks-intermittent: Endocrine: hyperglycemia
TCLo (Inhalation-Guinea Pig) 200 ppm/24 hours/90 days-continuous: Blood: pigmented or nucleated red blood cells, other changes
TCLo (Inhalation-Rat) 75 ppm/24 hours: female 0-20 day(s) after conception: Reproductive: Maternal Effects: other effects; Effects on Newborn: behavioral
TCLo (Inhalation-Rat) 150 ppm/24 hours: female 1-22 day(s) after conception: Reproductive: Specific Developmental Abnormalities: cardiovascular (circulatory) system
TCLo (Inhalation-Rat) 150 ppm/24 hours: female 1-22 day(s) after conception: Reproductive: Effects on Newborn: growth statistics (e.g.%, reduced weight gain), behavioral
TCLo (Inhalation-Rat) 1 mg/m^3/24 hours: female 72 day(s) pre-mating: Reproductive: Maternal Effects: menstrual cycle changes or disorders, parturition; Fertility: female fertility index (e.g. # females pregnant per # sperm positive females; # females pregnant per # females mated)
TCLo (Inhalation-Rat) 150 ppm/24 hours: female 0-20 day(s) after conception: Reproductive: Effects on Newborn: behavioral
TCLo (Inhalation-Rat) 75 ppm/24 hours: female 0-20 day(s) after conception: Reproductive: Specific Developmental Abnormalities: immune and reticuloendothelial system
TCLo (Inhalation-Mouse) 65 ppm/24 hours: female 7-18 day(s) after conception: Reproductive: Effects on Newborn: behavioral
TCLo (Inhalation-Mouse) 250 ppm/7 hours: female 6-15 day(s) after conception: Reproductive: Fertility: post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants); Specific Developmental Abnormalities: musculoskeletal system
TCLo (Inhalation-Mouse) 125 ppm/24 hours: female 7-18 day(s) after conception: Reproductive: Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus)
TCLo (Inhalation-Mouse) 8 pph/1 hour: female 8 day(s) after conception: Reproductive: Fertility: litter size (e.g. # fetuses per litter; measured before birth); Effects on Embryo or Fetus: fetotoxicity (except death, e.g., stunted fetus), fetal death

CARBON MONOXIDE (continued):

TCLo (Inhalation-Rabbit) 50 ppm/24 hours/8 weeks-continuous: Blood: changes in platelet count
TCLo (Inhalation-Mouse) 8 pph/1 hour: female 8 day(s) after conception: Reproductive: Specific Developmental Abnormalities: Central Nervous System
TCLo (Inhalation-Rabbit) 180 ppm/24 hours: female 1-30 day(s) after conception: Reproductive: Effects on Newborn: stillbirth, viability index (e.g., # alive at day 4 per # born alive)
Micronucleus Test (Inhalation-Mouse)1500 ppm/10 minutes
Sister Chromatid Exchange (Inhalation-Mouse) 2500 ppm/10 minutes

HYDROGEN SULFIDE:

LC_{50} (Inhalation-Rat) 444 ppm: Lungs, Thorax, or Respiration: other changes; Gastrointestinal: hypermotility, diarrhea; Kidney, Ureter, Bladder: urine volume increased
LC_{50} (Inhalation-Mouse) 634 ppm/1 hour
LCLo (Inhalation-Human) 600 ppm/30 minutes
LCLo (Inhalation-Man) 5700 µg/kg: Behavioral: coma; Lungs, Thorax, or Respiration: chronic pulmonary edema
LCLo (Inhalation-Human) 800 ppm/5 minutes
LCLo (Inhalation-Mammal-species unspecified) 800 ppm/5 minutes
TCLo (Inhalation-Rat) 30 ppm/6 hours/10 weeks-intermittent: Sense Organs and Special Senses (Olfaction): olfactory nerve change, effect, not otherwise specified
TCLo (Inhalation-Rat) 1200 mg/m^3/2 hours/5 days-intermittent: Brain and Coverings: other degenerative changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: true cholinesterase
TCLo (Inhalation-Rat) 100 ppm/8 hours/5 weeks-intermittent: Brain and Coverings: other degenerative changes; Lungs, Thorax, or Respiration: other changes; Biochemical: Enzyme inhibition, induction, or change in blood or tissue levels: cytochrome oxidases (including oxidative phosphorylation)
TCLo (Inhalation-Rat) 80 ppm/6 hours/90 days-intermittent: Brain and Coverings: changes in brain weight; Nutritional and Gross Metabolic: weight loss or decreased weight gain
TCLo (Inhalation-Rat) 20 ppm: female 6-22 day(s) after conception lactating female 21 day(s) post-birth: Reproductive: Effects on Newborn: physical
TCLo (Inhalation-Mouse) 80 ppm/6 hours/90 days-intermittent: Nutritional and Gross Metabolic: weight loss or decreased weight gain; Related to Chronic Data: death
TCLo (Inhalation-Rabbit) 40 mg/m^3/5 hours/30 weeks-intermittent: Sense Organs and Special Senses (Eye): conjunctive irritation

SUSPECTED CANCER AGENT: The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

IRRITANCY OF PRODUCT: This gas mixture is irritating to the eyes, and may be irritating to the skin.

SENSITIZATION OF PRODUCT: The components of this gas mixture are not known to be skin or respiratory sensitizers.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this gas mixture on the human reproductive system.

Mutagenicity: The components of this gas mixture are not reported to cause mutagenic effects in humans.

REPRODUCTIVE TOXICITY INFORMATION (continued):

Embryotoxicity: This gas mixture contains components that may cause embryotoxic effects in humans; however, due to the small total amount of the components, embryotoxic effects are not expected to occur.

Teratogenicity: This gas mixture is not expected to cause teratogenic effects in humans due to the small cylinder size and small total amount of all components. The Carbon Monoxide component of this gas mixture which exists up to 1%, can cause teratogenic effects in humans. Severe exposure to Carbon Monoxide during pregnancy has caused adverse effects and the death of the fetus. In general, maternal symptoms are an indicator of the potential risk to the fetus since Carbon Monoxide is toxic to the mother before it is toxic to the fetus.

Reproductive Toxicity: The components of this gas mixture are not reported to cause adverse reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

BIOLOGICAL EXPOSURE INDICES (BEIs): Biological Exposure Indices (BEIs) have been determined for components of this gas mixture, as follows:

CHEMICAL DETERMINANT	SAMPLING TIME	BEI
CARBON MONOXIDE • Carboxyhemoglobin in blood • Carbon monoxide in end-exhaled air	 • End of shift • End of shift	 • 3.5% of hemoglobin • 20 ppm

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: The gas will be dissipated rapidly in well-ventilated areas. The following environmental data are applicable to the components of this gas mixture.

CARBON MONOXIDE:

Atmospheric Fate: A photochemical model was used to quantify the sensitivity of the tropospheric oxidants ozone (O_3) and OH to changes in methane (CH_4), Carbon Monoxide (CO), and NO emissions and to perturbations in climate and stratospheric chemistry. In most cases, increased CH_4 and CO emissions will suppress OH (negative coefficients) in increased O_3 (positive coefficients) except in areas where NO and O_3 influenced by pollution are sufficient to increased OH. In most regions, NO, CO, and CH_4 emission increased will suppress OH and increased O_3, but these trends may be opposed by stratospheric O3 depletion and climate change.

HYDROGEN SULFIDE:

Water Solubility = 1 g/242 mL at 20°C.

Plant toxicity: Continuous fumigation of plants with 300 or 3000 ppb Hydrogen Sulfide caused leaf lesions, defoliation, and reduced growth with severity of injury correlated to dose. At higher (3.25 and 5.03 ppm) Hydrogen Sulfide, significant reductions in leaf CO2 and water vapor exchanges occurred, and stomatal openings were depressed. When Hydrogen Sulfide gas was applied to 29 species of green plants for 5 hours, young, rapidly elongating tissues were more sensitive to injury than older tissues. Symptoms included scorching of young shoots and

12. ECOLOGICAL INFORMATION(continued)

leaves, basal and marginal scorching of older leaves. Mature leaves were unaffected. Seeds exposed to Hydrogen Sulfide gas showed delay in germination.

Persistence: Converts to elemental sulfur upon standing in water.

Major Species Threatened: Aquatic and animal life plants may be injured if exposed to 5 ppm in air over 24 hours.

Biodegradation: Microorganisms in soil and water are involved in oxidation-reduction reactions that oxidize hydrogen sulfide to elemental sulfur. Members of the genera Beggiatoa, Thioploca, and Thiotrix function in transition zones between aerobic and anaerobic conditions where both molecular oxygen and hydrogen sulfide are found. Also, some photosynthetic bacteria oxidize hydrogen sulfide to elemental sulfur. Members of the families Chlorobiaceae and Chromatiaceae (purple sulfur bacteria) are obligate aerobes and are phototropic, and are found in waters with high H_2S concentrations. The interactions of these organisms form part of the global sulfur cycle.

Bioconcentration: Does not have bioaccumulation or food chain contamination potential.

NITROGEN: Water Solubility = 2.4 volumes Nitrogen/100 volumes water at 0°C; 1.6 volumes Nitrogen/100 volumes water at 20°C.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on this gas mixture's effects on plant and animal life. Hydrogen Sulfide and Carbon Monoxide, components of this gas mixture, can be deadly to exposed animal life, producing symptoms similar to those experienced by humans. This gas mixture may also be harmful to plant life.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on this gas mixture's effects on aquatic life. The presence of more than a trace of the Carbon Monoxide component of this gas mixture is a hazard to fish. The following aquatic toxicity data are available for the Hydrogen Sulfide component of this gas mixture:

HYDROGEN SULFIDE:

LC_{50} (*Asellus* arthropods) 96 hours = 0.111 mg/L

LC_{50} (*Crangon* arthropods) 96 hours = 1.07 mg/L

LC_{50} (*Gammarus* arthropods) 96 hours = 0.84 mg/L

LC_{50} (Ephemera) 96 hours = 0.316 mg/L

LC_{50} (Inhalation-Flies) > 960 minutes = 380 mg/m^3

LC_{50} (Inhalation-Flies) 7 minutes = 1,500 mg/m^3

LC_{50},F (bluegill, eggs) 72 hours = 0.0190 mg/L

HYDROGEN SULFIDE (continued):

LC_{50},F (bluegill, 35-day-old fry) 96 hours = 0.0131 mg/L

LC_{50},F (bluegill, juveniles) 96 hours = 0.0478 mg/L

LC_{50},F (bluegill, adults) 96 hours = 0.0448 mg/L

LC_{50},F (fathead minnows) 96 hours = 0.0071-0.55 mg/L

LC_{50},F (bluegill) 96 hours = 0.0090-0.0140 mg/L

LC_{50},F (brook trout) 96 hours = 0.0216-0.0308 mg/L

Toxic (goldfish) = 100 mg/L

HYDROGEN SULFIDE (continued):

Lethal (goldfish) 96 hours = 10 mg/L

Toxic (carp) 24 hours = 3.3 mg/L

Toxic (goldfish) 24 hours = 4.3 mg/L

Toxic (sunfish) 1 hour = 4.9 to 5.3 mg/L

Toxic (goldfish) 200 hours = 5 mg/L

Toxic (minnows) 24 hours = 5-6 mg/L

Toxic (carp) 24 hours = 6-25 mg/L

Toxic (trout) 15 minutes = 10 mg/L

Toxic (goldfish) 24 hours = 25 mg/L

Toxic (tench) 3 hours = 100 mg/L

MATC,F (fathead minnows) 0.0037 mg/L

MATC,F (bluegill) 0.0004 mg/L

MATC,F (brook trout) 0.055 mg/L

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

14. TRANSPORTATION INFORMATION

THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not Applicable

DOT LABEL(S) REQUIRED: Non-Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

U.S. DEPARTMENT OF TRANSPORTATION INFORMATION (continued):

MARINE POLLUTANT: The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).

SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

Note: DOT 39 Cylinders ship in a strong outer carton (overpack). Pertinent shipping information goes on the outside of the overpack. DOT 39 Cylinders do not have transportation information on the cylinder itself.

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This gas mixture is considered as Dangerous Goods, per regulations of Transport Canada.

PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.

HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)

UN IDENTIFICATION NUMBER: UN 1956

PACKING GROUP: Not Applicable

HAZARD LABEL: Class 2.2 (Non-Flammable Gas)

SPECIAL PROVISIONS: None

EXPLOSIVE LIMIT AND LIMITED QUANTITY INDEX: 0.12

ERAP INDEX: 3000

PASSENGER CARRYING SHIP INDEX: Forbidden

PASSENGER CARRYING ROAD VEHICLE OR PASSENGER CARRYING RAILWAY VEHICLE INDEX: Forbidden

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126

NOTE: Shipment of compressed gas cylinders via Public Passenger Road Vehicle is a violation of Canadian law (Transport Canada Transportation of Dangerous Goods Act, 1992).

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:

U.S. SARA REPORTING REQUIREMENTS: This gas mixture is subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act, as follows:

CHEMICAL NAME	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
Hydrogen Sulfide	YES	YES	YES

U.S. SARA THRESHOLD PLANNING QUANTITY: Hydrogen Sulfide = 500 lb (227 kg)

U.S. TSCA INVENTORY STATUS: The components of this gas mixture are listed on the TSCA Inventory.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Hydrogen Sulfide = 100 lb (45 kg)

OTHER U.S. FEDERAL REGULATIONS:

- Hydrogen Sulfide and Carbon Monoxide are subject to the reporting requirements of CFR 29 1910.1000.
- Hydrogen Sulfide and Methane are subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for each of these gases is 10,000 pounds and so this mixture will not be affected by the regulation.
- Depending on specific operations involving the use of this gas mixture, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Hydrogen Sulfide is listed in Appendix A of this regulation. The Threshold Quantity for Hydrogen Sulfide under this regulation is 1500 lbs (and so one cylinder of this gas mixture will not be affected by this regulation).
- This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Nitrogen and Oxygen are not listed Regulated Substances, per 40 CFR, Part 68, of the Risk Management for Chemical Releases. Hydrogen Sulfide is listed under this regulation in Table 1 as a Regulated Substance (Toxic Substance), in quantities of 10,000 lbs (4,553 kg) or greater.

15. REGULATORY INFORMATION(continued)

Carbon Monoxide and Methane are listed under this regulation in Table 3, as Regulated Substances (Flammable), in quantities of 10,000 lbs (4,553 kg) or greater, and so this mixture will not be affected by the regulation.

U.S. STATE REGULATORY INFORMATION: The components of this gas mixture are covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: Carbon Monoxide, Hydrogen Sulfide, Methane.

California - Permissible Exposure Limits for Chemical Contaminants: Carbon Monoxide, Nitrogen, Hydrogen Sulfide, Methane.

Florida - Substance List: Oxygen, Carbon Monoxide, Hydrogen Sulfide

Illinois - Toxic Substance List: Carbon Monoxide, Methane, Hydrogen Sulfide.

Kansas - Section 302/313 List: No.

Massachusetts - Substance List: Oxygen, Carbon Monoxide, Hydrogen Sulfide, Methane.

Michigan - Critical Materials Register: No.

Minnesota - List of Hazardous Substances: Carbon Monoxide, Hydrogen Sulfide, Methane.

Missouri - Employer Information/Toxic Substance List t: Hydrogen Sulfide, Methane.

New Jersey - Right to Know Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Methane.

North Dakota - List of Hazardous Chemicals, Reportable Quantities: Hydrogen Sulfide.

Pennsylvania - Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Hydrogen Sulfide, Methane.

Rhode Island - Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Hydrogen Sulfide, Methane.

Texas - Hazardous Substance List: Hydrogen Sulfide.

West Virginia - Hazardous Substance List: Hydrogen Sulfide.

Wisconsin - Toxic and Hazardous Substances: Hydrogen Sulfide

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): The Carbon Monoxide component of this gas mixture is on the California Proposition 65 lists. WARNING! This gas mixture contains a compound known to the State of California to cause birth defects or other reproductive harm.

ADDITIONAL CANADIAN REGULATIONS:

CANADIAN DSL/NDSL INVENTORY STATUS: The components of this gas mixture are listed on the DSL Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this gas mixture are not on the CEPA Priorities Substances Lists.

CANADIAN WHMIS CLASSIFICATION: This gas mixture is categorized as a Controlled Product, Hazard Classes A and D2A, as per the Controlled Product Regulations.

16. OTHER INFORMATION

INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS

DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures.

For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. CALGAZ will do this for any customer that wishes to return cylinders to us prepaid. All that is required is a phone call to make arrangements so we may anticipate arrival. Scrapping cylinders involves some preparation before the metal dealer may accept them. We perform this operation as a service to valued customers who want to participate.

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about the handling of compressed gases can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102. Telephone: (703) 412-0900.

P-1 *"Safe Handling of Compressed Gases in Containers"*

AV-1 *"Safe Handling and Storage of Compressed Gases"*

"Handbook of Compressed Gases"

PREPARED BY: CHEMICAL SAFETY ASSOCIATES, Inc.
PO Box 3519, La Mesa, CA 91944-3519
619/670-0609

Fax on Demand: 1-800/231-1366

AIR LIQUIDE™

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this gas mixture. To the best of CALGAZ knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

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Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

CAS number/other identifiers

CAS number : 7440-59-7

Product code : 001025

Ingredient name	%	CAS number
Helium	100	7440-59-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	Oxygen Depletion [Asphyxiant]

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

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Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Molecular weight : 4 g/mole

Molecular formula : He

Boiling/condensation point : -268.9°C (-452°F)

Melting/freezing point : -272.2°C (-458°F)

Critical temperature : -267.9°C (-450.2°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

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Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

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Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

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Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Helium	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

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Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

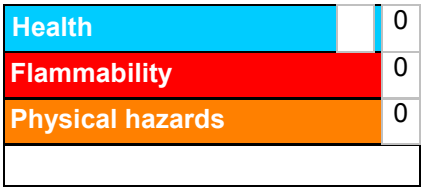
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 10/15/2014.

Date of issue/Date of revision : 10/15/2014.

Date of previous issue : 10/2/2014.

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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MATERIAL SAFETY DATA SHEET
HORIBA INSTRUMENTS, INC.
17671 Armstrong Avenue, Irvine, CA 92614
(949) 250-4811

REVISION DATE MAY 2003

SECTION I: MATERIAL IDENTIFICATION

IDENTITY: Potassium hydrogen phthalate
P/N 350623, 527033, 696138-1, 9003001600, 100-4

CHEMICAL FORMULA: $C_6H_4(COOK)(COOH)$ ~1% in water

GENERIC NAME: pH 4 Buffer Solution

CHEMICAL FAMILY: Salt solution

OTHER DESIGNATION: pH 4 Standard Solution, Autocal solution, 100-4

IN CASE OF EMERGENCY CONTACT YOUR REGIONAL PLANT MANAGER

SECTION II: HAZARDOUS INGREDIENTS

Irritant: Eyes, nose and throat, skin.

This product contains the following toxic chemical(s) subject to Section 313 Title III reporting requirements (40 CFR Part 372): NONE

SECTION III: PHYSICAL DATA

MELTING POINT (*): 295-300°C

SPECIFIC GRAVITY (H_2O = 1): 1.636

VAPOR PRESSURE: N/A

PERCENT, VOLATILE BY VOLUME (%): None

SOLUBILITY IN WATER v/v @°C: 1.2% (cool water) CAS #: 877-24-7

APPEARANCE AND ODOR: Colorless liquid

SECTION IV:PHYSICAL DATA

FLASH POINT AND METHOD: N/A

FLAMMABLE LIMITS: None

EXTINGUISHING MEDIA: Determine based on surrounding combustibles.

SPECIAL FIRE FIGHTING PROCEDURES: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: N/A

SECTION V: REACTIVITY DATA

STABILITY: Stable at normal temperature

INCOMPATIBILITY (MATERIALS TO AVOID): None

HAZARDOUS DECOMPOSITION PRODUCTS: None

HAZARDOUS POLYMERIZATION: None

SECTION VI: HEALTH HAZARD DATA

EMERGENCY AND FIRST AID PROCEDURES:

Eyes:	Wash eyes with clean water flowing for 10-15 minutes. Call doctor immediately.
Skin:	Take off contaminated clothing and wash skin with water.
Inhaled:	Move the patient into clear air. Keep patient warm and stable. Loosen clothing and use artificial respiration if necessary. Call doctor immediately.
Swallowed:	Give patient plenty of warm water/milk. Induce vomiting. Call doctor immediately. If patient is unconscious, do not give water/milk, but call doctor immediately.

SECTION VII: SPILL OR LEAK PROCEDURES

Highway or railway spills call Chemtrec (800) 424-9300

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Collect as much material as possible. The place of leakage should be washed with plenty of water.

WASTE DISPOSAL METHOD:
Dispose as chemical waste.

SECTION VIII: SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (SPECIFY TYPE):	Not normally required.
VENTILATION:	Not normally required.
OTHER PROTECTIVE EQUIPMENT:	Optional - eye mask, gloves and long-sleeve working clothes.

SECTION IX:SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:
After working, wash hands thoroughly.

OTHER PRECAUTIONS: None.

For the following RAE Part Numbers:

600-0001-000, 600-0002-000

600-0002-001, 600-0026-000

600-0027-000, 600-0069-000

AIR LIQUIDE

MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS: NONFLAMMABLE GAS MIXTURE

Containing One or More of the Following Components in a Nitrogen Balance Gas: Oxygen 0-23.5%; Isobutylene, 0.0005-0.9%

SYNONYMS: Not Applicable
CHEMICAL FAMILY NAME: Not Applicable
FORMULA: Not Applicable
Document Number: 50054

Note: The Material Safety Data Sheet is for this gas mixture supplied in cylinders with 33 cubic feet (935 liters) or less gas capacity (DOT - 39 cylinders). This MSDS has been developed for various gas mixtures with the composition of components within the ranges listed in Section 2 (Composition and Information on Ingredients). Refer to the product label for information on the actual composition of the product.

PRODUCT USE:	Calibration of Monitoring and Research Equipment
SUPPLIER/MANUFACTURER'S NAME:	CALGAZ
ADDRESS:	821 Chesapeake Drive Cambridge, MD 21613
EMERGENCY PHONE:	CHEMTREC: 1-800-424-9300
BUSINESS PHONE:	1-410-228-6400
General MSDS Information:	1-713/868-0440
Fax on Demand:	1-800/231-1366

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH-TLV		OSHA-PEL		NIOSH	OTHER
			TWA ppm	STEL ppm	TWA ppm	STEL ppm	IDLH ppm	ppm
Isobutylene	115-11-7	0.0005-0.9%	There are no specific exposure limits for Isobutylene.					
Oxygen	7782-44-7	0-23.5%	There are no specific exposure limits for Oxygen.					
Nitrogen	7727-37-9	Balance	There are no specific exposure limits for Nitrogen. Nitrogen is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					

NE = Not Established. See Section 16 for Definitions of Terms Used.

NOTE (1): ALL WHMIS required information is included in appropriate sections based on the ANSI Z400.1-1998 format. This gas mixture has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: This is a colorless, odorless gas mixture. Releases of this gas mixture may produce oxygen-deficient atmospheres (especially in confined spaces or other poorly-ventilated environments); individuals in such atmospheres may be asphyxiated. Isobutylene, a component of this gas mixture, may cause drowsiness and other central nervous system effects in high concentrations; however, due to its low concentration in this gas mixture, this is unlikely to occur.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant route of over-exposure for this gas mixture is by inhalation.

INHALATION: Due to the small size of an individual cylinder of this gas mixture, no unusual health effects from over-exposure to the product are anticipated under routine circumstances of use. The chief health hazard associated with this gas mixture is when this gas mixture contains less than 19.5% Oxygen and is released in a small, poorly-ventilated area (i.e. an enclosed or confined space). Under this circumstance, an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The effects associated with various levels of oxygen are as follows:

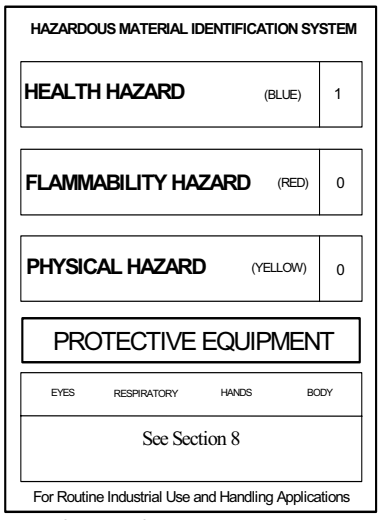
CONCENTRATION OF OXYGEN	OBSERVED EFFECT
12-16% Oxygen:	Breathing and pulse rate increase, muscular coordination slightly disturbed.
10-14% Oxygen:	Emotional upset, abnormal fatigue, disturbed respiration.
6-10% Oxygen:	Nausea, vomiting, collapse, or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Over-exposure to this gas mixture may cause the following health effects:

ACUTE: Due to the small size of the individual cylinder of this gas mixture, no unusual health effects from exposure to the product are anticipated under routine circumstances of use. The most significant hazard associated with this gas mixture when it contains less than 19.5% oxygen is the potential for exposure to oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, ringing in ears, headaches, shortness of breath, wheezing, headache, dizziness, indigestion, nausea, unconsciousness, and death. The skin of a victim of over-exposure may have a blue color. Additionally, Isobutylene, a component of this gas mixture, may cause drowsiness or central nervous system effects in high concentrations; however, due to its low concentration in this gas mixture, this is unlikely to occur.

CHRONIC: Chronic exposure to oxygen-deficient atmospheres (below 18% oxygen in air) may affect the heart and nervous system.

TARGET ORGANS: ACUTE: Respiratory system, eyes. CHRONIC: Heart, cardiovascular system, central nervous system.



4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO THIS GAS MIXTURE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn.

No unusual health effects are anticipated after exposure to this gas mixture, due to the small cylinder size. If any adverse symptom develops after over-exposure to this gas mixture, remove victim(s) to fresh air as quickly as possible. Only trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation if necessary. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions may be aggravated by over-exposure to this gas mixture.

RECOMMENDATIONS TO PHYSICIANS: Administer oxygen, if necessary; treat symptoms and eliminate exposure.

5. FIRE-FIGHTING MEASURES

FLASH POINT: Not applicable.

AUTOIGNITION TEMPERATURE: Not applicable.

FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): Not applicable.
Upper (UEL): Not applicable.

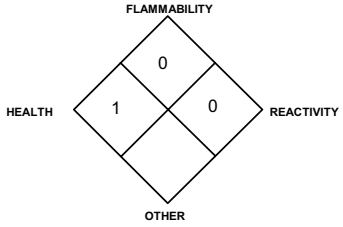
FIRE EXTINGUISHING MATERIALS: Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Not sensitive.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment.

NFPA RATING



6. ACCIDENTAL RELEASE MEASURES

LEAK RESPONSE: Due to the small size and content of the cylinder, an accidental release of this gas mixture presents significantly less risk of an oxygen deficient environment and other safety hazards than a similar release from a larger cylinder. However, as with any chemical release, extreme caution must be used during emergency response procedures. In the event of a release in which the atmosphere is unknown, and in which other chemicals are potentially involved, evacuate immediate area. Such releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a leak, clear the affected area, protect people, and respond with trained personnel.

Allow the gas mixture to dissipate. If necessary, monitor the surrounding area (and the original area of the release) for oxygen. Oxygen levels must be above 19.5% before non-emergency personnel are allowed to re-enter area.

If leaking incidentally from the cylinder, contact your supplier.

7. HANDLING and USE

WORK PRACTICES AND HYGIENE PRACTICES: Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to oxygen deficiency. Do not attempt to repair, adjust, or in any other way modify the cylinders containing this gas mixture. If there is a malfunction or another type of operational problem, contact nearest distributor immediately.

STORAGE AND HANDLING PRACTICES: Cylinders should be firmly secured to prevent falling or being knocked-over. Cylinders must be protected from the environment, and preferably kept at room temperature (approximately 21°C [70°F]). Cylinders should be stored in dry, well-ventilated areas, away from sources of heat, ignition, and direct sunlight. Protect cylinders against physical damage. Full and empty cylinders should be segregated. Use a first-in, first-out inventory system to prevent full containers from being stored for long periods of time. These cylinders are not refillable. **WARNING! Do not refill DOT 39 cylinders. To do so may cause personal injury or property damage.**

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: WARNING! Compressed gases can present significant safety hazards. During cylinder use, use equipment designed for these specific cylinders. Ensure all lines and equipment are rated for proper service pressure.

PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT: Follow practices indicated in Section 6 (Accidental Release Measures). Make certain that application equipment is locked and tagged-out safely. Always use product in areas where adequate ventilation is provided.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: No special ventilation systems or engineering controls are needed under normal circumstances of use. As with all chemicals, use this gas mixture in well-ventilated areas. If this gas mixture is used in a poorly-ventilated area, install automatic monitoring equipment to detect the levels of Nitrous Oxide and Oxygen.

RESPIRATORY PROTECTION: No special respiratory protection is required under normal circumstances of use. Maintain oxygen levels above 19.5% in the workplace. Use supplied air respiratory protection when oxygen levels are below 19.5%, or during emergency response to a release of this gas mixture. During an emergency situation, before entering the area, check the concentration of Methane and Oxygen. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: Wear leather gloves when handling cylinders. Chemically resistant gloves should be worn when using this gas mixture. If necessary, refer to U.S. OSHA 29 CFR 1910.138 or appropriate Standards of Canada.

BODY PROTECTION: No special protection is needed under normal circumstances of use. If a hazard of injury to the feet exists due to falling objects, rolling objects, where objects may pierce the soles of the feet or where employee's feet may be exposed to electrical hazards, use foot protection, as described in U.S. OSHA 29 CFR 1910.136.

9. PHYSICAL and CHEMICAL PROPERTIES

The following information is for Nitrogen, a main component of this gas mixture.

GAS DENSITY @ 32°F (0°C) and 1 atm: 0.072 lbs/ ft^3 (1.153 kg/m^3)

BOILING POINT: -195.8°C (-320.4°F)
FREEZING/MELTING POINT @ 10 psig: -210°C (-345.8°F)
SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C): 0.906
pH: Not applicable.
SOLUBILITY IN WATER vol/vol @ 32°F (0°C) and 1 atm: 0.023
MOLECULAR WEIGHT: 28.01
EVAPORATION RATE (nBuAc = 1): Not applicable.
EXPANSION RATIO: Not applicable.
ODOR THRESHOLD: Not applicable.
SPECIFIC VOLUME (ft^3/lb): 13.8
VAPOR PRESSURE @ 70°F (21.1°C) psig: Not applicable.
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

The following information is for Oxygen, a main component of this gas mixture.

GAS DENSITY @ 32°F (0°C) and 1 atm: 0.083 lb/cu ft (1.326 kg/m^3)

FREEZING/MELTING POINT @ 10 psig: -218.8°C (-361.8°F)
BOILING POINT: -183.0°C (-297.4°F)
SPECIFIC GRAVITY (air = 1) @ 70°F (21.1°C): 1.105
pH: Not applicable.
SOLUBILITY IN WATER vol/vol at 32°F (0°C) and 1 atm: 0.04.91
MOLECULAR WEIGHT: 32.00
EVAPORATION RATE (nBuAc = 1): Not applicable.
EXPANSION RATIO: Not applicable.
ODOR THRESHOLD: Not applicable.
VOLUME (ft^3/lb): 12.1
VAPOR PRESSURE @ 70°F (21.1°C) psig: Not applicable.
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

The following information is for the gas mixture.

APPEARANCE AND COLOR: This is a colorless, odorless gas mixture.

HOW TO DETECT THIS SUBSTANCE (warning properties): There are no unusual warning properties associated with a release of this gas mixture. In terms of leak detection, fittings and joints can be painted with a soap solution to detect leaks, which will be indicated by a bubble formation.

10. STABILITY and REACTIVITY

STABILITY: Normally stable in gaseous state.
DECOMPOSITION PRODUCTS: The thermal decomposition products of Isobutylene include carbon oxides. The other components of this gas mixture do not decompose, per se, but can react with other compounds in the heat of a fire.
MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Titanium will burn in the Nitrogen component of this gas mixture. Lithium reacts slowly with Nitrogen at ambient temperatures. The Isobutylene component of this gas mixture is also incompatible with strong oxidizers (i.e. chlorine, bromine pentafluoride, oxygen difluoride, and nitrogen trifluoride).
HAZARDOUS POLYMERIZATION: Will not occur.
CONDITIONS TO AVOID: Contact with incompatible materials. Cylinders exposed to high temperatures or direct flame can rupture or burst.

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following toxicology data are available for the components of this gas mixture:
ISOBUTYLENE:
LC_{50} (inhalation, rat) = 620,000 mg/kg/4 hours
LC_{50} (inhalation, mouse) = 415,000 mg/kg
NITROGEN:
There are no specific toxicology data for Nitrogen. Nitrogen is a simple asphyxiant, which acts to displace oxygen in the environment.
SUSPECTED CANCER AGENT: The components of this gas mixture are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.
IRRITANCY OF PRODUCT: Contact with rapidly expanding gases can be irritating to exposed skin and eyes.
SENSITIZATION TO THE PRODUCT: The components of this gas mixture are not known to cause human skin or respiratory sensitization.
REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this gas mixture and its components on the human reproductive system.
Mutagenicity: No mutagenicity effects have been described for the components in this gas mixture.
Embryotoxcity: No embryotoxic effects have been described for the components in this gas mixture.
Teratogenicity: No teratogenicity effects have been described for the components in this gas mixture.
Reproductive Toxicity: No reproductive toxicity effects have been described for the components in gas mixture.
A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generation lines. An embryotoxin is a chemical which causes damage to a developing embryo (i.e. within the first eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.
BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, Biological Exposure Indices (BEIs) are not applicable for the components of this gas mixture.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: The components of this gas mixture occur naturally in the atmosphere. The gas will be dissipated rapidly in well-ventilated areas. The following environmental data are applicable to the components of this gas mixture.
OXYGEN: Water Solubility = 1 volume Oxygen/32 volumes water at 20°C. Log K_{ow} = -0.65
NITROGEN: Water Solubility = 2.4 volumes Nitrogen/100 volumes water at 0°C. 1.6 volumes Nitrogen/100 volumes water at 20°C.
EFFECT OF MATERIAL ON PLANTS or ANIMALS: No evidence is currently available on the effects of this gas mixture on plant and animal life.
EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on the effects of this gas mixture on aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Cylinders with undesired residual product may be safely vented outdoors with the proper regulator. For further information, refer to Section 16 (Other Information).

14. TRANSPORTATION INFORMATION

THIS GAS MIXTURE IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.
PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.
HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)
UN IDENTIFICATION NUMBER: UN 1956
PACKING GROUP: Not applicable.
DOT LABEL(S) REQUIRED: Class 2.2 (Non-Flammable Gas)
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126
MARINE POLLUTANT: The components of this gas mixture are not classified by the DOT as Marine Pollutants (as defined by 49 CFR 172.101, Appendix B).
SPECIAL SHIPPING INFORMATION: Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.
Note: DOT 39 Cylinders ship in a strong outer carton (overpack). Pertinent shipping information goes on the outside of the overpack. DOT 39 Cylinders do not have transportation information on the cylinder itself.
TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: This gas is considered as Dangerous Goods, per regulations of Transport Canada.
PROPER SHIPPING NAME: Compressed gases, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.
HAZARD CLASS NUMBER and DESCRIPTION: 2.2 (Non-Flammable Gas)
UN IDENTIFICATION NUMBER: UN 1956
PACKING GROUP: Not Applicable
HAZARD LABEL: Class 2.2 (Non-Flammable Gas)
SPECIAL PROVISIONS: None
EXPLOSIVE LIMIT AND LIMITED QUANTITY INDEX: 0.12
ERAP INDEX: None
PASSENGER CARRYING SHIP INDEX: None
PASSENGER CARRYING ROAD VEHICLE OR PASSENGER CARRYING RAILWAY VEHICLE INDEX: 75
NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (2000): 126
NOTE: Shipment of compressed gas cylinders via Public Passenger Road Vehicle is a violation of Canadian law (Transport Canada Transportation of Dangerous Goods Act, 1992).

15. REGULATORY INFORMATION

ADDITIONAL U.S. REGULATIONS:
U.S. SARA REPORTING REQUIREMENTS: The components of this gas mixture are not subject to the reporting requirements of Sections 302, 304, and 313 of Title III of the Superfund Amendments and Reauthorization Act.
U.S. SARA THRESHOLD PLANNING QUANTITY: There are no specific Threshold Planning Quantities for this gas mixture. The default Federal MSDS submission and inventory requirement filing threshold of 10,000 lb (4,540 kg) may apply, per 40 CFR 370.20.
U.S. TSCA INVENTORY STATUS: The components of this gas mixture are listed on the TSCA Inventory.
U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.
OTHER U.S. FEDERAL REGULATIONS:
- No component of this gas mixture is subject to the requirements of CFR 29 1910.1000 (under the 1989 PELs).
- Isobutylene is subject to the reporting requirements of Section 112(r) of the Clean Air Act. The Threshold Quantity for this gas is 10,000 pounds.
- The regulations of the Process Safety Management of Highly Hazardous Chemicals are not applicable (29 CFR 1910.119).
- This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR Part 82).

15. REGULATORY INFORMATION (continued)

- Nitrogen and Oxygen are not listed as Regulated Substances, per 40 CFR, Part 68, of the Risk Management for Chemical Releases. Isobutylene is listed under this regulation in Table 3 as Regulated Substances (Flammable Substances), in quantities of 10,000 lbs (4,554 kg) or greater.

U.S. STATE REGULATORY INFORMATION: The components of this gas mixture are covered under the following specific State regulations:

Alaska - Designated Toxic and Hazardous Substances: No.
California - Permissible Exposure Limits for Chemical Contaminants: Nitrogen.
Florida - Substance List: Oxygen, Isobutylene.
Illinois - Toxic Substance List: No.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Oxygen, Isobutylene.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: No.
Missouri - Employer Information/Toxic Substance List: No.
New Jersey - Right to Know Hazardous Substance List: Oxygen, Nitrogen, Isobutylene.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
Pennsylvania - Hazardous Substance List: Oxygen, Nitrogen, Isobutylene.
Rhode Island - Hazardous Substance List: Oxygen, Nitrogen.
Texas - Hazardous Substance List: No.
West Virginia - Hazardous Substance List: No.
Wisconsin - Toxic and Hazardous Substances: : No.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): No component of this gas mixture is on the California Proposition 65 lists.

ADDITIONAL CANADIAN REGULATIONS:
CANADIAN DSL/NDSL INVENTORY STATUS: The components of this gas mixture are listed on the DSL Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this gas mixture are not on the CEPA Priorities Substances Lists.
CANADIAN WHMIS REGULATIONS: This gas mixture is categorized as a Controlled Product, Hazard Class A, as per the Controlled Product Regulations.

16. OTHER INFORMATION

INFORMATION ABOUT DOT-39 NRC (Non-Refillable Cylinder) PRODUCTS

DOT 39 cylinders ship as hazardous materials when full. Once the cylinders are relieved of pressure (empty) they are not considered hazardous material or waste. Residual gas in this type of cylinder is not an issue because toxic gas mixtures are prohibited. Calibration gas mixtures typically packaged in these cylinders are Nonflammable n.o.s., UN 1956. A small percentage of calibration gases packaged in DOT 39 cylinders are flammable or oxidizing gas mixtures.

For disposal of used DOT-39 cylinders, it is acceptable to place them in a landfill if local laws permit. Their disposal is no different than that employed with other DOT containers such as spray paint cans, household aerosols, or disposable cylinders of propane (for camping, torch etc.). When feasible, we recommended recycling for scrap metal content. CALGAZ will do this for any customer that wishes to return cylinders to us prepaid. All that is required is a phone call to make arrangements so we may anticipate arrival. Scrapping cylinders involves some preparation before the metal dealer may accept them. We perform this operation as a service to valued customers who want to participate.

MIXTURES: When two or more gases or liquefied gases are mixed, their hazardous properties may combine to create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an Industrial Hygienist or other trained person when you make your safety evaluation of the end product. Remember, gases and liquids have properties which can cause serious injury or death.

Further information about the handling of compressed gases can be found in the following pamphlets published by: Compressed Gas Association Inc. (CGA), 1725 Jefferson Davis Highway, Suite 1004, Arlington, VA 22202-4102. Telephone: (703) 412-0900.

P-1 *"Safe Handling of Compressed Gases in Containers"*
AV-1 *"Safe Handling and Storage of Compressed Gases"*
"Handbook of Compressed Gases"

PREPARED BY:
CHEMICAL SAFETY ASSOCIATES, Inc.
PO Box 3519, La Mesa, CA 91944-3519
619/670-0609
Fax on Demand: 1-800/231-1366

AIR LIQUIDE

This Material Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this gas mixture. To the best of CALGAZ knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.

SAFETY DATA SHEET

Creation Date 08-Nov-2010 **Revision Date** 18-Jun-2015 **Revision Number** 2

1. Identification

Product Name **Fluoranthene**

Cat No. : **AC119170000; AC119170250; AC119171000; AC119175000**

Synonyms Benzo[j,k]fluorene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Fluoranthene	206-44-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Get medical attention.

Most important symptoms/effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point 100 °C / 212 °F

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Avoid dust formation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Light green
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	109 - 111 °C / 228.2 - 231.8 °F
Boiling Point/Range	384 - 34 °C / 723.2 - 93.2 °F
Flash Point	100 °C / 212 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fluoranthene	2 g/kg (Rat)	3180 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Fluoranthene	206-44-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Fluoranthene	Not listed	Oncorhynchus mykiss: LC50=0.0077 mg/L 96h	Not listed	EC50: 0.78 mg/L 20h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Fluoranthene	5.33

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Fluoranthene - 206-44-0	U120	-

14. Transport information

DOT
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Proper technical name** (Fluoranthene)
- **Hazard Class** 9
- **Packing Group** III

TDG
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IATA
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Fluoranthene	X	-	X	205-912-4	-		-	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Fluoranthene	206-44-0	>95	1.0 0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Fluoranthene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluoranthene	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluoranthene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials



16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 08-Nov-2010
Revision Date 18-Jun-2015
Print Date 18-Jun-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Creation Date 08-Nov-2010 **Revision Date** 18-Jun-2015 **Revision Number** 2

1. Identification

Product Name **Fluoranthene**

Cat No. : **AC119170000; AC119170250; AC119171000; AC119175000**

Synonyms Benzo[j,k]fluorene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Fluoranthene	206-44-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Get medical attention.

Most important symptoms/effects No information available.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. alcohol-resistant foam.

Unsuitable Extinguishing Media No information available

Flash Point 100 °C / 212 °F

Method - No information available

Autoignition Temperature No information available

Explosion Limits

Upper No data available

Lower No data available

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Ensure adequate ventilation. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Avoid dust formation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Light green
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	109 - 111 °C / 228.2 - 231.8 °F
Boiling Point/Range	384 - 34 °C / 723.2 - 93.2 °F
Flash Point	100 °C / 212 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	No information available
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16 H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Fluoranthene	2 g/kg (Rat)	3180 mg/kg (Rabbit)	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Fluoranthene	206-44-0	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Fluoranthene	Not listed	Oncorhynchus mykiss: LC50=0.0077 mg/L 96h	Not listed	EC50: 0.78 mg/L 20h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Fluoranthene	5.33

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Fluoranthene - 206-44-0	U120	-

14. Transport information

DOT
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Proper technical name** (Fluoranthene)
- **Hazard Class** 9
- **Packing Group** III

TDG
- **UN-No** UN3077
- **Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
- **Hazard Class** 9
- **Packing Group** III

IATA
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

IMDG/IMO
- **UN-No** UN3077
- **Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s
- **Hazard Class** 9
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Fluoranthene	X	-	X	205-912-4	-		-	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Fluoranthene	206-44-0	>95	1.0 0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Fluoranthene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Fluoranthene	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Fluoranthene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials



16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	08-Nov-2010
Revision Date	18-Jun-2015
Print Date	18-Jun-2015
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Safety Data Sheet

Material Name: Fuel Oil No. 2

SDS No. 0088
EU/CLP GHS

Synonyms: #2 Heating Oil; 2 Oil; Off-road Diesel Fuel

* * * Section 1 - Product and Company Identification * * *

Manufacturer Information

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

Phone: 732-750-6000 Corporate EHS
Emergency # 800-424-9300 CHEMTREC
www.hess.com (Environment, Health, Safety Internet Website)

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 3
Acute Toxicity, Inhalation - Category 4
Skin Corrosion/Irritation – Category 2
Eye Damage/Irritation – Category 2
Carcinogenicity - Category 2
Specific Target Organ Toxicity (Single Exposure) – Category 3 (respiratory irritation, narcosis)
Aspiration Hazard – Category 1
Hazardous to the Aquatic Environment, Acute Hazard – Category 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statements

Flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes eye irritation.
Suspected of causing cancer.
Suspected of causing genetic defects.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May be fatal if swallowed and enters airways.
Harmful to aquatic life.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Avoid breathing fume/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash hands and forearms thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Avoid release to the environment.

Response

In case of fire: Use water spray, fog or foam.
If on skin (or hair): Wash with plenty of soap and water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center or doctor if you feel unwell.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
If exposed or concerned: Get medical advice/attention.
If swallowed: Immediately all a poison center or doctor/physician if you feel unwell. Do NOT induce vomiting.

Storage

Store in a well ventilated place.
Keep cool. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
68476-30-2	Fuel oil No. 2	100
91-20-3	Naphthalene	<0.1

A complex combination of hydrocarbons with carbon numbers in the range C9 and higher produced from the distillation of petroleum crude oil.

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

First Aid: Skin

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or with waterless hand cleanser. Obtain medical attention if irritation or redness develops.

First Aid: Ingestion

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

First Aid: Inhalation

Remove person to fresh air. If person is not breathing, provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

Hazardous Combustion Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

Extinguishing Media

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or gaseous extinguishing agent.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment. Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing. Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Carefully contain and stop the source of the spill, if safe to do so.

Materials and Methods for Clean-Up

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal.

Emergency Measures

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Personal Precautions and Protective Equipment

Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

Environmental Precautions

Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Handle as a combustible liquid. Keep away from heat, sparks, excessive temperatures and open flame! No smoking or open flame in storage, use or handling areas. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when this product is loaded into tanks previously containing low flash point products (such as gasoline) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents."

Storage Procedures

Keep containers closed and clearly labeled. Use approved vented storage containers. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks."

Incompatibilities

Keep away from strong oxidizers; Fluorel ®

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Fuel oil No. 2 (270-671-4)

ACGIH: 100 mg/m3 TWA (inhalable fraction and vapor, as total hydrocarbons, listed under Diesel fuel)
Skin - potential significant contribution to overall exposure by the cutaneous route (listed under Diesel fuel)

Belgium: 100 mg/m3 TWA (as total hydrocarbon, aerosol and vapor)
Skin (listed under Gas oil)

Portugal: 100 mg/m3 TWA [VLE-MP] (aerosol and vapor, as total Hydrocarbons, listed under Fuel diesel)

Naphthalene (202-049-5)

ACGIH: 15 ppm STEL
10 ppm TWA
Skin - potential significant contribution to overall exposure by the cutaneous route

Austria: 10 ppm TWA [TMW]; 50 mg/m3 TWA [TMW]
skin notation

Belgium: 15 ppm STEL; 80 mg/m3 STEL
10 ppm TWA; 53 mg/m3 TWA
Skin

Denmark: 10 ppm TWA; 50 mg/m3 TWA

Finland: 2 ppm STEL; 10 mg/m3 STEL
1 ppm TWA; 5 mg/m3 TWA

France: 10 ppm TWA [VME]; 50 mg/m3 TWA [VME]

Germany: 0.1 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when MAK and BAT values are observed, inhalable fraction, exposure factor 1); 0.5 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when MAK and BAT values are observed, inhalable fraction, exposure factor 1)

Greece: 10 ppm TWA; 50 mg/m3 TWA

Ireland: 15 ppm STEL; 75 mg/m3 STEL
10 ppm TWA; 50 mg/m3 TWA

Netherlands: 80 mg/m3 STEL
50 mg/m3 TWA

Portugal: 10 ppm TWA [VLE-MP]

Spain: 15 ppm STEL [VLA-EC]; 80 mg/m3 STEL [VLA-EC]
10 ppm TWA [VLA-ED]; 53 mg/m3 TWA [VLA-ED]
skin - potential for cutaneous exposure

Sweden: 10 ppm LLV; 50 mg/m3 LLV
15 ppm STV; 80 mg/m3 STV

Engineering Measures

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

Personal Protective Equipment: Respiratory

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

Personal Protective Equipment: Hands

Gloves constructed of nitrile, neoprene, or PVC are recommended.

Personal Protective Equipment: Eyes

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

Personal Protective Equipment: Skin and Body

Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Red or reddish/orange colored (dyed)	**Odor:**	Mild, petroleum distillate odor
Physical State:	Liquid	**pH:**	ND
Vapor Pressure:	0.009 psia @ 70 °F (21 °C)	**Vapor Density:**	>1.0
Boiling Point:	340 to 700 °F (171 to 371 °C)	**Melting Point:**	ND
Solubility (H2O):	Negligible	**Specific Gravity:**	AP 0.823-0871
Evaporation Rate:	Slow; varies with conditions	**VOC:**	ND
Octanol/H2O Coeff.:	ND	**Flash Point:**	100 °F (38 °C) minimum
Flash Point Method:	PMCC	**Upper Flammability Limit (UFL):**	7.5
Lower Flammability Limit (LFL):	0.6	**Burning Rate:**	ND
Auto Ignition:	494°F (257°C)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources.

Incompatible Products

Keep away from strong oxidizers; Fluorel ®

Hazardous Decomposition Products

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

A: General Product Information

Harmful if swallowed.

B: Component Analysis - LD50/LC50

Fuel oil No. 2 (68476-30-2)

Oral LD50 Rat 12 g/kg; Dermal LD50 Rabbit 4720 µL/kg; Dermal LD50 Rabbit >2000 mg/kg; Inhalation LC50 Rat 4.6 mg/L 4 h

Naphthalene (91-20-3)

Inhalation LC50 Rat >340 mg/m3 1 h; Oral LD50 Rat 490 mg/kg; Dermal LD50 Rat >2500 mg/kg; Dermal LD50 Rabbit >20 g/kg

Product Mixture

Oral LD50 Rat 14.5 ml/kg; Dermal LD50 Rabbit >5 mL/kg; Guinea Pig Sensitization: negative; Primary dermal irritation: moderately irritating (Draize mean irritation score - 3.98 rabbits); Draize eye irritation: mildly irritating (Draize score, 48 hours, unwashed - 2.0 rabbits)

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Contact with eyes may cause mild irritation.

Potential Health Effects: Ingestion

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

Potential Health Effects: Inhalation

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

Respiratory Organs Sensitization/Skin Sensitization

This product is not reported to have any skin sensitization effects.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects. Material of similar composition has been positive in a mutagenicity study.

Carcinogenicity

A: General Product Information

Suspected of causing cancer.

Dermal carcinogenicity: positive - mice

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

This product is similar to Diesel Fuel. IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A) and NIOSH regards it as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

B: Component Carcinogenicity

Fuel oil No. 2 (68476-30-2)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans (listed under Diesel fuel)

Naphthalene (91-20-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen
NTP: Reasonably Anticipated To Be A Human Carcinogen (Possible Select Carcinogen)
IARC: Monograph 82 [2002] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any specific target organ general toxicity single exposure effects.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ general toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Very toxic to aquatic life with long lasting effects. Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Fuel oil No. 2 (68476-30-2)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	35 mg/L [flow-through]	

Naphthalene (91-20-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	5.74-6.44 mg/L [flow-through]	
96 Hr LC50 Oncorhynchus mykiss	1.6 mg/L [flow-through]	

96 Hr LC50 Oncorhynchus mykiss	0.91-2.82 mg/L [static]
96 Hr LC50 Pimephales promelas	1.99 mg/L [static]
96 Hr LC50 Lepomis macrochirus	31.0265 mg/L [static]
72 Hr EC50 Skeletonema costatum	0.4 mg/L
48 Hr LC50 Daphnia magna	2.16 mg/L
48 Hr EC50 Daphnia magna	1.96 mg/L [Flow through]
48 Hr EC50 Daphnia magna	1.09 - 3.4 mg/L [Static]

Persistence/Degradability
No information available.

Bioaccumulation
No information available.

Mobility in Soil
No information available.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions
See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

IATA Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

ICAO Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

IMDG Information
Shipping Name: Heating oil, light
UN #: 1202 **Hazard Class:** 3 **Packing Group:** III

* * * Section 15 - Regulatory Information * * *

Regulatory Information

Component Analysis – Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Fuel oil No. 2 68476-30-2	270-671-4	EINECS	DSL	Yes
Naphthalene 91-20-3	202-049-5	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

None

Other Information

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

End of Sheet

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 6.2
Revision Date 23.06.2020
Print Date 19.06.2021
GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name	:	trans-Chlordane
Product Number	:	ERC-004
Brand	:	Cerilliant
REACH No.	:	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
CAS-No.	:	5103-74-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses	:	Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company	:	Sigma-Aldrich Inc. 3050 SPRUCE ST ST. LOUIS MO 63103 UNITED STATES
Telephone	:	+1 314 771-5765
Fax	:	+1 800 325-5052

1.4 Emergency telephone

Emergency Phone #	:	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 4), H332
Carcinogenicity (Category 2), H351
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

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Pictogram	
Signal word	Danger
Hazard statement(s)	
H301	Toxic if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P273	Avoid release to the environment.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
Supplemental Hazard Statements	none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Molecular weight	:	409,78 g/mol
CAS-No.	:	5103-74-2
EC-No.	:	225-826-0

Component	Classification	Concentration
trans-Chlordane		
	Acute Tox. 3; Acute Tox. 4; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H301, H332, H351, H400, H410 M-Factor - Aquatic Acute: 10	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

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7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Store in cool place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Color: white
b)	Odor	odorless

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c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	1,590 g/cm3
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available

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Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 200 mg/kg
LD50 Oral - Mouse - 145 mg/kg
Inhalation: (Regulation (EC) No 1272/2008, Annex VI)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (trans-Chlordane)

Reproductive toxicity

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0,044 mg/l - 96,0 h Remarks: (in analogy to similar products)
	LOEC - Pimephales promelas (fathead minnow) - 0,025 mg/l - 48,0 h Remarks: (in analogy to similar products)

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Toxicity to daphnia and other aquatic invertebrates	LOEC - Daphnia magna (Water flea) - 0,07 mg/l - 48 h Remarks: (in analogy to similar products)
	LC50 - Daphnia magna (Water flea) - 0,0984 mg/l - 48 h Remarks: (in analogy to similar products)

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
Very toxic to aquatic life with long lasting effects.
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 3077 IMDG: 3077 IATA: 3077

14.2 UN proper shipping name
ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)
IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (trans-Chlordane)
IATA: Environmentally hazardous substance, solid, n.o.s. (trans-Chlordane)

14.3 Transport hazard class(es)
ADR/RID: 9 IMDG: 9 IATA: 9

14.4 Packaging group
ADR/RID: III IMDG: III IATA: III

14.5 Environmental hazards
ADR/RID: yes IMDG Marine pollutant: yes IATA: yes

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14.6 Special precautions for user

No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H301	Toxic if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

SDS ID NO.: 0127MAR019
Revision Date: 06/01/2016

1. IDENTIFICATION

Product Name: Marathon Petroleum Gasoline - All Grades

Synonym: Gasoline; Regular Unleaded Gasoline; Conventional Regular Unleaded Gasoline; Mid Grade Unleaded Gasoline; Conventional Mid Grade Unleaded Gasoline; Premium Unleaded Gasoline; Conventional Premium Unleaded Gasoline; Sub-Octane Gasoline; Regular RBOB; Super RBOB; Premium RBOB; RBOB; Reformulated Blend Stock For Oxygenated Blending; 84 Octane Gasoline; CBOB; Premium CBOB; Conventional Blend Stock for Oxygenate Blending; Recreational Gasoline; Recreational Gasoline; Recreational Unleaded Gasoline; 89 Recreational Gasoline; Brand 89 Recreational Gasoline; 7.0 Max RVP 89 Recreational Gasoline; BR 7.0 Max RVP 89 Recreational Gasoline; 90 Recreational Gasoline; 90 Marina Gasoline; Brand 91 Recreational Gasoline; 91 Recreational Gasoline; 91 Marina Gasoline; 90 Octane Midgrade Gasoline with No Ethanol; 0125MAR019; 0126MAR019; 0134MAR019; 0313MAR019; 0314MAR019

Chemical Family: Complex Hydrocarbon Substance

Recommended Use: Fuel.
Restrictions on Use: All others.

Manufacturer, Importer, or Responsible Party Name and Address:

MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 1
Skin corrosion/irritation	Category 2
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1B
Reproductive toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Aspiration toxicity	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Hazards Not Otherwise Classified (HNOC)

Static accumulating flammable liquid

Label elements

EMERGENCY OVERVIEW

Danger

EXTREMELY FLAMMABLE LIQUID AND VAPOR
May accumulate electrostatic charge and ignite or explode
May be fatal if swallowed and enters airways
Causes skin irritation
May cause respiratory irritation
May cause drowsiness or dizziness
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
Toxic to aquatic life with long lasting effects



Appearance Clear yellow liquid **Physical State** Liquid **Odor** Hydrocarbon

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools.
Take precautionary measures against static discharge
Avoid breathing mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear protective gloves/protective clothing/eye protection/face protection
Wash hands and any possibly exposed skin thoroughly after handling
Avoid release to the environment

Precautionary Statements - Response
IF exposed or concerned: Get medical attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
If skin irritation occurs: Get medical attention
Wash contaminated clothing before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor if you feel unwell
IF SWALLOWED: Immediately call a POISON CENTER or doctor
Do NOT induce vomiting
In case of fire: Use water spray, fog or regular foam for extinction
Collect spillage

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Keep cool
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Gasoline is a complex combination of hydrocarbons consisting of paraffins, cycloparaffins, aromatic and olefinic hydrocarbons having molecular chains ranging in length from four to ten carbons. May contain small amounts of dye and other additives (>0.02%) which are not considered hazardous at the concentrations used.

Composition Information:

Name	CAS Number	% Concentration
Gasoline	86290-81-5	100
Heptane (mixed isomers)	142-82-5	2.5-26
Pentane (mixed isomers)	78-78-4	6.5-19
Butane (mixed isomers)	106-97-8	0.5-14
Hexane Isomers (other than n-Hexane)	107-83-5	2-12
Toluene	108-88-3	3-9.5
Xylene (mixed isomers)	1330-20-7	3.5-9.5
n-Hexane	110-54-3	0.1-4.5
Cumene	98-82-8	0-4
1,2,4 Trimethylbenzene	95-63-6	1-4
Ethylbenzene	100-41-4	0.5-2.5
Benzene	71-43-2	0.1-1.5
Cyclohexane	110-82-7	0-1.5
Octane	111-65-9	0-1.5
1,2,3-trimethylbenzene	526-73-8	0-1
Naphthalene	91-20-3	0.1-0.5

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

First Aid Measures

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation: Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest. If symptoms occur get medical attention.

Skin Contact: Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. May be absorbed through the skin in harmful amounts. Get medical attention if irritation persists. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious (See NOTES TO PHYSICIAN).

Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties. Destroy contaminated, non-chemical resistant footwear.

Eye Contact: Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Get medical attention if irritation persists.

Ingestion: Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Indication of any immediate medical attention and special treatment needed

Notes To Physician: INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES.

INGESTION: This material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media
Do not use straight water streams to avoid spreading fire.

Specific hazards arising from the chemical
This product has been determined to be an extremely flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the Emergency Response Guidebook 128.

Hazardous combustion products
Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data
Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid excessive water spray application. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Keep run-off water out of sewers and water sources.

Additional firefighting tactics
FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles: if this is impossible, withdraw from area and let fire burn.

EVACUATION: Consider initial downwind evacuation for at least 1000 feet. If tank, rail car or tank truck is involved in a fire, ISOLATE for 5280 feet (1 mile) in all directions; also, consider initial evacuation of 5280 feet (1 mile) in all directions.

NFPA	Health 1	Flammability 3	Instability 0	Special Hazard -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources.
Protective equipment:	Use personal protection measures as recommended in Section 8.
Emergency procedures:	Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate.
Environmental precautions:	Avoid release to the environment. Avoid subsoil penetration. Ethanol in gasoline phase seperates in contact with water. Monitor downstream for dissolved ethanol or other appropriate indicators.
Methods and materials for containment:	Contain liquid with sand or soil. Prevent spilled material from entering storm drains, sewers, and open waterways.
Methods and materials for cleaning up:	Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. HANDLING AND STORAGE

Safe Handling Precautions:

NEVER SIPHON THIS PRODUCT BY MOUTH. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Vapors may travel along the ground or be moved by ventilation. Flashback may occur along vapor trails. No smoking. Use only non-sparking tools. Avoid contact with skin, eyes and clothing. Avoid breathing fumes, gas, or vapors. Use only with adequate ventilation. Avoid repeated and prolonged skin contact. Use personal protection measures as recommended in Section 8. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Hydrocarbons are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering, pumping at high flow rates or loading and transfer operations. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic chemical vapors or mists from process equipment operating under elevated temperature and pressure, or sudden ingress of air into vacuum equipment may result in ignition of vapors or mists without the presence of obvious ignition sources. Nozzle spouts must be kept in contact with the containers or tank during the entire filling operation.

Portable containers should never be filled while in or on a motor vehicle or marine craft. Containers should be placed on the ground. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers.

A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling.

Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

High-pressure injection of any material through the skin is a serious medical emergency even though the small entrance wound at the injection site may not initially appear serious. These injection injuries can occur from high-pressure equipment such as paint spray or grease or guns, fuel injectors, or pinhole leaks in hoses or hydraulic lines and should all be considered serious. High pressure injection injuries may be SERIOUS SURGICAL EMERGENCIES (See First Aid Section 4).

Storage Conditions:

Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area. Do not store near an open flame, heat or other sources of ignition.

Incompatible Materials

Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
Gasoline 86290-81-5	300 ppm TWA 500 ppm STEL	-	300 ppm TWA 900 mg/m^3 TWA 500 ppm STEL 1500 mg/m^3 STEL	-

Heptane (mixed isomers) 142-82-5	400 ppm TWA 500 ppm STEL	TWA: 500 ppm TWA: 2000 mg/m³	400 ppm TWA 1600 mg/m³ TWA 500 ppm STEL 2000 mg/m³ STEL	750 ppm
Pentane (mixed isomers) 78-78-4	1000 ppm TWA	-	-	-
Butane (mixed isomers) 106-97-8	1000 ppm STEL	-	800 ppm TWA 1900 mg/m³ TWA	-
Hexane Isomers (other than n-Hexane) 107-83-5	500 ppm TWA 1000 ppm STEL	-	500 ppm TWA 1800 mg/m³ TWA 1000 ppm STEL 3600 mg/m³ STEL	-
Toluene 108-88-3	20 ppm TWA	TWA: 200 ppm Ceiling: 300 ppm	100 ppm TWA 375 mg/m³ TWA 150 ppm STEL 560 mg/m³ STEL	500 ppm
Xylene (mixed isomers) 1330-20-7	100 ppm TWA 150 ppm STEL	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 150 ppm STEL 655 mg/m³ STEL	900 ppm
n-Hexane 110-54-3	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 500 ppm TWA: 1800 mg/m³	50 ppm TWA 180 mg/m³ TWA	1100 ppm
Cumene 98-82-8	50 ppm TWA	TWA: 50 ppm TWA: 245 mg/m³ Skin	50 ppm TWA 245 mg/m³ TWA Limit applies to skin	900 ppm
1,2,4 Trimethylbenzene 95-63-6	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Ethylbenzene 100-41-4	20 ppm TWA	TWA: 100 ppm TWA: 435 mg/m³	100 ppm TWA 435 mg/m³ TWA 125 ppm STEL 545 mg/m³ STEL	800 ppm
Benzene 71-43-2	0.5 ppm TWA 2.5 ppm STEL Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm (applies to industry segments exempt from the benzene standard) TWA: 1 ppm STEL: 5 ppm (see 29 CFR 1910.1028)	25 ppm Ceiling 1 ppm TWA 5 ppm STEL	500 ppm
Cyclohexane 110-82-7	100 ppm TWA	TWA: 300 ppm TWA: 1050 mg/m³	300 ppm TWA 1050 mg/m³ TWA	1300 ppm
Octane 111-65-9	300 ppm TWA	TWA: 500 ppm TWA: 2350 mg/m³	300 ppm TWA 1450 mg/m³ TWA 375 ppm STEL 1800 mg/m³ STEL	1000 ppm
1,2,3-trimethylbenzene 526-73-8	25 ppm TWA	-	25 ppm TWA 125 mg/m³ TWA	-
Naphthalene 91-20-3	10 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm TWA: 50 mg/m³	10 ppm TWA 50 mg/m³ TWA 15 ppm STEL 75 mg/m³ STEL	250 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof.

Personal protective equipment

Eye protection: Use goggles or face-shield if the potential for splashing exists.

Skin and body protection: Use nitrile rubber, Viton® or PVA gloves for repeated or prolonged skin exposure. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use a NIOSH approved organic vapor chemical cartridge or supplied air respirators when there is the potential for airborne exposures to exceed permissible exposure limits or if excessive vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid
Appearance	Clear yellow liquid
Color	Yellow
Odor	Hydrocarbon
Odor Threshold	No data available.

Property	**Values (Method)**
Melting Point / Freezing Point	No data available.
Initial Boiling Point / Boiling Range	24-210 °C / 75-410 °F (ASTM D86)
Flash Point	-43 °C / -45 °F
Evaporation Rate	No data available.
Flammability (solid, gas)	Not applicable.
Flammability Limit in Air (%):	
Upper Flammability Limit:	7.6
Lower Flammability Limit:	1.4
Explosion limits:	No data available.
Vapor Pressure	5.5-15 psi (ASTM D4814)
Vapor Density	3-4
Specific Gravity / Relative Density	0.70-0.76
Water Solubility	No data available.
Solubility in other solvents	No data available.
Partition Coefficient	2.13-4.5
Decomposition temperature	No data available.
pH:	Not applicable
Autoignition Temperature	280 °C / 536 °F
Kinematic Viscosity	No data available.
Dynamic Viscosity	No data available.
Explosive Properties	No data available.
VOC Content (%)	100%
Density	No data available.
Bulk Density	Not applicable.

10. STABILITY AND REACTIVITY

Reactivity The product is non-reactive under normal conditions.

Chemical stability The material is stable at 70°F, 760 mmHg pressure.

Possibility of hazardous reactions None under normal processing.

Hazardous polymerization Will not occur.

Conditions to avoid Excessive heat, sources of ignition, open flame.

Incompatible Materials Strong oxidizing agents.

Hazardous decomposition products None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation May cause irritation of respiratory tract. May cause drowsiness or dizziness. Breathing high concentrations of this material in a confined space or by intentional abuse can cause irregular heartbeats which can cause death.

Eye contact Exposure to vapor or contact with liquid may cause mild eye irritation, including tearing, stinging, and redness.

Skin contact Causes skin irritation. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Ingestion May be fatal if swallowed or vomited and enters airways. May cause irritation of the mouth, throat and gastrointestinal tract.

Acute toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Gasoline 86290-81-5	14000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Heptane (mixed isomers) 142-82-5	-	3000 mg/kg (Rabbit)	103 g/m³ (Rat) 4 h
Pentane (mixed isomers) 78-78-4	-	-	450 mg/L (Mouse) 2 h
Butane (mixed isomers) 106-97-8	-	-	658 mg/L (Rat) 4 h
Hexane Isomers (other than n-Hexane) 107-83-5	> 5000 mg/kg (Rat)	-	-
Toluene 108-88-3	> 2000 mg/kg (Rat)	8390 mg/kg (Rabbit)	12.5 mg/L (Rat) 4 h
Xylene (mixed isomers) 1330-20-7	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.04 mg/L (Rat) 4 h
n-Hexane 110-54-3	15000 mg/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Cumene 98-82-8	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 20 mg/L (Rat) 6 h
1,2,4 Trimethylbenzene 95-63-6	3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	18,000 mg/m³ (Rat) 4 h
Ethylbenzene 100-41-4	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 20 mg/l (Rat) 4 h
Cyclohexane 110-82-7	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	13.9 mg/L (Rat) 4 h
Octane 111-65-9	-	-	118 g/m³ (Rat) 4 h
1,2,3-trimethylbenzene 526-73-8	-	-	-
Naphthalene 91-20-3	490 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

C9 AROMATIC HYDROCARBONS: A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

PENTANES: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

BUTANES: Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate longterm exposure may be related to impaired color vision and hearing. Some studies of workers suggest longterm exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest longterm exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals have been largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Adverse effects on the liver, kidney, thymus and nervous system were observed in animal studies following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, nervous system damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported

in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure with evidence of maternal toxicity. The relevance of these observations to humans is not clear at this time. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

1,2,4-TRIMETHYLBENZENE: The following information pertains to a mixture of C9 aromatic hydrocarbons, over 40% of which was composed of 1,2,4-trimethylbenzene. A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm. Embryotoxicity has been reported in studies of laboratory animals. Adverse effects included increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate.<n><n>

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. Testicular atrophy and partial to full loss of the germ cell line were observed in sub-chronic high-dose inhalation studies of laboratory rodents. These effects appeared irreversible. Rodent reproduction studies have shown evidence of reduced fetal weight but no frank malformations.

CUMENE: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression. Studies in laboratory animals indicate evidence of respiratory tract hyperplasia, and adverse effects on the liver, kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time. Findings from lifetime laboratory rodent inhalation studies were as follows: In F344/N rats: an increased incidence of renal carcinomas and adenomas, respiratory epithelial adenomas, and interstitial cell adenomas of the testes. In B6C3F1 mice: an increased incidence of carcinomas and adenomas of the bronchi and lung, liver neoplasms, hemangiosarcomas of the spleen, and adenomas of the thyroid.

ETHYLBENZENE: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). The incidence of tumors was also elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure with evidence of maternal toxicity. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals have demonstrated evidence of ototoxicity (hearing loss) following exposure levels as low as 300 ppm for 5 days. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

BENZENE: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer and other diseases of the blood forming organs including Acute

Myelogenous Leukemia (AML), and Aplastic Anemia (AA), an often fatal disease. Some studies suggest overexposure to benzene may also be associated with Myelodysplastic Syndrome (MDS). Findings from a case control study of workers exposed to benzene was reported during the 2009 Benzene Symposium in Munich included an increase in Acute Myeloid Leukemias and Non-Hodgkins Lymphoid Neoplasms (NHLN) of the subtype follicular lymphoma (FL) in some occupational categories. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of AA have been reported in the offspring of persons severely overexposed to benzene. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and minor skeletal variations. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC. The current proposed IARC classification for benzene is summarized as follows: Sufficient evidence for Acute Myeloid Leukemia; limited evidence for Acute Lymphatic Leukemia, Chronic Lymphatic Leukemia, Non-Hodgkin Lymphoma, and Multiple Myeloma.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

CARBON MONOXIDE: is a chemical asphyxiant with no warning properties (such as odor). At 400-500 ppm for 1 hour headache and dyspnea may occur. If activity is increased, symptoms of overexposure may include nausea, irritability, increased respiration, tinnitus, sweating, chest pain, confusion, impaired judgement, dizziness, weakness, drowsiness, ataxia, irregular heart beat, cyanosis and pallor. Levels in excess of 1000 ppm can result in collapse, loss of conciousness, respiratory failure and death. Extremely high concentrations (12,800 ppm) can cause immediate unconsciousness and death in 1-3 minutes. Repeated anoxia can lead to central nervous system damage and peripheral neuropathy, with loss of sensation in the fingers, amnesia, and mental deterioration and possible congestive heart failure. Damage may also occur to the fetus, lung, liver, kidney, spleen, cardiovascular system and other organs.

WHOLLY-VAPORIZED UNLEADED GASOLINE: Lifetime exposure to wholly vaporized unleaded gasoline produced an increased incidence of liver tumors in female mice exposed to the highest exposure concentration (2056 ppm) and α-2 urinary globulin-mediated kidney tumors in male rats. No exposure-related tumors were observed in male mice or female rats. The male-specific rat kidney tumors are not considered relevant to human health. Mice receiving lifetime repeated skin application of various petroleum naphthas exhibited an irritation-dependent increased incidence of skin tumors. Additional studies suggest that these tumors occur through a mechanism that may not be relevant to human health. Epidemiological data from over 18,000 petroleum marketing and distribution workers

showed no increased risk of leukemia, multiple myeloma, or kidney cancer resulting from gasoline exposure. Unleaded gasoline has been identified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

COMBUSTION ENGINE EXHAUST: Chronic inhalation studies of gasoline engine exhaust in mice, rats and hamsters did not produce any carcinogenic effects. Condensates/extracts of gasoline engine exhaust produced an increase in tumors compared to controls when testing by skin painting, subcutaneous injection, intratracheal instillation or implantation into the lungs. Gasoline exhaust has been classified as possibly carcinogenic to humans (2B) by the International Agency for Research on Cancer (IARC).

Adverse effects related to the physical, chemical and toxicological characteristics

Signs and Symptoms Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Sensitization Not expected to be a skin or respiratory sensitizer.

Mutagenic effects May cause genetic defects.

Carcinogenicity May cause cancer.

Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Gasoline 86290-81-5	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Heptane (mixed isomers) 142-82-5	Not Listed	Not Listed	Not Listed	Not Listed
Pentane (mixed isomers) 78-78-4	Not Listed	Not Listed	Not Listed	Not Listed
Butane (mixed isomers) 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Hexane Isomers (other than n-Hexane) 107-83-5	Not Listed	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	Not Classifiable (A4)	Not Classifiable (3)	Not Listed	Not Listed
Xylene (mixed isomers) 1330-20-7	Not classifiable (A4)	Not classifiable (3)	Not Listed	Not Listed
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Cumene 98-82-8	Not listed	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not listed
1,2,4 Trimethylbenzene 95-63-6	Not Listed	Not Listed	Not Listed	Not Listed
Ethylbenzene 100-41-4	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Not Listed	Not Listed
Benzene 71-43-2	Confirmed human carcinogen (A1)	Carcinogenic to humans (1)	Known to be human carcinogen	Known carcinogen
Cyclohexane 110-82-7	Not Listed	Not Listed	Not Listed	Not Listed
Octane 111-65-9	Not Listed	Not Listed	Not Listed	Not Listed
1,2,3-trimethylbenzene 526-73-8	Not Listed	Not Listed	Not Listed	Not Listed
Naphthalene 91-20-3	Confirmed animal carcinogen (A3)	Possible human carcinogen (2B)	Reasonably anticipated to be a human carcinogen	Not Listed

Reproductive toxicity Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (STOT) - single exposure Respiratory system. Central nervous system.

Specific Target Organ Toxicity (STOT) - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed or vomited and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Gasoline 86290-81-5	72-hr EC50 = 56 mg/l Algae	96-hr LC50 = 11 mg/l Rainbow trout (static)	-	48-hr LC50 = 7.6 mg/l Daphnia magna
Heptane (mixed isomers) 142-82-5	-	96-hr LC50 = 375 mg/L Tilapia	-	-
Pentane (mixed isomers) 78-78-4	-	96-hr LC50 = 3.1 mg/L Rainbow trout	-	48-hr EC50 = >1 - <10 mg/L Daphnia magna
Butane (mixed isomers) 106-97-8	-	-	-	-
Hexane Isomers (other than n-Hexane) 107-83-5	-	-	-	-
Toluene 108-88-3	72-hr EC50 = 12.5 mg/l Algae	96-hr LC50 <= 10 mg/l Rainbow trout	-	48-hr EC50 = 5.46-9.83 mg/l Daphnia magna 48-hr EC50 = 11.5 mg/l Daphnia magna (Static)
Xylene (mixed isomers) 1330-20-7	72-hr EC50 = 11 mg/l Algae	96-hr LC50 = 8 mg/l Rainbow trout	-	48-hr LC50 = 3.82 mg/l Daphnia magna
n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/l Fathead minnow	-	-
Cumene 98-82-8	72-hr EC50 = 2.6 mg/l Algae	96-hr LC50 = 6.04-6.61 mg/l Fathead minnow (Flow-through) 96-hr LC50 = 2.7 mg/l Rainbow trout (semi-static)	-	48-hr EC50 = 7.9-14.1 mg/l Daphnia magna (static)
1,2,4 Trimethylbenzene 95-63-6	-	96-hr LC50 = 7.19-8.28 mg/l Fathead minnow (flow-through)	-	48-hr EC50 = 6.14 mg/L Daphnia magna
Ethylbenzene 100-41-4	72-hr EC50 = 1.7-7.6 mg/l Algae	96-hr LC50 = 4 mg/L Rainbow trout	-	48-hr EC50 = 1-4 mg/L Daphnia magna
Benzene 71-43-2	72-hr EC50 = 29 mg/l Algae	96-hr LC50 = 5.3 mg/l Rainbow trout (flow-through)	-	48-hr EC50 = 8.76-15.6 mg/l Daphnia magna (Static)
Cyclohexane 110-82-7	72-hr EC50 = 500 mg/l Algae	96-hr LC50 = 3.96-5.18 mg/l Fathead minnow	-	48-hr EC50 = 1.7-3.5 mg/L Bay shrimp
Octane 111-65-9	-	-	-	48-hr LC50 = 0.38 mg/l Daphnia magna
1,2,3-trimethylbenzene 526-73-8	-	96-hr LC50 = 7.72 mg/l Fathead Minnow (flow-through)	-	-
Naphthalene 91-20-3	-	96-hr LC50 = 0.91-2.82 mg/l Rainbow trout (static) 96-hr LC50 = 1.99 mg/l Fathead minnow (static)	-	48-hr LC50 = 1.6 mg/l Daphnia magna

Persistence and degradability Expected to be inherently biodegradable. The presence of ethanol in this product may impede the biodegradation of benzene, toluene, ethylbenzene and xylene in groundwater, resulting in elongated plumes of these constituents.

Bioaccumulation Has the potential to bioaccumulate.

Mobility in soil May partition into air, soil and water.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
This material may be a flammable liquid waste.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):

UN Proper Shipping Name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing Group:	II

TDG (Canada):

UN Proper Shipping Name:	Gasoline
UN/Identification No:	UN 1203
Transport Hazard Class(es):	3
Packing Group:	II

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Gasoline	NA
Heptane (mixed isomers)	NA
Pentane (mixed isomers)	NA
Butane (mixed isomers)	NA
Hexane Isomers (other than n-Hexane)	NA
Toluene	NA
Xylene (mixed isomers)	NA

n-Hexane	NA
Cumene	NA
1,2,4 Trimethylbenzene	NA
Ethylbenzene	NA
Benzene	NA
Cyclohexane	NA
Octane	NA
1,2,3-trimethylbenzene	NA
Naphthalene	NA

SARA Section 304: This product may contain component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

Name	Hazardous Substances RQs
Gasoline	NA
Heptane (mixed isomers)	NA
Pentane (mixed isomers)	NA
Butane (mixed isomers)	NA
Hexane Isomers (other than n-Hexane)	NA
Toluene	1000 lb final RQ 454 kg final RQ
Xylene (mixed isomers)	100 lb final RQ 45.4 kg final RQ
n-Hexane	5000 lb final RQ 2270 kg final RQ
Cumene	5000 lb final RQ 2270 kg final RQ
1,2,4 Trimethylbenzene	NA
Ethylbenzene	1000 lb final RQ 454 kg final RQ
Benzene	10 lb final RQ 4.54 kg final RQ
Cyclohexane	1000 lb final RQ 454 kg final RQ
Octane	NA
1,2,3-trimethylbenzene	NA
Naphthalene	100 lb final RQ 45.4 kg final RQ

SARA: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313: This product may contain component(s), which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R).

Name	CERCLA/SARA 313 Emission reporting:
Gasoline	None
Heptane (mixed isomers)	None
Pentane (mixed isomers)	None
Butane (mixed isomers)	None
Hexane Isomers (other than n-Hexane)	None
Toluene	1.0 % de minimis concentration
Xylene (mixed isomers)	1.0 % de minimis concentration
n-Hexane	1.0 % de minimis concentration
Cumene	1.0 % de minimis concentration

1,2,4 Trimethylbenzene	1.0 % de minimis concentration
Ethylbenzene	0.1 % de minimis concentration
Benzene	0.1 % de minimis concentration
Cyclohexane	1.0 % de minimis concentration
Octane	None
1,2,3-trimethylbenzene	None
Naphthalene	0.1 % de minimis concentration

State and Community Right-To-Know Regulations:
The following component(s) of this material are identified on the regulatory lists below:

Gasoline

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0957
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0957 TPQ: 10000 lb (Under N.J.A.C. 7:1G, environmental hazardous substances in mixtures such as gasoline or new and used petroleum oil may be reported under these categories)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Heptane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1339
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Pentane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1064
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed

California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1064 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Butane (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0273
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0273 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Hexane Isomers (other than n-Hexane)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1285
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Not Listed
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Toluene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Developmental toxicity, initial date 1/1/91 Female reproductive toxicity, initial date 8/7/09
New Jersey Right-To-Know:	SN 1866
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed

New Jersey - Special Hazardous Substances:	Flammable - third degree; Teratogen
New Jersey - Environmental Hazardous Substances List:	SN 1866 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Xylene (mixed isomers)

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 2014
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold all isomers
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 2014 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

n-Hexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1340
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 1340 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1 lb RQ (air); 1 lb RQ (land/water)

Cumene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/6/10
New Jersey Right-To-Know:	SN 0542
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin)
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0542 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	5000 lb RQ (air); 1 lb RQ (land/water)

1,2,4 Trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Ethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 6/11/04
New Jersey Right-To-Know:	SN 0851
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen; flammable - Third degree
New Jersey - Environmental Hazardous Substances List:	SN 0851 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Benzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 2/27/87 Developmental toxicity, initial date 12/26/97 Male reproductive toxicity, initial date 12/26/97
New Jersey Right-To-Know:	SN 0197
Pennsylvania Right-To-Know:	Environmental hazard; Special hazardous substance
Massachusetts Right-To Know:	Carcinogen; Extraordinarily hazardous
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic (skin); Flammable (skin); Carcinogen (skin)
Michigan Critical Materials Register List:	100 lb Annual usage threshold
Massachusetts Extraordinarily Hazardous Substances:	Carcinogen; Extraordinarily hazardous
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Present
New Jersey - Special Hazardous Substances:	Carcinogen; Flammable - third degree; Mutagen
New Jersey - Environmental Hazardous Substances List:	SN 0197 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	10 lb RQ (air); 1 lb RQ (land/water)

Cyclohexane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0565
Pennsylvania Right-To-Know:	Environmental hazard
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	SN 0565 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	1000 lb RQ (air); 1 lb RQ (land/water)

Octane

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1434
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - third degree
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

1,2,3-trimethylbenzene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1929
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Not Listed
New Jersey - Environmental Hazardous Substances List:	Not Listed
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Naphthalene

Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Carcinogen, initial date 4/19/02
New Jersey Right-To-Know:	SN 1322 SN 3758

Pennsylvania Right-To-Know:	Environmental hazard Present (particulate)
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Carcinogen
New Jersey - Environmental Hazardous Substances List:	SN 1322 TPQ: 500 lb (Reportable at the de minimis quantity of >0.1%)
Illinois - Toxic Air Contaminants:	Present
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	100 lb RQ (air); 1 lb RQ (land/water)

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Gasoline	B2,D2A,D2B	0.1%
Heptane (mixed isomers)	B2,D2B	1%
Pentane (mixed isomers)	B2	1%
Butane (mixed isomers)	A,B1	1%
Hexane Isomers (other than n-Hexane)	B2	1%
Toluene	B2,D2A,D2B	0.1%
Xylene (mixed isomers)	B2,D2A,D2B	m-, o-isomers 1.0%; p-isomer 0.1%
n-Hexane	B2,D2A,D2B	1%
Cumene	B2,D2A	0.1%
1,2,4 Trimethylbenzene	B3,D2B	1%
Ethylbenzene	B2,D2A,D2B	0.1%
Benzene	B2,D2A,D2B	0.1%
Cyclohexane	B2,D2B	1%
Octane	B2,D2B	1%
1,2,3-trimethylbenzene	B3	1%
Naphthalene	B4,D2A	0.1%



Note: Not applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety

Revision Date: 06/01/2016

Revision Note:

Revised Sections

The following sections (§) have been updated:
1. IDENTIFICATION
2. HAZARD IDENTIFICATION
3. COMPOSITION/INFORMATION ON INGREDIENTS
4. FIRST AID MEASURES
6. ACCIDENTAL RELEASE MEASURES
7. HANDLING AND STORAGE
8. EXPOSURE CONTROLS/PERSONAL PROTECTION
9. PHYSICAL AND CHEMICAL PROPERTIES
11. TOXICOLOGICAL INFORMATION
12. ECOLOGICAL INFORMATION
15. REGULATORY INFORMATION

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

SAFETY DATA SHEET

Helium

Section 1. Identification

GHS product identifier : Helium

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

Product use : Synthetic/Analytical chemistry.

Synonym : helium (dot); Helium-4; He; o-Helium; UN 1046

SDS # : 001025

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

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Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Helium

Other means of identification : helium (dot); Helium-4; He; o-Helium; UN 1046

CAS number/other identifiers

CAS number : 7440-59-7

Product code : 001025

Ingredient name	%	CAS number
Helium	100	7440-59-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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Section 4. First aid measures

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Helium	Oxygen Depletion [Asphyxiant]

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

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Section 8. Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Molecular weight : 4 g/mole

Molecular formula : He

Boiling/condensation point : -268.9°C (-452°F)

Melting/freezing point : -272.2°C (-458°F)

Critical temperature : -267.9°C (-450.2°F)

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Flash point : [Product does not sustain combustion.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 0.14 (Air = 1) Liquid Density@BP: 7.8 lb/ft3 (125 kg/m3)

Specific Volume (ft ^{3}/lb) : 96.1538

Gas Density (lb/ft ^{3}) : 0.0104

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.28

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

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Section 9. Physical and chemical properties

SADT : Not available.

Viscosity : Not applicable.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

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Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

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Section 12. Ecological information

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Helium	0.28	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1046	UN1046	UN1046	UN1046	UN1046
UN proper shipping name	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED	HELIUM, COMPRESSED
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	**Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 75 kg **Cargo aircraft** Quantity limitation: 150 kg	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	**Passenger and Cargo Aircraft**Quantity limitation: 75 kg **Cargo Aircraft Only** Quantity limitation: 150 kg

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

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Section 14. Transport information

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Helium	100	No.	Yes.	No.	No.	No.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

Canada inventory : This material is listed or exempted.

International regulations

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Section 15. Regulatory information

International lists : **Australia inventory (AICS)**: This material is listed or exempted.
China inventory (IECSC): This material is listed or exempted.
Japan inventory: Not determined.
Korea inventory: This material is listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): This material is listed or exempted.
Philippines inventory (PICCS): This material is listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

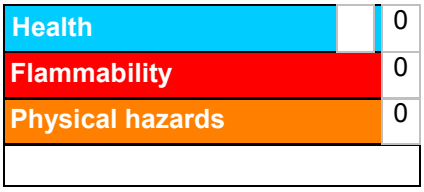
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: This material is not listed.
Canadian ARET: This material is not listed.
Canadian NPRI: This material is not listed.
Alberta Designated Substances: This material is not listed.
Ontario Designated Substances: This material is not listed.
Quebec Designated Substances: This material is not listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Section 16. Other information

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 10/15/2014.

Date of issue/Date of revision : 10/15/2014.

Date of previous issue : 10/2/2014.

Version : 0.02

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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SAFETY DATA SHEET

Version 5.7
Revision Date 11/03/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Heptane

Product Number : 246654
Brand : Sigma-Aldrich
Index-No. : 601-008-00-2

CAS-No. : 142-82-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_7H_{16}
Molecular weight	:	100.20 g/mol
CAS-No.	:	142-82-5
EC-No.	:	205-563-8
Index-No.	:	601-008-00-2
Registration number	:	01-2119457603-38-XXXX

Hazardous components

Component	Classification	Concentration
Heptane		
	Flam. Liq. 2; Skin Irrit. 2; STOT SE 3; Asp. Tox. 1; Aquatic Acute 1; Aquatic Chronic 1; H225, H304, H315, H336, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Flash back possible over considerable distance.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion.Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store under inert gas. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Heptane	142-82-5	TWA	85.000000 ppm 350.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	440.000000 ppm 1,800.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	15 minute ceiling value		
		TWA	500.000000 ppm 2,000.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	400 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 65 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -91 °C (-132 °F)
f)	Initial boiling point and boiling range	98 °C (208 °F)
g)	Flash point	-3.99 °C (24.82 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	110.7 hPa (83.0 mmHg) at 37.7 °C (99.9 °F) 53.3 hPa (40.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available

m)	Relative density	0.684 g/mL at 25 °C (77 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	log Pow: > 3.000
p)	Auto-ignition temperature	223.0 °C (433.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - 4 h - 103,000 mg/m3

Inhalation: Irritating to respiratory system.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: MI7700000

Prolonged or repeated exposure to skin causes defatting and dermatitis., Central nervous system depression, narcosis, Damage to the lungs.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Carassius auratus (goldfish) - 4 mg/l - 24.0 h
	LC50 - Tilapia mossambica - 375 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 1.50 mg/l - 48 h

12.2 Persistence and degradability

Ratio BOD/ThBOD	3.5 %

12.3 Bioaccumulative potential
Indication of bioaccumulation.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Do not empty into drains. Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1206 Class: 3 Packing group: II
Proper shipping name: Heptanes
Reportable Quantity (RQ):
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 1206 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: HEPTANES
Marine pollutant:yes

IATA
UN number: 1206 Class: 3 Packing group: II
Proper shipping name: Heptanes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Heptane	142-82-5	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Skin Irrit.	Skin irritation

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.7 Revision Date: 11/03/2015 Print Date: 02/18/2016

Safety data for indeno[1,2,3-cd]pyrene

Glossary of terms on this data sheet.

The information on this web page is provided to help you to work safely, but it is intended to be an overview of hazards, not a replacement for a full Material Safety Data Sheet (MSDS). MSDS forms can be downloaded from the web sites of many chemical suppliers.

General

Synonyms: 1,10-(1,2-phenylene)pyrene, 1,10-(o-phenylene)pyrene, o-phenylenepyrene, 2,3-phenylenepyrene, 2,3,o-phenylenepyrene, IP
Use:
Molecular formula: $C_{22}H_{12}$
CAS No: 193-39-5
EINECS No: 205-893-2

Physical data

Appearance: solid
Melting point: 161 - 163 C
Boiling point: 536 C
Vapour density:
Vapour pressure:
Density (g cm^{-3}):
Flash point:
Explosion limits:
Autoignition temperature:
Water solubility:

Stability

Stable. Incompatible with strong oxidizing agents.

Toxicology

Limited evidence that this material may be carcinogenic.

Toxicity data

(The meaning of any toxicological abbreviations which appear in this section is given here.)

Risk phrases

(The meaning of any risk phrases which appear in this section is given here.)
R40.

Transport information

(The meaning of any UN hazard codes which appear in this section is given here.)
Non-hazardous for air, sea and road freight.

Personal protection

Treat as potentially hazardous - many multi-ring aromatic compounds are suspected carcinogens.

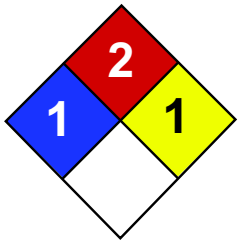
Safety phrases

(The meaning of any safety phrases which appear in this section is given here.)
S36 S37 S45.

[Return to Physical & Theoretical Chemistry Lab. Safety home page.]

This information was last updated on May 10, 2005. We have tried to make it as accurate and useful as possible, but can take no responsibility for its use, misuse, or accuracy. We have not verified this information, and cannot guarantee that it is up-to-date.

Note also that the information on the PTCL Safety web site, where this page was hosted, has been copied onto many other sites, often without permission. If you have any doubts about the veracity of the information that you are viewing, or have any queries, please check the URL that your web browser displays for this page. If the URL **begins** "http://msds.chem.ox.ac.uk/" the page is maintained by the Safety Officer in Physical Chemistry at Oxford University. If not, this page is a copy made by some other person and we have no responsibility for it.



Health	1
Fire	2
Reactivity	1
Personal Protection	E

Material Safety Data Sheet
Iron Metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Iron Metal

Catalog Codes: SLI2047, SLI1996

CAS#: 7439-89-6

RTECS: NO4565500

TSCA: TSCA 8(b) inventory: Iron Metal

CI#: Not applicable.

Synonym:

Chemical Name: Iron

Chemical Formula: Fe

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Iron Metal, powder	7439-89-6	100

Toxicological Data on Ingredients: Not applicable.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to liver, cardiovascular system, upper respiratory tract, pancreas. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Flammable in presence of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards:
Chlorine Trifluoride reacts with iron with incandescence. Powdered iron reacts with fluorine below redness with incandescence. Reduced iron decomposes with nitrogen dioxide @ ordinary temperature with incandescence. Reacting mass formed by mixture of phosphorus and iron can become incandescent when heated. This material is flammable in powder form only.

Special Remarks on Explosion Hazards: Material in powdered form can explode when exposed to heat or flame

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe dust. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, acids.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area. Moisture sensitive.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Solid metallic powder.)

Odor: Odorless.

Taste: Tasteless.

Molecular Weight: 55.85 g/mole

Color: Black to Grey.

pH (1% soln/water): Not applicable.

Boiling Point: 3000°C (5432°F)

Melting Point: 1535°C (2795°F)

Critical Temperature: Not available.

Specific Gravity: Density: 7.86 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, ignition sources, incompatible materials, water/moisture, air, dust generation.

Incompatibility with various substances:
Reactive with oxidizing agents, acids. Slightly reactive to reactive with moisture.

Corrosivity: Not considered to be corrosive for metals and glass.

Special Remarks on Reactivity:
Hot iron(wire) burns in Chlorine gas. Violent decompositon of hydrogen peroxide (53% by weight or greater) may be caused by contact with iron. Readily oxidizes in moist air forming rust. Reactive with halogens. Incompatible with acetaldehyde, ammonium peroxodisulfate, chloroformamidinum, chloric acid, ammonium nitrate, dinitorgen tetroxide, nitryl fluoride, polystyrene, sodium acetylide, potassium dichromate, peroxyformic acid, sulfuric acid, sodium carbide. Readily attacked by dilute mineral acids and or attacked or dissolved by organic acids. Not appreciably attacked by cold sulfuric acid, or nitric acid, but is attacked by hot acids.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 30000 mg/kg [Rat].

Chronic Effects on Humans: May cause damage to the following organs: liver, cardiovascular system, upper respiratory tract, pancreas.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Iron metal filings or dust: May cause skin irritation by mechanical action. Iron metal wire: Not likely to cause skin irritation Eyes: Iron metal filings or dust: Can irritate eyes by mechanical action. Iron metal wire: No hazard. Will not cause eye irritation. Inhalation: Iron dust: Can irritate the respiratory tract by mechanical action. Iron metal wire or filings: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Iron metal wire: Not an ingestion hazard: Iron metal filings or dust: The amount of ingested iron which constitutes a toxic dose is not well defined. Proposed toxic doses of elemental iron are 20 mg/kg for gastrointestinal irritation to greater than 60 mg/kg for systemic toxicity. Gastrointestinal effects are the first signs to appear, with hemorrhagic vomiting and diarrhea, hematochezia, abdominal pain, lethargy, metabolic acidosis, coagulaopathy, shock, coma and convulsions developing from 0 to 6 hours after ingestion. Leukocytosis may also occur. An asymptomatic phase may ensue at 6 to 12 hours postingestion, followed by hypoglycemia or hyperglycemia, hepatic and renal failure, severe acidosis, cyanosis, fever, CNS depression (lethargy, restlessness and/or confusion seizures), hypotension, and cardiovascular collapse/cardiac failure in 12 to 48 hours. Hepatic cirrhosis, gastrointestinal scarring and/or strictures may arise in 2 to 6 weeks. It may also cause an anaphylactoid reaction. Non-cardiogenic pulmonary edema also develop in severe cases of iron intoxication. Chronic Potential Health Effects: Inhalation: Chronic inhalation of iron dust can lead to accumulation in the lungs and a characteristic stippled appearance on X-rays. This condition, called SIDEROSIS, is considered benign in that it does not interfere with lung function and does not predispose to other disease. Chronic inhalation of iron dust may also cause fibrosis in the lungs. Ingestion: Clinical signs of iron overload appear when the total body iron is 5 to 10 times higher than normal. Neurobehavioral defects including depression, decreased activity, habituation, reflex startle, and conditioned avoidance response performance may occur. However, similiar effects were also seen in iron defficiency. It is therefore likely that these behavioral effects are secondary to general toxicity. High serum iron levels may be associated with an increased risk of fatal acute myocardial infarction (MI). Skin: Prolonged or repeated contact may cause hypersensivity.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Metal powder, flammable, n.o.s. (Iron metal powder) UNNA: 3089 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California Director's List of Hazardous Substances: Iron Metal TSCA 8(b) inventory: Iron Metal

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS B-4: Flammable solid.

DSCL (EEC):
R11- Highly flammable. S16- Keep away from sources of ignition - No smoking. S22- Do not breathe dust.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 2

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 2

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:52 PM

Last Updated: 11/06/2008 12:00 PM

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SAFETY DATA SHEET

Version 5.8
Revision Date 03/06/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Isopropyl alcohol

Product Number : W292907
Brand : Aldrich
Index-No. : 603-117-00-0

CAS-No. : 67-63-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312	Call a POISON CENTER or doctor/ physician if you feel unwell.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	2-Propanol sec-Propyl alcohol Isopropyl alcohol Isopropanol
Formula	:	C_3H_8O
Molecular weight	:	60.10 g/mol
CAS-No.	:	67-63-0
EC-No.	:	200-661-7
Index-No.	:	603-117-00-0

Hazardous components

Component	Classification	Concentration
2-Propanol		
	Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Move out of dangerous area.Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Handle and store under inert gas. hygroscopic

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
2-Propanol	67-63-0	TWA	200.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment		

		Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	200 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	400 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	400.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	400.000000 ppm 980.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	400.000000 ppm 980.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	500.000000 ppm 1,225.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
2-Propanol	67-63-0	Acetone	40.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 60 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	alcohol-like
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -89.5 °C (-129.1 °F) - lit.
f)	Initial boiling point and boiling range	82 °C (180 °F) - lit.
g)	Flash point	12.0 °C (53.6 °F) - closed cup
h)	Evaporation rate	3.0
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or	Upper explosion limit: 12.7 %(V) Lower explosion limit: 2 %(V)

	explosive limits	
k)	Vapour pressure	43.2 hPa (32.4 mmHg) at 20.0 °C (68.0 °F) 58.7 hPa (44.0 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.785 g/cm3 at 25 °C (77 °F)
n)	Water solubility	completely soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.05
p)	Auto-ignition temperature	425.0 °C (797.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	20.8 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

10.5 Incompatible materials
Oxidizing agents, Acid anhydrides, Aluminium, Halogenated compounds, Acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 5,045 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity).

LC50 Inhalation - Rat - 8 h - 16000 ppm

LD50 Dermal - Rabbit - 12,800 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (2-Propanol)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
Inhalation, Oral - May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: NT8050000

Central nervous system depression, prolonged or repeated exposure can cause:, Nausea, Headache, Vomiting, narcosis, Drowsiness, Overexposure may cause mild, reversible liver effects., Aspiration may lead to:, Lung oedema, Pneumonia
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Kidney - Irregularities - Based on Human Evidence
Kidney - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 9,640.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 5,102.00 mg/l - 24 h
	Immobilization EC50 - Daphnia magna (Water flea) - 6,851 mg/l - 24 h
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 2,000.00 mg/l - 72 h
	EC50 - Algae - > 1,000.00 mg/l - 24 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No bioaccumulation is to be expected (log Pow <= 4).

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1219 Class: 3 Packing group: II
Proper shipping name: Isopropanol
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 1219 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: ISOPROPANOL

IATA
UN number: 1219 Class: 3 Packing group: II
Proper shipping name: Isopropanol

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
2-Propanol	67-63-0	1987-01-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

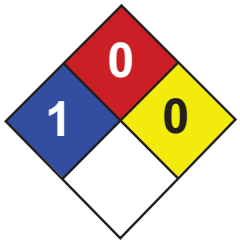
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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/06/2015 Print Date: 02/18/2016





Health	1
Fire	0
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Lead MSDS

Section 1: Chemical Product and Company Identification

Product Name: Lead

Catalog Codes: SLL1291, SLL1669, SLL1081, SLL1459, SLL1834

CAS#: 7439-92-1

RTECS: OF7525000

TSCA: TSCA 8(b) inventory: Lead

CI#: Not available.

Synonym: Lead Metal, granular; Lead Metal, foil; Lead Metal, sheet; Lead Metal, shot

Chemical Name: Lead

Chemical Formula: Pb

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Lead	7439-92-1	100

Toxicological Data on Ingredients: Lead LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (permeator). CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: Not available.

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Some metallic oxides.

Fire Hazards in Presence of Various Substances: Non-flammable in presence of open flames and sparks, of shocks, of heat.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: When heated to decomposition it emits highly toxic fumes of lead.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable

protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 0.05 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.05 (mg/m3) from OSHA (PEL) [United States] TWA: 0.03 (mg/m3) from NIOSH [United States] TWA: 0.05 (mg/m3) [Canada]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 207.21 g/mole

Color: Bluish-white. Silvery. Gray

pH (1% soln/water): Not applicable.

Boiling Point: 1740°C (3164°F)

Melting Point: 327.43°C (621.4°F)

Critical Temperature: Not available.

Specific Gravity: 11.3 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, excess heat

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizing materials. Incompatible with sodium carbide, chlorine trifluoride, trioxane + hydrogen peroxide, ammonium nitrate, sodium azide, disodium acetylide, sodium acetylide, hot concentrated nitric acid, hot concentrated hydrochloric acid, hot concentrated sulfuric acid, zirconium.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH, 2B (Possible for human.) by IARC. May cause damage to the following organs: blood, kidneys, central nervous system (CNS).

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential: Skin: Lead metal granules or dust: May cause skin irritation by mechanical action. Lead metal foil, shot or sheets: Not likely to cause skin irritation Eyes: Lead metal granules or dust: Can irritate eyes by mechanical action. Lead metal foil, shot or sheets: No hazard. Will not cause eye irritation. Inhalation: In an industrial setting, exposure to lead mainly occurs from inhalation of dust or fumes. Lead dust or fumes: Can irritate the upper respiratory tract (nose, throat) as well as the bronchi and lungsby mechanical action. Lead dust can be absorbed through the respiratory system. However, inhaled lead does not accumulate in the lungs. All of an inhaled dose is eventually abssorbed or transferred to the gastrointestinal tract. Inhalation effects of exposure to fumes or dust of inorganic lead may not develop quickly. Symptoms may include metallic taste, chest pain, decreased physical fitness, fatigue, sleep disturbance, headache, irritability, reduces memory, mood and personality changes, aching bones and muscles, constipation, abdominal pains, decreasing appetite. Inhalation of large amounts may lead to ataxia, deliriuim, convulsions/seizures, coma, and death. Lead metal foil, shot, or sheets: Not an inhalation hazard unless metal is heated. If metal is heated, fumes will be released. Inhalation of these fumes may cause "fume metal fever", which is characterized by flu-like symptoms. Symptoms may include metallic taste, fever, nausea, vomiting, chills, cough, weakness, chest pain, generalized muscle pain/aches, and increased white blood cell count. Ingestion: Lead metal granules or dust: The symptoms of lead poisoning include abdominal pain or cramps (lead cholic), spasms, nausea, vomiting, headache, muscle weakness, hallucinations, distorted perceptions, "lead line" on the gums, metallic taste, loss of appetite, insomnia, dizziness and other symptoms similar to that of inhalation. Acute poisoning may result in high lead levels in the blood and urine, shock, coma and death in extreme cases. Lead metal foil, shot or sheets: Not an ingestion hazard for usual industrial handling.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (female) which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male) which would require a warning under the statute: Lead California prop. 65 (no significant risk level): Lead: 0.0005 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Lead California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Lead Connecticut hazardous material survey.: Lead Illinois toxic substances disclosure to employee act: Lead Illinois chemical safety act: Lead New York release reporting list: Lead Rhode Island RTK hazardous substances: Lead Pennsylvania RTK: Lead

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R20/22- Harmful by inhalation and if swallowed. R33- Danger of cumulative effects. R61- May cause harm to the unborn child. R62- Possible risk of impaired fertility. S36/37- Wear suitable protective clothing and gloves. S44- If you feel unwell, seek medical advice (show the label when possible). S53- Avoid exposure - obtain special instructions before use.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:21 PM

Last Updated: 11/06/2008 12:00 PM

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SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Manganese

Product Number : 463728
Brand : Aldrich

CAS-No. : 7439-96-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H260 In contact with water releases flammable gases which may ignite spontaneously.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.

P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Mn
Molecular weight	:	54.94 g/mol
CAS-No.	:	7439-96-5
EC-No.	:	231-105-1

Hazardous components

Component	Classification	Concentration
Manganese		
	Water-react. 1; Aquatic Acute 3; Aquatic Chronic 3; H260, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Carbon dioxide (CO2)

Unsuitable extinguishing media
Water

5.2 Special hazards arising from the substance or mixture
Manganese/manganese oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Manganese	7439-96-5	TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC)		
		C	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		

		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) varies		
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		
		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,244 °C (2,271 °F) - lit.
f)	Initial boiling point and boiling range	1,962 °C (3,564 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	7.3 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
acids, Halogens, Bases, Phosphorus, Sulphur oxides, Peroxides

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 9,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Intramuscular
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: OO9275000

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 40 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)

Poison Inhalation Hazard: No

IMDG
UN number: 3208 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. (Manganese)

IATA
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H260	In contact with water releases flammable gases which may ignite spontaneously.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	2

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	2
Special hazard.I:	W

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 4.6
Revision Date 03/02/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Manganese

Product Number : 463728
Brand : Aldrich

CAS-No. : 7439-96-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H260 In contact with water releases flammable gases which may ignite spontaneously.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statement(s)
P223 Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232 Handle under inert gas. Protect from moisture.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P335 + P334 Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.

P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Mn
Molecular weight	:	54.94 g/mol
CAS-No.	:	7439-96-5
EC-No.	:	231-105-1

Hazardous components

Component	Classification	Concentration
Manganese		
	Water-react. 1; Aquatic Acute 3; Aquatic Chronic 3; H260, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder Carbon dioxide (CO2)

Unsuitable extinguishing media
Water

5.2 Special hazards arising from the substance or mixture
Manganese/manganese oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Moisture sensitive. Keep in a dry place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Manganese	7439-96-5	TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC)		
		C	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		

		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	1.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	3.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.200000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) varies		
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.020000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment 2014 Adoption varies		
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		
		TWA	0.02 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment varies		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
impervious clothing, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,244 °C (2,271 °F) - lit.
f)	Initial boiling point and boiling range	1,962 °C (3,564 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	7.3 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
acids, Halogens, Bases, Phosphorus, Sulphur oxides, Peroxides

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 9,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Mild skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Intramuscular
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Tumorigenic:Tumors at site or application.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

May cause reproductive disorders.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: OO9275000

Men exposed to manganese dusts showed a decrease in fertility. Chronic manganese poisoning primarily involves the central nervous system. Early symptoms include languor, sleepiness and weakness in the legs. A stolid mask-like appearance of the face, emotional disturbances such as uncontrollable laughter and a spastic gait with tendency to fall in walking are findings in more advanced cases. High incidence of pneumonia has been found in workers exposed to the dust or fume of some manganese compounds.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 40 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)

Poison Inhalation Hazard: No

IMDG
UN number: 3208 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. (Manganese)

IATA
UN number: 3208 Class: 4.3 Packing group: I
Proper shipping name: Metallic substance, water-reactive, n.o.s. (Manganese)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

SARA 311/312 Hazards
Reactivity Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Manganese	7439-96-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H260	In contact with water releases flammable gases which may ignite spontaneously.
H402	Harmful to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	2

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	2
Special hazard.I:	W

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 03/02/2015 Print Date: 02/07/2016

MATERIAL SAFETY DATA SHEET

Date Printed: 02.04.2016
Date Updated: 07.08.2012
Version 1.9

Section 1 - Product and Company Information

Product Name	M-CRESOL APPROX 99%
Product Number	C5015
Brand	SIGMA
Company	Sigma-Aldrich
Address	3050 Spruce Street SAINT LOUIS MO 63103 US
Technical Phone:	800-325-5832
Fax:	800-325-5052
Emergency Phone:	314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
M-CRESOL	108-39-4	Yes

Formula C7H8O
Synonyms 3-Cresol * m-Cresol (ACGIH:OSHA) * m-Cresole * m-Cresylic acid * 1-Hydroxy-3-methylbenzene * m-Hydroxytoluene * 3-Hydroxytoluene * m-Kresol * m-Methylphenol * 3-Methylphenol * m-Oxytoluene * Phenol, 3-methyl- (9CI) * RCRA waste number U052 * m-Toluol
RTECS Number: GO6125000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic.
Toxic in contact with skin and if swallowed. Causes burns. Readily absorbed through skin. Combustible. Target organ(s): Central nervous system. Lungs.

HMIS RATING
HEALTH: 3*
FLAMMABILITY: 2
REACTIVITY: 1

NFPA RATING
HEALTH: 3
FLAMMABILITY: 2
REACTIVITY: 1

*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately. Do not induce vomiting.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
186,800 °F 86,000 °C Method: closed cup

EXPLOSION LIMITS
Lower: 1,060 % Upper: 1,350 %

AUTOIGNITION TEMP
558,00 °C

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Combustible liquid. Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe vapor. Do not get in eyes, on

skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed. Keep away from heat and open flame. Store in a cool dry place.
Unsuitable: May discolor on exposure to air and light.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Use only in a chemical fume hood. Safety shower and eye bath.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand: Compatible chemical-resistant gloves.
Eye: Chemical safety goggles.
Other: Faceshield (8-inch minimum).

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	5 PPM
Remarks: Skin			
USA	MSHA Standard-air	TWA	5 PPM (22 MG/M3)
USA	OSHA.	PEL	8H TWA 5 PPM (22 MG/M3) (SKIN)
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	2.3 PPM

Section 9 - Physical/Chemical Properties

Appearance — Physical State: Liquid

Property	Value	At Temperature or Pressure
Molecular Weight	108,1400 AMU	
pH	N/A	
BP/BP Range	200,000. - 203,000 °C.	
MP/MP Range	8,000. - 10,000 °C.	
Freezing Point	N/A	
Vapor Pressure	< 1,000000000 mmHg	20,00 °C
Vapor Density	3,720 g/l	
Saturated Vapor Conc.	N/A	
SG/Density	1,0340 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	

Evaporation Rate	N/A	
Viscosity	12,900 Pas	25,000 °C
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	186,800 °F	Method: closed cup
	86,000 °C	
Explosion Limits	Lower: 1,060 %	
	Upper: 1,350 %	
Flammability	N/A	
Autoignition Temp	558,00 °C	
Refractive Index	1,5420	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	Other Solvents: SOLUBLE IN ACETONE, ETHANOL, MISCIBLE IN ALCOHOL,ETHER	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Stable: Stable.
Materials to Avoid: Oxidizing agents, Bases.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Contact: Causes burns.
Skin Absorption: Toxic if absorbed through skin. Readily absorbed through skin.
Eye Contact: Causes burns.
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion: Toxic if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Central nervous system. Eyes. Liver. Kidneys. Lungs.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Inhalation may result in spasm, inflammation and edema of the larynxand bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause: Damage to the eyes. Damage to the kidneys. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

TOXICITY DATA

Oral
Rat
242,000000 mg/kg
LD50
Remarks: Behavioral:Somnolence (general depressed activity).
Behavioral:Convulsions or effect on seizure threshold.
Gastrointestinal:Peritonitis.

Inhalation
Rat
> 710,000 mg/m3
LC50

Skin
Rat
1100,000000 mg/kg
LD50

Oral
Mouse
828,000000 mg/kg
LD50

Intraperitoneal
Mouse
168 MG/KG
LD50

Skin
Rabbit
2050,000000 mg/kg
LD50
Remarks: Behavioral:Convulsions or effect on seizure threshold.
Sense Organs and Special Senses (Nose, Eye, Ear, and
Taste):Eye:Lacrimation. Gastrointestinal:Changes in structure or
function of salivary glands.

IRRITATION DATA

Skin
Rabbit
517,000000 mg
24H
Remarks: Severe irritation effect

Eyes
Rabbit
103,000000 mg
Remarks: Severe irritation effect

CHRONIC EXPOSURE - CARCINOGEN

Species: Mouse
Route of Application: Skin
Dose: 2280 MG/KG
Exposure Time: 20W
Frequency: I
Result: Tumorigenic:Neoplastic by RTECS criteria. Skin and
Appendages: Other: Tumors.

CHRONIC EXPOSURE - TERATOGEN

Species: Rabbit
Dose: 134 GM/KG
Route of Application: Subcutaneous
Exposure Time: (6-18D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - MUTAGEN

Species: Human
Dose: 10 UMOL/L
Exposure Time: 4H
Cell Type: HeLa cell
Mutation test: DNA inhibition

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: EC50 Algae
Time: 24,0 h
Value: 110,000 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24,0 h
Value: 25,000 mg/l

Test Type: LC50 Fish
Species: Leuciscus idus
Time: 48,0 h
Value: 17,000. - 19,000 mg/l.

Test Type: LC50 Fish
Species: Onchorhynchus mykiss (Rainbow trout)
Time: 96,0 h
Value: 8,900 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Cresols
UN#: 2076
Class: 6.1
Packing Group: Packing Group II
Hazard Label: Toxic substances.
Hazard Label: Corrosive
PIH: Not PIH

IATA
Proper Shipping Name: Cresols, liquid (o-, m-, p-)

IATA UN Number: 2076
Hazard Class: 6.1
Packing Group: II

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION
Symbol of Danger: T
Indication of Danger: Toxic.
R: 24/25-34
Risk Statements: Toxic in contact with skin and if swallowed.
Causes burns.
S: 36/37/39-45
Safety Statements: Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Toxic.
Risk Statements: Toxic in contact with skin and if swallowed.
Causes burns.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements: Readily absorbed through skin. Combustible.
Target organ(s): Central nervous system. Lungs.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
DEMINIMIS: 1,000 %
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
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SAFETY DATA SHEET

Version 6.5
Revision Date 02/07/2023
Print Date 02/07/2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Mercury

Product Number : 215457
Brand : SIGALD
Index-No. : 080-001-00-0
CAS-No. : 7439-97-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Scientific research and development, Reagent for analysis

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Inhalation (Category 2), H330
Reproductive toxicity (Category 1B), H360
Specific target organ toxicity - repeated exposure (Category 1), H372
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

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Hazard statement(s)

H330	Fatal if inhaled.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	Hg
Molecular weight	:	200.59 g/mol
CAS-No.	:	7439-97-6
EC-No.	:	231-106-7
Index-No.	:	080-001-00-0

Component	Classification	Concentration
mercury		
	Acute Tox. 2; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H330, H360, H372, H400, H410 M-Factor - Aquatic Acute: 1 - Aquatic Chronic: 100	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Mercury/mercury oxides.
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. In some instances, a mercury spill kit may be used. Please consult with your site EHS representative to determine the most appropriate clean up method.Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas.

Storage class
Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

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Component	CAS-No.	Value	Control parameters	Basis
mercury	7439-97-6	C	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	Potential for dermal absorption		
		CEIL	1.0mg/10m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	0.05 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		Skin notation		
		TWA	0.025 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen Danger of cutaneous absorption		
		TWA	0.05 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential for dermal absorption		

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:KCL 741 Dermatril® L

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Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Color: silver, white
b)	Odor	odorless
c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -38.87 °C (-37.97 °F) - lit.
f)	Initial boiling point and boiling range	356.6 °C 673.9 °F - lit.
g)	Flash point	()Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	The product is not flammable.
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	< 0.01 hPa at 20 °C (68 °F) 1 hPa at 126 °C(259 °F)
l)	Vapor density	6.93 - (Air = 1.0)
m)	Density	13.55 g/cm3 at 25 °C (77 °F)
	Relative density	No data available
n)	Water solubility	0.00006 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

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s) Explosive properties No data available

t) Oxidizing properties none

9.2 Other safety information

Relative vapor density	6.93 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Risk of explosion with:
Acetylene
Alkali metals
Aluminum
Amines
Ammonia
chlorine dioxide
Potassium
sodium
oxalic acid
perchlorates
Risk of ignition or formation of inflammable gases or vapours with:
Chlorine
silanes
Oxygen
Generates dangerous gases or fumes in contact with:
Nitric acid
Exothermic reaction with:
Bromine
Metals
acetylidene
Oxygen

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Aluminum, Lead, Copper, silver, Zinc, zinc alloys, Tin

10.6 Hazardous decomposition products
In the event of fire: see section 5

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Oral: No data available
LC50 Inhalation - Rat - male - 2 h - < 27 mg/m3 - vapor

Dermal: No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Presumed human reproductive toxicant

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

11.2 Additional Information

RTECS: OV4550000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	mortality LC50 - Cyprinus carpio (Carp) - 0.160 mg/l - 96 h
Toxicity to fish(Chronic toxicity)	Remarks: No data available (mercury)

12.2 Persistence and degradability

The methods for determining biodegradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

Bioaccumulation	Carassius auratus (goldfish) - 1,789 d - 0.25 µg/l(mercury)
	Bioconcentration factor (BCF): 155,986

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)

UN number: 2809 Class: 8 (6.1) Packing group: III
Proper shipping name: Mercury
Reportable Quantity (RQ): 1 lbs
Reportable Quantity (RQ): 1 lbs
Poison Inhalation Hazard: No

IMDG

UN number: 2809 Class: 8 (6.1) Packing group: III EMS-No: F-A, S-B
Proper shipping name: MERCURY
Marine pollutant : yes

IATA

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UN number: 2809 Class: 8 (6.1) Packing group: III
Proper shipping name: Mercury

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
mercury	7439-97-6	2015-11-23

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D009 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
mercury	7439-97-6	2015-11-23

California Prop. 65 Components

	CAS-No.	Revision Date
, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.mercury	7439-97-6	2013-12-20

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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SAFETY DATA SHEET

Creation Date 26-Sep-2009 **Revision Date** 26-Jun-2014 **Revision Number** 1

1. Identification

Product Name **Methyl acetate**

Cat No. : **AC371830000; AC371830010; AC371830025; AC371831000**

Synonyms Acetic acid, methyl ester; Methyl ethanoate.

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Causes serious eye irritation
May cause drowsiness or dizziness



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection
Keep cool
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Repeated exposure may cause skin dryness or cracking

3. Composition / information on ingredients

Component	CAS-No	Weight %
Methyl acetate	79-20-9	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Ingestion Clean mouth with water. Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point -10 °C / 14 °F

Method - No information available

Autoignition Temperature 455 °C / 851 °F

Explosion Limits
Upper 16.0%
Lower 3.1%
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.
Environmental Precautions See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Remove all sources of ignition. Use only non-sparking tools. Wash hands before breaks and immediately after handling the product.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methyl acetate	TWA: 200 ppm STEL: 250 ppm	(Vacated) TWA: 200 ppm (Vacated) TWA: 610 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 760 mg/m³ TWA: 200 ppm TWA: 610 mg/m³	IDLH: 3100 ppm TWA: 200 ppm TWA: 610 mg/m³ STEL: 250 ppm STEL: 760 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Methyl acetate	TWA: 200 ppm TWA: 606 mg/m³ STEL: 250 ppm STEL: 757 mg/m³	TWA: 200 ppm TWA: 610 mg/m³ STEL: 250 ppm STEL: 760 mg/m³	TWA: 200 ppm STEL: 250 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-98 °C / -144.4 °F
Boiling Point/Range	57.4 °C / 135.3 °F @ 760 mmHg
Flash Point	-10 °C / 14 °F
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	16.0%
Lower	3.1%
Vapor Pressure	220 mbar @ 20 °C
Vapor Density	2.8 (Air = 1.0)
Relative Density	0.930
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	455 °C / 851 °F
Decomposition temperature	No information available
Viscosity	0.38 mPa s at 20 °C
Molecular Formula	C3 H6 O2
Molecular Weight	74.08

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Excess heat. Incompatible products. Exposure to moisture.

Incompatible Materials Acids, Bases

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization No information available.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methyl acetate	5000 mg/kg (Rat)	5 g/kg (Rabbit)	16000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methyl acetate	79-20-9	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS)

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methyl acetate	120 mg/L EC50 > 72 h	295 - 348 mg/L LC50 96 h 250 - 350 mg/L LC50 96 h	EC50 = 6000 mg/L 16 h EC50 = 6100 mg/L 30 min	1026.7 mg/L EC50 = 48 h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available.

Mobility .

Component	log Pow
Methyl acetate	0.18

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1231
Proper Shipping Name	METHYL ACETATE
Hazard Class	3
Packing Group	II

TDG

UN-No	UN1231
Proper Shipping Name	METHYL ACETATE
Hazard Class	3
Packing Group	II

IATA

UN-No	1231
Proper Shipping Name	METHYL ACETATE
Hazard Class	3
Packing Group	II

IMDG/IMO

UN-No	1231
Proper Shipping Name	METHYL ACETATE
Hazard Class	3
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Methyl acetate	X	X	-	201-185-2	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

Component	TSCA 12(b)
Methyl acetate	Section 4

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No

Reactive Hazard No

Clean Water Act Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methyl acetate	X	X	X	-	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class B2 Flammable liquid
D2B Toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

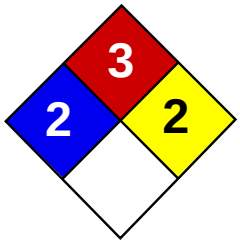
Creation Date 26-Sep-2009
Revision Date 26-Jun-2014
Print Date 26-Jun-2014
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS







Material Safety Data Sheet
Methyl methacrylate MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methyl methacrylate

Catalog Codes: SLM3310

CAS#: 80-62-6

RTECS: OZ5075000

TSCA: TSCA 8(b) inventory: Methyl methacrylate

CI#: Not available.

Synonym:

Chemical Formula: CH2:C(CH3)COOCH3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methyl methacrylate	80-62-6	100

Toxicological Data on Ingredients: Methyl methacrylate: ORAL (LD50): Acute: 7872 mg/kg [Rat]. VAPOR (LC50): Acute: 5303.3 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 421°C (789.8°F)

Flash Points: CLOSED CUP: 13°C (55.4°F). OPEN CUP: 19°C (66.2°F).

Flammable Limits: LOWER: 2.1% UPPER: 12.5%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as metals, acids, alkalis.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 100 CEIL: 125 (ppm) TWA: 410 CEIL: 510 (mg/m3)Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 100.12 g/mole

Color: Not available.

pH (1% soln/water): Not available.

Boiling Point: 100°C (212°F)

Melting Point: -48°C (-54.4°F)

Critical Temperature: Not available.

Specific Gravity: 0.936 (Water = 1)

Vapor Pressure: 29 mm of Hg (@ 20°C)

Vapor Density: 3.45 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.049 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Reactive with metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: Yes.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 7872 mg/kg [Rat]. Acute toxicity of the vapor (LC50): 5303.3 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Embryotoxic and/or foetotoxic in animal.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Methyl methacrylate monomer, inhibited : UN1247 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Pennsylvania RTK: Methyl methacrylate Massachusetts RTK: Methyl methacrylate TSCA 8(b) inventory: Methyl methacrylate SARA 313 toxic chemical notification and release reporting: Methyl methacrylate CERCLA: Hazardous substances.: Methyl methacrylate

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R11- Highly flammable. R36/38- Irritating to eyes and skin.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 3

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 2

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:40 PM

Last Updated: 05/21/2013 12:00 PM

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Methyl chloride (Refrigerant gas R 40)

Safety Data Sheet P-4622

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Date of issue: 01/01/1980 Revision date: 10/17/2016 Supersedes: 10/14/2015

SECTION: 1. Product and company identification

1.1. Product identifier

Product form : Substance

Name : Methyl chloride (Refrigerant gas R 40)

CAS No : 74-87-3

Formula : CH3Cl

Other means of identification : methylchloride, halocarbon 40, monochoromethane

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Industrial use. Use as directed.

1.3. Details of the supplier of the safety data sheet

Praxair, Inc.
10 Riverview Drive
Danbury, CT 06810-6268 - USA
T 1-800-772-9247 (1-800-PRAXAIR) - F 1-716-879-2146
www.praxair.com

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24hr/day 7days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Gas 1	H220
Liquefied gas	H280
Acute Tox. 4 (Inhalation:gas)	H332
Carc. 2	H351
STOT RE 2	H373

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02 GHS04 GHS07 GHS08

Signal word (GHS-US) : DANGER

Hazard statements (GHS-US) : H220 - **EXTREMELY FLAMMABLE GAS**
H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
H332 - HARMFUL IF INHALED
H351 - SUSPECTED OF CAUSING CANCER
H373 - MAY CAUSE DAMAGE TO ORGANS (LUNG, KIDNEYS, LIVER, CENTRAL NERVOUS SYSTEM) THROUGH PROLONGED OR REPEATED EXPOSURE
CGA-HG04 - MAY FORM EXPLOSIVE MIXTURES WITH AIR
CGA-HG01 - MAY CAUSE FROSTBITE

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from Heat, Open flames, Sparks, Hot surfaces. - No smoking
P260 - Do not breathe gas

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P262 - Do not get in eyes, on skin, or on clothing
P271+P403 - Use and store only outdoors or in a well-ventilated place
P280+P284 - Wear protective gloves, protective clothing, eye protection, respiratory protection, and/or face protection
P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely
P381 - Eliminate all ignition sources if safe to do so
P405 - Store locked up
P501 - Dispose of contents/container in accordance with container Supplier/owner instructions
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG12 - Do not open valve until connected to equipment prepared for use
CGA-PG06 - Close valve after each use and when empty
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)

2.3. Other hazards

Other hazards not contributing to the classification : Contact with liquid may cause cold burns/frostbite.

2.4. Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/Information on ingredients

3.1. Substance

Name	Product identifier	%
Methyl chloride (Refrigerant gas R 40) (Main constituent)	(CAS No) 74-87-3	100

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact : The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog. Use extinguishing media appropriate for surrounding fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : **EXTREMELY FLAMMABLE GAS**. If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.

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Explosion hazard	:	**EXTREMELY FLAMMABLE GAS**. Forms explosive mixtures with air and oxidizing agents.
Reactivity	:	No reactivity hazard other than the effects described in sub-sections below.

5.3. Advice for firefighters

Firefighting instructions	:	**DANGER! Toxic, flammable liquefied gas** Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.
Special protective equipment for fire fighters	:	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Other information	:	Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by DOT.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	:	**DANGER: Flammable, liquefied gas.** FORMS EXPLOSIVE MIXTURES WITH AIR. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if safe to do so. Reduce vapors with fog or fine water spray, taking care not to spread liquid with water. Shut off flow if safe to do so. Ventilate area or move container to a well-ventilated area. Flammable vapors may spread from leak and could explode if reignited by sparks or flames. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an appropriate device.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with local/regional/national/international regulations. Contact supplier for any special requirements.

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

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7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only where temperature will not exceed 125°F (52°C). Post “No Smoking/No Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Methyl chloride (Refrigerant gas R 40) (74-87-3)		
ACGIH	ACGIH TLV-TWA (ppm)	50 ppm
ACGIH	ACGIH TLV-STEL (ppm)	100 ppm
USA OSHA	OSHA PEL (TWA) (ppm)	100 ppm
USA OSHA	OSHA PEL (Ceiling) (ppm)	200 ppm
USA IDLH	US IDLH (mg/m³)	≈ mg/m³
USA IDLH	US IDLH (ppm)	2000 ppm

8.2. Exposure controls

Appropriate engineering controls : Use an explosion-proof local exhaust system. Local exhaust and general ventilation must be adequate to meet exposure standards. MECHANICAL (GENERAL): **Inadequate - Use only in a closed system.** Use explosion proof equipment and lighting. A canopy-type, forced-draft fume hood is preferred.

Eye protection : Wear safety glasses when handling cylinders; vapor-proof goggles and a face shield during cylinder changeout or whenever contact with product is possible. Select eye protection in accordance with OSHA 29 CFR 1910.133.

Skin and body protection : Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible. Select per OSHA 29 CFR 1910.132, 1910.136, and 1910.138.

Respiratory protection : When workplace conditions warrant respirator use, follow a respiratory protection program that meets OSHA 29 CFR 1910.134, ANSI Z88.2, or MSHA 30 CFR 72.710 (where applicable). Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

Thermal hazard protection : Wear cold insulating gloves when transfilling or breaking transfer connections.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Colorless gas.

Molecular mass : 50.5 g/mol

Color : Colorless.

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Odor	:	Sweetish. Ethereal.
Odor threshold	:	< 0.01 ppm
pH	:	Not applicable.
Relative evaporation rate (butyl acetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	Not applicable.
Melting point	:	-97.7 °C (-143.86°F)
Freezing point	:	No data available
Boiling point	:	-24.2 °C (-11.6°F)
Flash point	:	Not applicable.
Critical temperature	:	143.1 °C (289.6°F)
Auto-ignition temperature	:	632 °C (1170°F)
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	8.1 - 17.4 vol %
Vapor pressure	:	5.1 bar (73.4 psia)(@21.1°C/70°F)
Critical pressure	:	66.5 bar (966 psia)
Relative vapor density at 20 °C	:	No data available
Relative density	:	0.92 (at 20°C/68°F)
Density	:	0.921 g/cm³ (at 20 °C)
Relative gas density	:	1.743 (at 21.1°C/70°F, 1 atm)
Solubility	:	Water: 6310 mg/l
Log Pow	:	0.91
Log Kow	:	Not applicable.
Viscosity, kinematic	:	Not applicable.
Viscosity, dynamic	:	Not applicable.
Explosive properties	:	Not applicable.
Oxidizing properties	:	None.
Explosion limits	:	No data available

9.2. Other information

Gas group	:	Liquefied gas
Additional information	:	Gas/vapor heavier than air. May accumulate in confined spaces, particularly at or below ground level

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May occur.

10.4. Conditions to avoid

Avoid temperature above 752°F (400°C).

10.5. Incompatible materials

May react with aluminium. Reaction with aluminum may form pyrophoric trimethyl aluminum or aluminum alkyls. Oxidizing agents. Magnesium. Zinc. Potassium. Sodium. Aluminum chloride. Ethylene. Moisture. Rubber.

10.6. Hazardous decomposition products

Carbon dioxide. Carbon monoxide. Chlorine. On heating/burning: release of toxic and corrosive gases/vapors hydrogen chloride : formation of small quantities of phosgene.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Inhalation:gas: HARMFUL IF INHALED.

Methyl chloride (Refrigerant gas R 40) (\f)74-87-3	
LD50 oral rat	1800 mg/kg
LC50 inhalation rat (mg/l)	5300 mg/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	8300 ppm/1h
ATE US (oral)	1800.000 mg/kg body weight
ATE US (gases)	8300.000 ppm/1h

Skin corrosion/irritation : Not classified

pH: Not applicable.

Serious eye damage/irritation : Not classified

pH: Not applicable.

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : SUSPECTED OF CAUSING CANCER.

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : MAY CAUSE DAMAGE TO ORGANS (LUNG, KIDNEYS, LIVER, CENTRAL NERVOUS SYSTEM) THROUGH PROLONGED OR REPEATED EXPOSURE.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No known ecological damage caused by this product.

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
LC50 fish 1	550 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

12.2. Persistence and degradability

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Log Pow	0.91
Log Kow	Not applicable.
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

12.4. Mobility in soil

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Other adverse effects : May cause pH changes in aqueous ecological systems.

Effect on ozone layer : None

Global warming potential [CO2=1] : 13

Effect on the global warming : Contains Fluorinated greenhouse gases covered by the Kyoto protocol

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII. U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring. U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261. U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents. U.S. - RCRA (Resource Conservation & Recovery Act) - Part 268 Appendix III - Halogenated Organic Compounds (HOCs). U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards. U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring. U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics.

Waste disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN1063 Methyl chloride, 2.1

UN-No.(DOT) : UN1063

Proper Shipping Name (DOT) : Methyl chloride

Class (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115

Hazard labels (DOT) : 2.1 - Flammable gas



DOT Special Provisions (49 CFR 172.102) : N86 - UN pressure receptacles made of aluminum alloy are not authorized
T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter

Additional information

Emergency Response Guide (ERG) Number : 115

Other information : No supplementary information available.

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

Transport by sea

UN-No. (IMDG) : 1063

Proper Shipping Name (IMDG) : METHYL CHLORIDE (REFRIGERANT GAS R 40)

Class (IMDG) : 2 - Gases

MFAG-No : 115

Air transport

UN-No. (IATA) : 1063

Proper Shipping Name (IATA) : Methyl chloride

Class (IATA) : 2

Civil Aeronautics Law : Gases under pressure/Gases flammable under pressure

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SECTION 15: Regulatory information

15.1. US Federal regulations

Methyl chloride (Refrigerant gas R 40) (74-87-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard Sudden release of pressure hazard Fire hazard
SARA Section 313 - Emission Reporting	1.0 %

15.2. International regulations

CANADA

Methyl chloride (Refrigerant gas R 40) (74-87-3)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Methyl chloride (Refrigerant gas R 40) (74-87-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Methyl chloride (Refrigerant gas R 40) (74-87-3)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Japanese Poisonous and Deleterious Substances Control Law Japanese Pollutant Release and Transfer Register Law (PRTR Law) Listed on the Canadian IDL (Ingredient Disclosure List) Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

Methyl chloride (Refrigerant gas R 40)(74-87-3)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	Yes
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List

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SECTION 16: Other information

Other information : When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product

Praxair asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information

The opinions expressed herein are those of qualified experts within Praxair, Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Praxair, Inc, it is the user's obligation to determine the conditions of safe use of the product

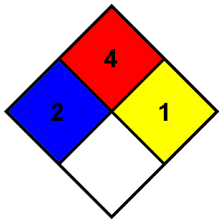
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NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 4 - Will rapidly or completely vaporize at normal pressure and temperature, or is readily dispersed in air and will burn readily.

NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.



HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 4 Severe Hazard

Physical : 2 Moderate Hazard

SDS US (GHS HazCom 2012) - Praxair

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Methylcyclohexane

Version 1.5 Revision Date 2014-03-20

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Trade name : Methylcyclohexane
Material : 1098852, 1021714, 1021712, 1028351, 1021711, 1024851, 1028352, 1024850, 1021713

EC-No.Registration number

Chemical Name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Methylcyclohexane	108-87-2 203-624-3 601-018-00-7	01-2119556887-18-XXXX

Relevant Identified Uses Supported : Solvent in other applications
Use in polymer processing – professional, Solvent
Use in coatings – professional, Solvent
Lubricants - Professional, Solvent
Use as a cleaning agent – professional, Solvent
Solvent in other applications- Professional

Company : Chevron Phillips Chemical Company LP
Specialty Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Local : Chevron Phillips Chemicals International N.V.
Brusselsesteenweg 355
B-3090 Overijse
Belgium

MSDS Requests: (800) 852-5530
Technical Information: (832) 813-4862
Responsible Party: Product Safety Group
Email:msds@cpchem.com

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887

Asia: +800 CHEMCALL (+800 2436 2255)
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	MSDS@CPChem.com
Website	:	www.CPChem.com

SECTION 2: Hazards identification

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Skin irritation, Category 2	H315: Causes skin irritation.
Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Specific target organ systemic toxicity - single exposure, Category 3 , Central nervous system	H336: May cause drowsiness or dizziness.
Acute toxicity, Category 1	H400: Very toxic to aquatic life.
Chronic aquatic toxicity, Category 2	H411: Toxic to aquatic life with long lasting effects.

Classification (67/548/EEC, 1999/45/EC)

Highly flammable	R11: Highly flammable.
Harmful	R65: Harmful: may cause lung damage if swallowed.
Irritant	R38: Irritating to skin.
Dangerous for the environment	R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R67: Vapors may cause drowsiness and dizziness.

Label elements

Labeling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal Word : Danger

Hazard Statements	:	H225 Highly flammable liquid and vapor. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H336 May cause drowsiness or dizziness. H411 Toxic to aquatic life with long lasting effects.
Precautionary Statements	:	**Prevention:**

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P243	Take precautionary measures against static discharge.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

SECTION 3: Composition/information on ingredients

Synonyms : Cyclohexylmethane
Hexahydrotoluene
MCH
Methylcyclohexane (Pure Grade)

Molecular formula : C7H14

Mixtures

Hazardous ingredients

Chemical Name	CAS-No. EC-No. Index No.	Classification (67/548/EEC)	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]
Methylcyclohexane	108-87-2 203-624-3 601-018-00-7	F; R11 Xn; R65 Xi; R38 R67 N; R51-R53	Asp. Tox. 1; H304 Skin Irrit. 2; H315 Flam. Liq. 2; H225 STOT SE 3; H336 Aquatic Acute 1; H400 Aquatic Chronic 2; H411	99,8 - 100

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious place in recovery position and seek medical advice.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact

		lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	:	-5,5 °C (22,1 °F) Method: Tagliabue Open Cup
Autoignition temperature	:	285 °C (545 °F)
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Hydrocarbons. Carbon oxides.

SECTION 6: Accidental release measures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible

absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage

Handling

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

SK

Súčast	Podstata	Hodnota	Kontrolné parametre	Poznámka
METHYLCYCLOHEXANE	SK OEL	NPEL priemerný	200 ppm, 810 mg/m3	
	SK OEL	NPEL krátkodobý	400 ppm, 1.620 mg/m3	

SI

Komponente	Osnova	Vrednost	Parametri nadzora	Pripomba
METHYLCYCLOHEXANE	SI OEL	MV	500 ppm, 2.000 mg/m3	

PT

Componentes	Bases	Valor	Parâmetros de controlo	Nota
METHYLCYCLOHEXANE	PT OEL	VLE-MP	400 ppm,	

PL

Składniki	Podstawa	Wartość	Parametry dotyczące kontroli	Uwaga
METHYLCYCLOHEXANE	PL NDS	NDS	1.600 mg/m3	
	PL NDS	NDSch	3.000 mg/m3	

NO

Komponenter	Grunnlag	Verdi	Kontrollparametere	Nota
METHYLCYCLOHEXANE	AN 361	TWA	200 ppm, 800 mg/m3	

LT

Komponentai	Pagrindas, bazė	Vertė	Kontrolės parametrai	Pastaba
METHYLCYCLOHEXANE	LT OEL	IPRD	50 mg/m3	

IE

Ingredients	Basis	Value	Control parameters	Note
Methylcyclohexane	IE OEL	OELV - 8 hrs (TWA)	400 ppm, 1.600 mg/m3	

GR

Συστατικά	Βάση	Τιμή	Παράμετροι ελέγχου	Σημείωση
METHYLCYCLOHEXANE	GR OEL	TWA	500 ppm, 2.000 mg/m3	
	GR OEL	STEL	500 ppm, 2.000 mg/m3	

FR

Composants	Base	Valeur	Paramètres de contrôle	Note
METHYLCYCLOHEXANE	FR VLE	VME	400 ppm, 1.600 mg/m3	normal,

normal Valeurs limites indicatives

FI

Aineosat	Peruste	Arvo	Valvontaa koskevat muuttujat	Huomautus
METHYLCYCLOHEXANE	FI OEL	HTP-arvot 8h	400 ppm, 1.600 mg/m3	
	FI OEL	HTP-arvot 15 min	500 ppm, 2.000 mg/m3	

ES

Componentes	Base	Valor	Parámetros de control	Nota
METHYLCYCLOHEXANE	ES VLA	VLA-ED	400 ppm, 1.630 mg/m3	

EE

Komponendid, osad	Alused	Väärtus	Kontrolliparameetrid	Märkused
METHYLCYCLOHEXANE	EE OEL	Piirnorm	400 ppm, 1.600 mg/m3	

DK

Komponenter	Basis	Værdi	Kontrolparametre	Note
METHYLCYCLOHEXANE	DK OEL	GV	200 ppm, 805 mg/m3	

DE

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
METHYLCYCLOHEXANE	DE TRGS 900	AGW	200 ppm, 810 mg/m3	DFG,

DFG Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe der DFG (MAK-Kommission)

CZ

Složky	Základ	Hodnota	Kontrolní parametry	Poznámka
METHYLCYCLOHEXANE	CZ OEL	PEL	1.500 mg/m3	I,
	CZ OEL	NPK-P	2.000 mg/m3	I,

I dráždí sliznice (oči, dýchací cesty) resp. kůži

CH

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
METHYLCYCLOHEXANE	CH SUVA	MAK-wert	400 ppm, 1.600 mg/m3	
	CH SUVA	STEL	800 ppm, 3.200 mg/m3	

BE

Bestanddelen	Basis	Waarde	Controleparameters	Opmerking
METHYLCYCLOHEXANE	BE OEL	TGG 8 hr	400 ppm, 1.633 mg/m3	

AT

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
METHYLCYCLOHEXANE	AT OEL	TMW	400 ppm, 1.600 mg/m3	
	AT OEL	KZW	1.600 ppm, 6.400 mg/m3	

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Systemic effects
Value: 64,3 mg/m3

DNEL : End Use: Workers
Routes of exposure: Inhalation
Potential health effects: Acute effects
Value: 1354,6 mg/m3

DNEL	:	End Use: Workers Routes of exposure: Skin contact Potential health effects: Systemic effects Value: 1,7 mg/kg
PNEC	:	Fresh water Value: 0,00326 mg/l
PNEC	:	Marine water Value: 0,000326 mg/l
PNEC	:	Fresh water sediment Value: 0,088 mg/kg
PNEC	:	Marine sediment Value: 0,0088 mg/kg
PNEC	:	Soil Value: 0,127 mg/kg

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection	:	Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant

protective clothing. Footwear protecting against chemicals.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	Liquid
Physical state	:	Liquid
Color	:	Colorless
Odor	:	Mild

Safety data

Flash point	:	-5,5 °C (22,1 °F) Method: Tagliabue Open Cup
Lower explosion limit	:	1,2 %(V)
Upper explosion limit	:	6,7 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	285 °C (545 °F)
Molecular formula	:	C7H14
Molecular weight	:	98,21 g/mol
pH	:	No data available
Freezing point	:	-127 °C (-197 °F)
Boiling point/boiling range	:	100,4 °C (212,7 °F)
Vapor pressure	:	1,60 PSI at 37,8 °C (100,0 °F)
Relative density	:	0,774, 15,6 °C(60,1 °F)
Density	:	771,7 g/l
Water solubility	:	Negligible
Viscosity, dynamic	:	0,732 cP
Relative vapor density	:	3 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	> 99 %

SECTION 10: Stability and reactivity

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid : Heat, flames and sparks.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

Acute oral toxicity

Methylcyclohexane : LD50: 4.000 - 4.500 mg/kg
Species: rabbit

Acute inhalation toxicity

Methylcyclohexane : LC50: > 26,3 mg/l
Exposure time: 1 h
Species: mouse
Test atmosphere: vapor

Acute dermal toxicity

Methylcyclohexane : LD50: > 2.000 mg/kg
Species: rabbit
Method: OECD Test Guideline 402
Information given is based on data obtained from similar substances.

Skin irritation

Methylcyclohexane : Skin irritation

Eye irritation

Methylcyclohexane : No eye irritation

Sensitization

Methylcyclohexane : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Methylcyclohexane : Species: rat, male
Sex: male
Application Route: oral gavage

Dose: 62.5, 250, 1000 mg/kg
Exposure time: 28 d
Number of exposures: daily, 7d/wk
NOEL: 250 mg/kg
Lowest observable effect level: 1.000 mg/kg
Method: OECD Guideline 422

Species: rat, female
Sex: female
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Exposure time: 46 d
Number of exposures: daily, 7 d/wk
NOEL: 250 mg/kg
Lowest observable effect level: 1.000 mg/kg
Method: OECD Guideline 422

Reproductive toxicity

Methylcyclohexane : Species: rat
Sex: male
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Number of exposures: daily, 7 d/wk
Test period: 28
Method: OECD Guideline 422
NOAEL Parent: 1.000 mg/kg
NOAEL F1: 1.000 mg/kg

Species: rat
Sex: female
Application Route: oral gavage
Dose: 62.5, 250, 1000 mg/kg
Number of exposures: daily, 7 d/wk
Test period: 46
Method: OECD Guideline 422
NOAEL Parent: 1.000 mg/kg
NOAEL F1: 1.000 mg/kg

Species: rat
Sex: male and female
Application Route: inhalation (vapor)
Dose: 500, 2000, 7000 ppm
Number of exposures: daily, 7 d/wk
Test period: 28
Method: OECD Test Guideline 416
NOAEL Parent: 500 ppm
NOAEL F1: 500 ppm
NOAEL F2: 2000 ppm
Information given is based on data obtained from similar substances.

Developmental Toxicity

Methylcyclohexane : Species: rat
Application Route: Inhalation
Dose: 500, 2000, 7000 ppm
Number of exposures: 6 hr/d, 7 d/wk
Test period: GD 7 - 16

Method: OECD Guideline 414
NOAEL Teratogenicity: 7000 ppm
NOAEL Maternal: 500 ppm
Information given is based on data obtained from similar substances.

Species: rabbit
Application Route: Inhalation
Dose: 500, 2000, 7000 ppm
Number of exposures: 6 hr/d, 7 d/wk
Test period: GD 6 - 18
Method: OECD Guideline 414
NOAEL Teratogenicity: 7000 ppm
NOAEL Maternal: 500 ppm
Information given is based on data obtained from similar substances.

Methylcyclohexane
Aspiration toxicity : May be fatal if swallowed and enters airways.

CMR effects

Methylcyclohexane : Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: Animal testing did not show any effects on fertility.

Methylcyclohexane
Further information : Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

Methylcyclohexane : LC50: 2,07 mg/l
Exposure time: 96 h
Species: Fish
semi-static test

Toxicity to daphnia and other aquatic invertebrates

Methylcyclohexane : EC50: 0,326 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
semi-static test

Toxicity to algae

Methylcyclohexane : ErC50: 0,336 mg/l
Exposure time: 72 h
Species: Pseudokirchneriella subcapitata (green algae)

static test

Toxicity to bacteria

Methylcyclohexane : IC50: 29 mg/l
Exposure time: 15 h
Growth inhibition

Biodegradability

Methylcyclohexane : aerobic
0 %
Testing period: 28 d
Method: OECD Test Guideline 301F

Acute aquatic toxicity

Methylcyclohexane : Very toxic to aquatic life.

Chronic aquatic toxicity

Methylcyclohexane : Toxic to aquatic life with long lasting effects.

Toxicity Data on Soil

Methylcyclohexane : No data available

Other organisms relevant to the environment

Methylcyclohexane : No data available

Impact on Sewage Treatment

Methylcyclohexane : No data available

Results of PBT assessment

Methylcyclohexane : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information : Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

The information in this MSDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

For additional details, see the Exposure Scenario in the Annex portion

SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN2296, METHYLCYCLOHEXANE, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN2296, METHYLCYCLOHEXANE, 3, II, (-5,5 °C), MARINE POLLUTANT, (METHYLCYCLOHEXANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN2296, METHYLCYCLOHEXANE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Other information	**:**	**Methylcyclohexane, S.T. 2, Cat. Y**

SECTION 15: Regulatory information

National legislation

Chemical Safety Assessment

Ingredients : methylcyclohexane 203-624-3

Major Accident Hazard Legislation : 96/82/EC Update: 2003
Dangerous for the environment
9b
Quantity 1: 200 t
Quantity 2: 500 t

: 96/82/EC Update: 2003
Highly flammable
7b
Quantity 1: 5.000 t
Quantity 2: 50.000 t

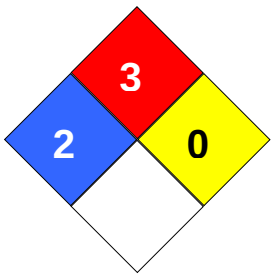
Water contaminating class (Germany) : WGK 2 water endangering

Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 3
Reactivity Hazard: 0



Further information

Legacy MSDS Number : 34310

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Full text of R-phrases referred to under sections 2 and 3

R11	Highly flammable.
R38	Irritating to skin.
R51	Toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R67	Vapors may cause drowsiness and dizziness.

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

Annex

1. Short title of Exposure Scenario: **Solvent in other applications**

Main User Groups	:	**SU 3:** Industrial uses: Uses of substances as such or in preparations at industrial sites
Sector of use	:	**SU3:** Industrial Manufacturing (all)
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC7:** Industrial spraying **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC4:** Industrial use of processing aids in processes and products, not becoming part of articles

2.1 Contributing scenario controlling environmental exposure for:ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	0,3 %
Emission or Release Factor: Water	:	0,003 %
Emission or Release Factor: Soil	:	0,1 %
Local release rate: Air	:	0,66 kg/day
Local release rate: Water	:	0,0065 kg/day
Local release rate: Soil	:	40 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 70 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No

Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, No

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Personal Protection, None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves (Effectiveness: 90 %)

Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC7: Industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation-dermal:, Yes (Effectiveness: 95 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of

substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 95 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation- inhalation:, Yes (Effectiveness: 90 %)

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC4	Petrorisk		Freshwater		0,00018 mg/L	
			Freshwater sediment		0,0043 mg/kg dry weight (d.w.)	
			Marine water		0,000018 mg/L	
			Marine sediment		0,00043 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,0018 mg/L	
			Agricultural soil		0,0000012 mg/kg	

ERC4: Industrial use of processing aids in processes and products, not becoming part of articles

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	

			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	1,836 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	3,548 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	4,909 mg/m3	
			Worker – long-term – systemic Combined routes	1,113 mg/kg/d	
PROC7	EasyTRA		Worker – dermal, long-term – systemic	0,128571 mg/kg/d	
			Worker – inhalation, long-term – systemic	30,683 mg/m3	
			Worker – long-term – systemic Combined routes	4,512 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	3,068 mg/m3	
			Worker – long-term – systemic Combined routes	1,261 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	7,364 mg/m3	
			Worker – long-term – systemic Combined routes	2,039 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC7: Industrial spraying

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC13: Treatment of articles by dipping and pouring

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use in polymer processing – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC6:** Calendering operations **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC14:** Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting; **PROC21:** Low energy manipulation of substances bound in materials and/ or articles
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Processing of formulated polymers including material transfers, moulding and forming activities, material re-works and associated maintenance.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	98 %
Emission or Release Factor: Water	:	1 %
Emission or Release Factor: Soil	:	1 %
Local release rate: Water	:	1,6 kg/day
Local release rate: Air	:	160 kg/day
Local release rate: Soil	:	0,0033 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Personal Protection, None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC6: Calendering operations

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

Product characteristics
Concentration of the Substance in : 5-25%

Mixture/Article

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;

Product characteristics
Concentration of the Substance in : 5-25%

Mixture/Article

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC21: Low energy manipulation of substances bound in materials and/ or articles

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1980 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, Yes, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization

	Method					ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,0000065 mg/L	
			Freshwater sediment		0,000035 mg/kg dry weight (d.w.)	
			Marine water		0,0000001 mg/L	
			Marine sediment		0,0000035 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,000015 mg/L	
			Agricultural soil		0,00001 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC6	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC14	EasyTRA		Worker – dermal, long-term – systemic	0,205714 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	3,712 mg/kg/d	
PROC21	EasyTRA		Worker – dermal, long-term – systemic	0,169714 mg/kg/d	
			Worker – inhalation, long-term – systemic		

			Worker – long-term – systemic Combined routes	0,169714 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC6: Calendering operations

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC14: Production of mixtures or articles by tabletting, compression, extrusion, pelletization; Industrial setting;

PROC21: Low energy manipulation of substances bound in materials and/ or articles

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use in coatings – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC5:** Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting; **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying

		PROC13: Treatment of articles by dipping and pouring **PROC15:** Use as laboratory reagent **PROC19:** Hand-mixing with intimate contact and only PPE available
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	98 %
Emission or Release Factor: Water	:	1 %
Emission or Release Factor: Soil	:	1 %
Local release rate: Water	:	1,1 kg/day
Local release rate: Air	:	11 kg/day
Local release rate: Soil	:	0,000002 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Personal Protection, None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC5, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;, Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 1-5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC15: Use as laboratory reagent

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC19: Hand-mixing with intimate contact and only PPE available

Product characteristics
Concentration of the Substance in Mixture/Article : 1-5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 15 - 60 min
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1980 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,000006 mg/L	
			Freshwater sediment		0,000055 mg/kg dry weight (d.w.)	
			Marine water		0,000099 µg/L	
			Marine sediment		0,0000024 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,0000099 mg/L	
			Agricultural soil		0,0000069 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-	0,041143 mg/kg/d	

			term – systemic		
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC5	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	2,598 mg/kg	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	
PROC15	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	2,455 mg/m3	
			Worker – long-term – systemic Combined routes	0,371236 mg/kg/d	
PROC19	EasyTRA		Worker – dermal, long-term – systemic	0,565714 mg/kg/d	
			Worker – inhalation, long-term – systemic	1,636 mg/m3	
			Worker – long-term – systemic Combined routes	0,799491 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5: Mixing or blending in batch processes for formulation of mixtures and articles (multistage and/or significant contact) Industrial setting;

PROC13: Treatment of articles by dipping and pouring

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC15: Use as laboratory reagent

PROC19: Hand-mixing with intimate contact and only PPE available

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Lubricants - Professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC9:** Transfer of substance or preparation into small

containers (dedicated filling line, including weighing)
PROC10: Roller application or brushing
PROC11: Non industrial spraying
PROC13: Treatment of articles by dipping and pouring
PROC17: Lubrication at high energy conditions and in partly open process
PROC18: Greasing at high energy conditions
PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

Environmental release category	:	**ERC8a, ERC8d, ERC9a, ERC9b:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems
Further information	:	Covers the use of formulated lubricants in closed and open systems including transfer operations, operation of engines and similar articles, reworking on reject articles, equipment maintenance and disposal of waste oil.

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d, ERC9a, ERC9b: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	40 %
Emission or Release Factor: Water	:	5 %
Emission or Release Factor: Soil	:	5 %
Local release rate: Water	:	5,6 kg/day
Local release rate: Air	:	44 kg/day
Local release rate: Soil	:	0,011 kg/day

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed

process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC9, PROC13, PROC20: Use in batch and other process (synthesis) where opportunity for exposure arises, Transfer of substance or preparation into small containers (dedicated filling line, including weighing), Treatment of articles by dipping and pouring, Heat and pressure transfer fluids in dispersive, professional use but closed systems

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at

non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10, PROC18: Roller application or brushing, Greasing at high energy conditions

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 1 - 5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC17: Lubrication at high energy conditions and in partly open process

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d, ERC9a, ERC9b	Petrorisk		Freshwater		0,0000049 mg/L	
			Freshwater sediment		0,00012 mg/kg dry weight (d.w.)	
			Marine water		0,00049 µg/L	
			Marine sediment		0,000012 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,000049 mg/L	
			Agricultural soil		0,000035 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems
ERC9a: Wide dispersive indoor use of substances in closed systems
ERC9b: Wide dispersive outdoor use of substances in closed systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC9	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	3,918 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC20	EasyTRA		Worker – dermal, long-	0,102857 mg/kg/d	

			term – systemic		
			Worker – inhalation, long-term – systemic	4,909 mg/m3	
			Worker – long-term – systemic Combined routes	0,804186 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC18	EasyTRA		Worker – dermal, long-term – systemic	0,493714 mg/kg/d	
			Worker – inhalation, long-term – systemic	29,456 mg/m3	
			Worker – long-term – systemic Combined routes	4,702 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	
PROC17	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC13: Treatment of articles by dipping and pouring

PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC18: Greasing at high energy conditions

PROC11: Non industrial spraying

PROC17: Lubrication at high energy conditions and in partly open process

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Use as a cleaning agent – professional**

Main User Groups	:	**SU 22:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems
Further information	:	Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide

dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	2 %
Emission or Release Factor: Water	:	0,0001 %
Emission or Release Factor: Soil	:	0 %
Local release rate: Water	:	1,1 kg/day
Local release rate: Air	:	22 kg/day
Local release rate: Soil	:	
Remarks	:	There is no direct exposure to soil.

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d
Sludge Treatment	:	Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	> 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	One hand face only (240 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4, PROC13: Use in batch and other process (synthesis) where opportunity for exposure arises, Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)

Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics

Concentration of the Substance in Mixture/Article	:	5-25%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	1 - 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Two hands (960 cm2)

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial spraying

Product characteristics

Concentration of the Substance in Mixture/Article	:	1-5%
Physical Form (at time of use)	:	Liquid substance

Frequency and duration of use

Exposure duration	:	1 - 4 h
Frequency of use	:	5 days/week

Human factors not influenced by risk management

Exposed skin area	:	Skin
	:	1500 cm2

Other operational conditions affecting workers exposure

Outdoor / Indoor	:	Indoor

Technical conditions and measures

Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation

Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,000005 mg/L	
			Freshwater sediment		0,000032 mg/kg dry weight (d.w.)	
			Marine water		0,000014 µg/L	
			Marine sediment		0,000056 µg/kg dry weight (d.w.)	
			Sewage treatment plant		0,00099 ng/L	
			Agricultural soil		0,00046 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	

			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-term – systemic	0,987429 mg/kg/d	
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

PROC2: Use in closed, continuous process with occasional controlled exposure

PROC3: Use in closed batch process (synthesis or formulation)

PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

PROC13: Treatment of articles by dipping and pouring

PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

1. Short title of Exposure Scenario: **Solvent in other applications- Professional**

Main User Groups : **SU 22:** Professional uses: Public domain (administration,

		education, entertainment, services, craftsmen)
Sector of use	:	**SU 22, SU0:** Professional uses: Public domain (administration, education, entertainment, services, craftsmen), Other
Process category	:	**PROC1:** Use in closed process, no likelihood of exposure **PROC2:** Use in closed, continuous process with occasional controlled exposure **PROC3:** Use in closed batch process (synthesis or formulation) **PROC4:** Use in batch and other process (synthesis) where opportunity for exposure arises **PROC8a:** Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities **PROC8b:** Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities **PROC10:** Roller application or brushing **PROC11:** Non industrial spraying **PROC13:** Treatment of articles by dipping and pouring
Environmental release category	:	**ERC8a, ERC8d:** Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for:ERC8a, ERC8d: Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems

Concentration of the Substance in Mixture/Article	:	5-25%

Environment factors not influenced by risk management

Flow rate	:	90.000 m3/d

Other given operational conditions affecting environmental exposure

Emission or Release Factor: Air	:	40 %
Emission or Release Factor: Water	:	5 %
Emission or Release Factor: Soil	:	0 %
Local release rate: Water	:	8,4 kg/day
Local release rate: Air	:	66 kg/day
Local release rate: Soil	:	
Remarks	:	There is no direct exposure to soil.

Technical conditions and measures / Organizational measures

Air	:	Treat air emission to provide a typical removal efficiency of (%): (Effectiveness: 0 %)
Water	:	Treat onsite wastewater (prior to receiving water discharge) to provide the required removal efficiency of ≥ (%): (Effectiveness: > 96,4 %)

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant	:	Municipal sewage treatment plant, No
Flow rate of sewage treatment plant effluent	:	2.000 m3/d

Sludge Treatment : Agricultural soil, Yes, applicable

2.2 Contributing scenario controlling worker exposure for: PROC1: Use in closed process, no likelihood of exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
None required
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC2: Use in closed, continuous process with occasional controlled exposure

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC3: Use in closed batch process (synthesis or formulation)

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : One hand face only (240 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC8a, PROC8b: Transfer

of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities, Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, None required

2.2 Contributing scenario controlling worker exposure for: PROC10: Roller application or brushing

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Two hands (960 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

2.2 Contributing scenario controlling worker exposure for: PROC11: Non industrial

spraying

Product characteristics
Concentration of the Substance in Mixture/Article : 1-5%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : 1 - 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Skin
: 1500 cm2

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 95 %)

2.2 Contributing scenario controlling worker exposure for: PROC13: Treatment of articles by dipping and pouring

Product characteristics
Concentration of the Substance in Mixture/Article : 5-25%

Physical Form (at time of use) : Liquid substance

Frequency and duration of use
Exposure duration : > 4 h
Frequency of use : 5 days/week

Human factors not influenced by risk management
Exposed skin area : Palms of both hands (480 cm2)

Other operational conditions affecting workers exposure
Outdoor / Indoor : Indoor

Technical conditions and measures
Local exhaust ventilation, No

Conditions and measures related to personal protection, hygiene and health evaluation
Protective gloves, APF 10 (Effectiveness: 90 %)
Respiratory Protection, Yes (Effectiveness: 90 %)

3. Exposure estimation and reference to its source

Environment

Contributing Scenario	Exposure Assessment Method	Specific conditions	Compartment	Value type	Level of Exposure	Risk characterization ratio
ERC8a, ERC8d	Petrorisk		Freshwater		0,0000074 mg/L	
			Freshwater sediment		0,00018 mg/kg dry weight (d.w.)	
			Marine water		0,00074 µg/L	
			Marine sediment		0,000018 mg/kg dry weight (d.w.)	
			Sewage treatment plant		0,000074 mg/L	
			Agricultural soil		0,000052 mg/kg	

ERC8a: Wide dispersive indoor use of processing aids in open systems
ERC8d: Wide dispersive outdoor use of processing aids in open systems

Workers/Consumers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value type	Level of Exposure	Risk characterization ratio
PROC1	EasyTRA		Worker – dermal, long-term – systemic	0,020571 mg/kg/d	
			Worker – inhalation, long-term – systemic	0,024547 mg/m3	
			Worker – long-term – systemic Combined routes	0,024078 mg/kg/d	
PROC2	EasyTRA		Worker – dermal, long-term – systemic	0,082286 mg/kg/d	
			Worker – inhalation, long-term – systemic	49,093 mg/m3	
			Worker – long-term – systemic Combined routes	7,096 mg/kg/d	
PROC3	EasyTRA		Worker – dermal, long-term – systemic	0,041143 mg/kg/d	
			Worker – inhalation, long-term – systemic	61,366 mg/m3	
			Worker – long-term – systemic Combined routes	8,808 mg/kg/d	
PROC4	EasyTRA		Worker – dermal, long-term – systemic	0,411429 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,165 mg/kg/d	
PROC8a	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	
PROC8b	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	2,576 mg/kg/d	
PROC10	EasyTRA		Worker – dermal, long-	0,987429 mg/kg/d	

			term – systemic		
			Worker – inhalation, long-term – systemic	14,728 mg/m3	
			Worker – long-term – systemic Combined routes	3,091 mg/kg/d	
PROC11	EasyTRA		Worker – dermal, long-term – systemic	1,286 mg/kg/d	
			Worker – inhalation, long-term – systemic	12,273 mg/m3	
			Worker – long-term – systemic Combined routes	3,039 mg/kg/d	
PROC13	EasyTRA		Worker – dermal, long-term – systemic	0,822857 mg/kg/d	
			Worker – inhalation, long-term – systemic	24,547 mg/m3	
			Worker – long-term – systemic Combined routes	4,33 mg/kg/d	

PROC1: Use in closed process, no likelihood of exposure

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PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC8b: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities

PROC10: Roller application or brushing

PROC11: Non industrial spraying

PROC13: Treatment of articles by dipping and pouring

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted releases are not expected to lead to environmental concentrations which would exceed the PNEC when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.Estimated workplace exposures are not expected to exceed DNELs when the identified risk management measures are adopted. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Creation Date 27-Jan-2010 **Revision Date** 02-Oct-2015 **Revision Number** 2

1. Identification

Product Name **Methylene chloride**

Cat No. : **D37-1; D37-4; D37-20; D37-200; D37-200LC; D37-500; D37FB-19; D37FB-50; D37FB-115; D37FB-200; D37POP-19; D37POPB-50; D37POPB-200; D37RB-19; D37RB-50; D37RB-115; D37RB-200; D37RS-19; D37RS-28; D37RS-50; D37RS-115; D37RS-200; D37SK-4; D37SK-4LC; D37SS-28; D37SS-50; D37SS-115; D37SS-200; D37SS-1350**

Synonyms Dichloromethane; DCM

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS), Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Liver, Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
Causes skin irritation
Causes serious eye irritation

May cause respiratory irritation
May cause drowsiness or dizziness
May cause cancer
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)

WARNING! This product contains a chemical known in the State of California to cause cancer, birth defects or other reproductive harm.

3. Composition / information on ingredients

Component	CAS-No	Weight %
Methylene chloride	75-09-2	>99.5
Methyl alcohol	67-56-1	0 - 0.4
Cyclohexene	110-83-8	0 - 0.01
2-Methyl-2-butene	513-35-9	0 - 0.01

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects Breathing difficulties. . Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 556 °C / 1032.8 °F

Explosion Limits
Upper 23 vol %
Lower 13 vol %
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2) Hydrogen chloride gas Phosgene
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	1	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Keep people away from and upwind of spill/leak.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Use only under a chemical fume hood.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Methylene chloride	TWA: 50 ppm	(Vacated) TWA: 500 ppm (Vacated) STEL: 2000 ppm (Vacated) Ceiling: 1000 ppm TWA: 25 ppm STEL: 125 ppm	IDLH: 2300 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m³ Skin TWA: 200 ppm TWA: 260 mg/m³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 325 mg/m³
Cyclohexene	TWA: 300 ppm	(Vacated) TWA: 300 ppm (Vacated) TWA: 1015 mg/m³ TWA: 300 ppm TWA: 1015 mg/m³	IDLH: 2000 ppm TWA: 300 ppm TWA: 1015 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Methylene chloride	TWA: 50 ppm TWA: 174 mg/m³	TWA: 100 ppm TWA: 330 mg/m³ STEL: 500 ppm STEL: 1740 mg/m³	TWA: 50 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m³ STEL: 250 ppm STEL: 328 mg/m³ Skin	TWA: 200 ppm TWA: 260 mg/m³ STEL: 250 ppm STEL: 310 mg/m³	TWA: 200 ppm STEL: 250 ppm Skin
Cyclohexene	TWA: 300 ppm TWA: 1010 mg/m³	TWA: 300 ppm TWA: 1015 mg/m³	TWA: 300 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	sweet
Odor Threshold	No information available
pH	Not applicable
Melting Point/Range	-97 °C / -142.6 °F
Boiling Point/Range	39 °C / 102.2 °F
Flash Point	No information available

Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	23 vol %
Lower	13 vol %
Vapor Pressure	20 mmHg @ 3502°C
Vapor Density	2.93 (Air = 1.0)
Specific Gravity	1.33
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	556 °C / 1032.8 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C H2 Cl2
Molecular Weight	84.93

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Strong acids, Amines

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas, Phosgene

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Methylene chloride	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	53 mg/L (Rat) 6 h 76000 mg/m³ (Rat) 4 h
Methyl alcohol	LD50 = 6200 mg/kg (Rat)	LD50 = 15800 mg/kg (Rabbit)	64000 ppm (Rat) 4 h 83.2 mg/L (Rat) 4 h
Cyclohexene	LD50 = 2400 µL/kg (Rat)	>200 mg/kg (Rat)	>21.6 mg/L/4h (rat)
2-Methyl-2-butene	700-2600 mg/kg (Rat)	>2000 mg/kg (Rat)	LC50 > 61000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Methylene chloride	75-09-2	Group 2A	Reasonably Anticipated	A3	X	A3
Methyl alcohol	67-56-1	Not listed	Not listed	Not listed	Not listed	Not listed

Cyclohexene	110-83-8	Not listed	Not listed	Not listed	Not listed	Not listed
2-Methyl-2-butene	513-35-9	Not listed	Not listed	Not listed	Not listed	Not listed

IARC: (International Agency for Research on Cancer)

IARC: (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)
Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)

Mexico - Occupational Exposure Limits - Carcinogens

Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects Mutagenic effects have occured in microorganisms.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity No information available.

STOT - single exposure Central nervous system (CNS) Respiratory system
STOT - repeated exposure Liver Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

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Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Methylene chloride	EC50:>660 mg/L/96h	Pimephales promelas: LC50:193 mg/L/96h	EC50: 1 mg/L/24 h EC50: 2.88 mg/L/15 min	EC50: 140 mg/L/48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h
Cyclohexene	Not listed	Poecillia reticulata: 7.1 mg/L/96h	Not listed	Daphnia: EC50: 5.3 mg/L/48h
2-Methyl-2-butene	Not listed	Not listed	Not listed	EC50: = 3 mg/L, 48h (Daphnia magna)

Persistence and Degradability Persistence is unlikely based on information available.
Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Methylene chloride	1.25
Methyl alcohol	-0.74

Cyclohexene	3.27

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Methylene chloride - 75-09-2	U080	-
Methyl alcohol - 67-56-1	U154	-

14. Transport information

DOT

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

TDG

UN-No UN1593
Proper Shipping Name DICHLOROMETHANE
Hazard Class 6.1
Packing Group III

IATA

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

IMDG/IMO

UN-No UN1593
Proper Shipping Name Dichloromethane
Hazard Class 6.1
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Methylene chloride	X	X	-	200-838-9	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X
Cyclohexene	X	X	-	203-807-8	-		X	X	X	X	X
2-Methyl-2-butene	X	X	-	208-156-3	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b)

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Methylene chloride	75-09-2	>99.5	0.1
Methyl alcohol	67-56-1	0 - 0.4	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Methylene chloride	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Methylene chloride	X		-
Methyl alcohol	X		-

OSHA Occupational Safety and Health Administration

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Methylene chloride	125 ppm STEL 12.5 ppm Action Level 25 ppm TWA	-

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Methylene chloride	1000 lb 1 lb	-
Methyl alcohol	5000 lb	-

California Proposition 65 This product contains the following proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Methylene chloride	75-09-2	Carcinogen	200 µg/day 50 µg/day	Carcinogen
Methyl alcohol	67-56-1	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Methylene chloride	X	X	X	X	X
Methyl alcohol	X	X	X	X	X
Cyclohexene	X	X	X	-	X
2-Methyl-2-butene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1B Toxic materials
D2A Very toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 27-Jan-2010
Revision Date 02-Oct-2015
Print Date 02-Oct-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS





Division of Facilities Services

DOD Hazardous Material Information (ANSI Format)
For Cornell University Convenience Only

METHYL TERTIARY BUTYL ETHER

Section 1 - Product and Company Identification	Section 9 - Physical & Chemical Properties
Section 2 - Compositon/Information on Ingredients	Section 10 - Stability & Reactivity Data
Section 3 - Hazards Identification Including Emergency Overview	Section 11 - Toxicological Information
Section 4 - First Aid Measures	Section 12 - Ecological Information
Section 5 - Fire Fighting Measures	Section 13 - Disposal Considerations
Section 6 - Accidental Release Measures	Section 14 - MSDS Transport Information
Section 7 - Handling and Storage	Section 15 - Regulatory Information
Section 8 - Exposure Controls & Personal Protection	Section 16 - Other Information

The information in this document is compiled from information maintained by the United States Department of Defense (DOD). Anyone using this information is solely reponsible for the accuracy and applicability of this information to a particular use or situation.
Cornell University does not in any way warrant or imply the applicability, viability or use of this information to any person or for use in any situation.

Section 1 - Product and Company Identification
METHYL TERTIARY BUTYL ETHER

Product Identification: METHYL TERTIARY BUTYL ETHER
Date of MSDS: 11/01/1990 **Technical Review Date:** 12/21/1995
FSC: 6810 **NIIN: LIIN:** 00N066437
Submitter: N EN
Status Code: C
MFN: 01
Article: N
Kit Part: N

Manufacturer's Information

Manufacturer's Name: GENIUM PUBLISHING CORP
Manufacturer's Address1: 1145 CATALYN ST
Manufacturer's Address2: SCHENECTADY, NY 12303-1836
Manufacturer's Country: US
General Information Telephone: 518-377-8854
Emergency Telephone: 518-377-8854
Emergency Telephone: 518-377-8854
MSDS Preparer's Name: MJ ALLISON
Proprietary: N
Reviewed: N
Published: Y
CAGE: 5Z768
Special Project Code: N

Contractor Information

Contractor's Name: GENIUM PUBLISHING CORPORATION
Contractor's Address1: 1145 CATALYN ST
Contractor's Address2: SCHENECTADY, NY 12303-1836
Contractor's Telephone: 518-377-8854
Contractor's CAGE: 5Z768

Section 2 - Compositon/Information on Ingredients
METHYL TERTIARY BUTYL ETHER

Ingredient Name: EFTS OF OVEREXP:NOSE, THROAT, SKIN & CORNEA. ASPIR OF GASOLINE-MTBE MIX MAY CAUSE LUNG PNEUM. ACUTE:CONT W/EYES (ING 4)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ETHER, TERT-BUTYL METHYL; (METHYL TERT-BUTYL ETHER) (SARA 313) (CERCLA)
Ingredient CAS Number: 1634-04-4 **Ingredient CAS Code:** M
RTECS Number: KN5250000 **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: 100
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: N/K (FP N) **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: N/K (FP N) **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity: 1 LB
DOT Reporting Quantity: 1 LB
Ozone Depleting Chemical: N

Ingredient Name: FIRST AID:MOUTH IF UNCON/CONVL. IF INGEST, CONSULT MD IMMED. DO NOT INDUCE VOMIT DUE TO ASPIR PNEUM RISK. IF (ING 7)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: HYGIENE PRACT:DRINKING, SMKG, USING TOILET/APPLYING COSMETICS. CONTAMD EQUIP:NEVER WEAR CONT LENSES IN WORK (ING 23)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 10:SUBSTANTIAL MTBE EXPOS. PFT'S, CHEST X-RAYS & SUPPORTIVE CARE MAY BE NEC AFTER ASPIR EXPOSURES.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 12:(EXPLO)/WATERWAYS. MTBE IS MORE WATER SOL/OTHER

GASOLINE COMPONENTS, SO THERE MAY BE HIGHER MBTE CONC IN (ING 14)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 13:GROUNDWATER WHEN THERE IS SPILL OF GASOLINE-MTBE MIX. IT ALSO HAS MOD TO HIGH MOBILITY IN SOIL. MTBE IS (ING 15)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 14:POORLY BIODEGRADED BY MICROORGANISMS IN ACTIVATED SLUDGE. CLEANUP OF GROUNDWATER CONTAM IS DFCLT. WHEN (ING 16)

Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 15:HIGH AIR-TO-WATER RATIOS ARE USED, AIR STRIPPING SYS CAN REMOVE MTBE. PROD OF ATM DEGRADATION INCL (ING 17)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 16:T-BUTYL FORMATE, ACETONE, & METHYL RADICALS. FOLLOW APPLIC OSHA REGS (29 CFR 1910.120).
Ingredient CAS Number: Ingredient CAS Code: X

RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 18:PRACTICE GOOD PERSONAL HYGIENE & HOUSEKEEPING PROCEDURES.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 22:AREA; SOFT LENSES MAY ABSORB, & ALL LENSES CONC, IRRITANTS. REMOVE THIS MATL FROM YOUR SHOES & EQUIP. (ING 24)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M

=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 23:LAUNDER CONTAM CLOTHING BEFORE WEARING.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 3:OR SKIN MAY CAUSE IRRIT/BURNING @ HIGH CONC. INHAL MAY RSLT IN NAUS, VOMIT, SEDATION & GEN ATHESIA (CNS & (ING 5)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:

>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 4:RESP DEPRESS). INGEST OF MTBE MAY RSLT IN ASPIR PNEUM. CHRONIC:CHRONIC INHAL CAUSES NASAL & TRACHEAL INFLAMM.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 6:PERS IS COUGH/CHOCKING, ASPIR MAY HAVE ALREADY OCCURRED; TRANSPORT TO EMER MED FACILITY. AFTER FIRST AID, (ING 8)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:

>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 7:INGEST BECAUSE OF IT'S POOR ABSORBING QUALITIES. CAREFULLY OBSERVE FOR ANY DEVELOPMENT OF SYSTEMIC SIGNS. (ING 9)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 8:IF LG QTYS OF MTBE INGESTED, SYRUP OF IPECAC IS PREF TO LAVAGE IN ALERT PATIENT REQ EMESIS. IF ASPIR HAS (ING 10)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:

<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: ING 9:OCCURRED, OBTAIN BASELINE CHEST X-RAY & VITAL SIGNS. LIVER FUNC STUDIES MAY BE INDICATED FOLLOWING (ING 11)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: OTHER PREC:PROT PROGRAM THAT INCL REGULAR TRAINING, MAINTENANCE, INSPECTION, & EVAL. AVOID HEAT & IGNIT SOURCES.(ING 19)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:

<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: RESP PROT:SCBA. WARNING! NIOSH/MSHA APPRVD AIR-PURIFYING RESPS DO NOT PROTECT WORKERS IN OXYG-DEFICIENT ATM.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: SPILL PROC:FOR DISP. FOR LG SPILLS, DIKE FAR AHEAD OF SPILL TO CNTN. DO NOT ALLOW MTBE TO ENTER ENCLOSED AREAS(ING 13)
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:

% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: SUPDAT:RADICALS. IF PRESENT IS SUFFICIENT CONC, THESE PROD OF PARTIAL OXIDATION CAN POSE SERIOUS HLTH HAZARD.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:
% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Ingredient Name: VENT:PRODUCTIVITY LOC EXHST VENT IS PREF SINCE IT PVNT CONTAM DISPERSION INTO WORK AREA BY CONTROLLING IT @ ITS SOURCE.
Ingredient CAS Number: Ingredient CAS Code: X
RTECS Number: 9999999ZZ **RTECS Code:** M
=WT: =WT Code:
=Volume: =Volume Code:
>WT: >WT Code:
>Volume: >Volume Code:
<WT: <WT Code:
<Volume: <Volume Code:
% Low WT: % Low WT Code:

% High WT: % High WT Code:
% Low Volume: % Low Volume Code:
% High Volume: % High Volume Code:
% Text: N/K
% Enviromental Weight:
Other REC Limits: N/K
OSHA PEL: NOT APPLICABLE **OSHA PEL Code:** M
OSHA STEL: OSHA STEL Code:
ACGIH TLV: NOT APPLICABLE **ACGIH TLV Code:** M
ACGIH STEL: N/P **ACGIH STEL Code:**
EPA Reporting Quantity:
DOT Reporting Quantity:
Ozone Depleting Chemical:

Section 3 - Hazards Identification, Including Emergency Overview
METHYL TERTIARY BUTYL ETHER

Health Hazards Acute & Chronic: TARGET ORGANS:UPPER RESP TRACT, CNS. MTBE INGEST & INHAL TOX ARE BASED ON ANIMAL STUDIES. HUMAN EXPOS ARE REPORTED PRIMARILY W/EXPOS TO GASOLINE-MTBE MIX & W/USE OF MTBE IN DISSOLVING GALL BLADDER STO NES BY DIRECT INFUSION. RPTS REVEAL MTBE'S PRIMARY ANESTH EFT ON CNS. PROGRESSION OF NAUS, VOMIT & (EFTS OF OVEREXP)

Signs & Symptoms of Overexposure:
HLTH HAZ:SEDATION FOLLOWED BY GEN ANESTH IS NOTED W/INCRG EXPOS. WARM/BURNING SENSATION IS REPORTED W/GALL BLADDER INSTILLATION. ELEVATED LIVER FUNC STUDIES, DUODENAL INFLAMM, KIDNEY FAILURE, BLOOD CE LL HEMOLYSIS, & FOUL BREATH ODOR ARE ALSO NOTED W/THIS PROC. ANIMAL STUDIES NOTE PRIMARY IRRIT TO MUC MEMB (ING 3)

Medical Conditions Aggravated by Exposure:
NONE REPORTED.

LD50 LC50 Mixture: LD50:(ORAL,RAT) 4 G/KG

Route of Entry Indicators:
- **Inhalation:** YES
- **Skin:** YES
- **Ingestion:** YES

Carcenogenicity Indicators
- **NTP:** NO
- **IARC:** NO
- **OSHA:** NO

Carcinogenicity Explanation: NOT RELEVANT.

Section 4 - First Aid Measures
METHYL TERTIARY BUTYL ETHER

First Aid:
EYES:GENTLY LIFT LIDS & FLUSH IMMED & CONTINUOUSLY W/FLOODING AMTS OF WATER FOR @ LEAST 15 MIN UNTIL TRANSPORTED TO EMER MED FACILITY. CONSULT MD IMMED. SKIN:QUICKLY REMOVE CONTAMD CLTHG. RINSE W/FLOO DING AMTS OF WATER FOR @ LEAST 15 MIN. FOR RED/BLISTERED SKIN, CONSULT MD. WASH AFFECTED AREA W/SOAP & WATER. INHAL:REMOVE TO FRESH AIR & SUPPORT BRTHG AS NEEDED. INGEST:NEVER GIVE ANYTHING BY (ING 6)

Section 5 - Fire Fighting Measures
METHYL TERTIARY BUTYL ETHER

Fire Fighting Procedures:
NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP(FP N) (INCLG GOGG, RUB OVER-CLTHG, GLOVES & BOOTS). IF FEASIBLE, REMOVE CNTNRS FROM FIRE-RISK AREA. OTHERWISE (SUPDAT)
Unusual Fire or Explosion Hazard:
MTBE IS EXTREMELY FLAM. VAP MAY EXPLODE IF IGNIT IN ENCLSD AREA/TRAVEL TO SOURCE OF IGNIT & FLASH BACK. @ TEMP AT/ABOVE FL PT, MTBE CAN RELS VAPS THAT (SUPDAT)
Extinguishing Media:
USE DRY CHEMICAL, CARBON DIOXIDE, HALON, WATER SPRAY, OR ALCOHOL FOAM AS EXTINGUISHING MEDIA.
Flash Point: Flash Point Text: <18F,<-8C

Autoignition Temperature:
Autoignition Temperature Text: N/A
Lower Limit(s): 1.6%
Upper Limit(s): 8.4%

Section 6 - Accidental Release Measures
METHYL TERTIARY BUTYL ETHER

Spill Release Procedures:
NOTIFY SFTY PERS, EVAC ALL UNNEC PERS, REMOVE ALL HEAT & IGNIT SOURCES, & PROVIDE MAX EXPLO-PROOF VENT. CLEANUP PERS SHOULD PROTECT AGAINST VAP INHAL & SKIN/EYE CONT. TAKE UP SPILLED MATL W/NONCOMBUST ABSORB MATL & PLACE IN APPROP CNTNRS (ING 12)

Section 7 - Handling and Storage
METHYL TERTIARY BUTYL ETHER

Handling and Storage Precautions:

Other Precautions:

Section 8 - Exposure Controls & Personal Protection
METHYL TERTIARY BUTYL ETHER

Repiratory Protection:
SEEK PROFESSIONAL ADVICE PRIOR TO RESP SELECTION & USE. FOLLOW OSHA RESP

REGS (29 CFR 1910.134) &, IF NEC, WEAR NIOSH/MSHA APPRVD RESP. FOR EMER/NONROUTINE OPERATIONS (CLEANING SPILLS, REACTOR VESSELS /STOR TANKS), WEAR NIOSH/MSHA (ING 20)
Ventilation:
PROVIDE GEN & LOC EXPLO-PROOF VENT SYS TO MAINTAIN AIRBORNE CONC @ LEV THAT PROMOTE WORKER SFTY & (ING 21)
Protective Gloves:
IMPERVIOUS GLOVES.
Eye Protection: ANSI APPRVD CHEM WORKERS GOGG & FSHLD.
Other Protective Equipment: IMPERVIOUS BOOTS, APRONS, & GAUNTLETS. ANSI APPRVD EMER EYE WASH & DELUGE SHOWER (FP N).
Work Hygenic Practices: NEVER EAT, DRINK/SMOKE IN WORK AREAS. PRACTICE GOOD PERSONAL HYGIENE AFTER USING MATL, EXPECIALLY BEFORE EATING,(ING 22)
Supplemental Health & Safety Information: APPEAR/ODOR:MINT OR TERPENE-LIKE ODOR. FIRE FIGHT PROC:USE WATER SPRAY TO COOL FIRE-EXPOS CNTNRS. BE AWARE OF RUNOFF FROM FIRE CTL METH. DO NOT RELS TO ENCLSD AREAS, SEWERS/WATERWAYS DUE TO POTNTL EXP LO & HLTH HAZ MTBE PRESENT. EXPLO HAZ: FORM FLAM MIXS. CNDTNS TO AVOID: IN ACID SOLNS. HAZ DECOMP:& METHYL (ING 2)

Section 9 - Physical & Chemical Properties
METHYL TERTIARY BUTYL ETHER

HCC:
NRC/State License Number:
Net Property Weight for Ammo:
Boiling Point: Boiling Point Text: 131F,55C
Melting/Freezing Point: Melting/Freezing Text: <166F,<74C
Decomposition Point: Decomposition Text: N/K
Vapor Pressure: 245 @ 77F **Vapor Density:** N/K
Percent Volatile Organic Content:
Specific Gravity: 0.7405(20C/4C)
Volatile Organic Content Pounds per Gallon:
pH: N/K
Volatile Organic Content Grams per Liter:
Viscosity: N/P
Evaporation Weight and Reference: NOT KNOWN
Solubility in Water: 4.8G/100G
Appearance and Odor: A CLEAR, COLORLESS LIQUID WITH A SLIGHT HYDROCARBON ODOR WITH A MILD (SUPDAT)
Percent Volatiles by Volume: N/K
Corrosion Rate: N/K

Section 10 - Stability & Reactivity Data
METHYL TERTIARY BUTYL ETHER

Stability Indicator: YES
Materials to Avoid:
INCOMPAT & UNSTABLE W/STRONG OXIDIZING AGENTS, STRONG ACIDS, CAUSTICS, AMINES, ALDEHYDES, AMMONIA, & CHLORINATED CMPDS.
Stability Condition to Avoid:

HEAT & IGNIT SOURCES. MTBE IS STABLE @ ROOM TEMP IN CLSD CNTNRS UNDER NORM STOR & HNDLG CNDTNS. MTBE IS UNSTABLE(SUPDAT)
Hazardous Decomposition Products:
THERM OXIDATIVE DECOMP CAN PRDCE: CO*2 & H*2O VAP; INCOMPLETE COMBUST:CO, T-BUTYL FORMATE, ACETONE, FORMIC ACID (SUPDAT)
Hazardous Polymerization Indicator: NO
Conditions to Avoid Polymerization:
NOT RELEVANT.

Section 11 - Toxicological Information
METHYL TERTIARY BUTYL ETHER

Toxicological Information:
N/P

Section 12 - Ecological Information
METHYL TERTIARY BUTYL ETHER

Ecological Information:
N/P

Section 13 - Disposal Considerations
METHYL TERTIARY BUTYL ETHER

Waste Disposal Methods:
CONTACT YOUR SUPPLIER/LICENSED CONTRACTOR FOR DETAILED RECOMMENDATIONS. FOLLOW APPLIC FEDERAL, STATE, AND LOCAL REGS.

Section 14 - MSDS Transport Information
METHYL TERTIARY BUTYL ETHER

Transport Information:
N/P

Section 15 - Regulatory Information
METHYL TERTIARY BUTYL ETHER

SARA Title III Information:
N/P
Federal Regulatory Information:
N/P
State Regulatory Information:
N/P

Section 16 - Other Information
METHYL TERTIARY BUTYL ETHER

Other Information:
N/P

HAZCOM Label Information

Product Identification: METHYL TERTIARY BUTYL ETHER
CAGE: 5Z768

Assigned Individual: N
Company Name: GENIUM PUBLISHING CORPORATION
Company PO Box:
Company Street Address1: 1145 CATALYN ST
Company Street Address2: SCHENECTADY, NY 12303-1836 US
Health Emergency Telephone: 518-377-8854
Label Required Indicator: Y
Date Label Reviewed: 12/21/1995
Status Code: C
Manufacturer's Label Number:
Date of Label: 12/21/1995
Year Procured: N/K
Organization Code: G
Chronic Hazard Indicator: Y
Eye Protection Indicator: YES
Skin Protection Indicator: YES
Respiratory Protection Indicator: YES
Signal Word: DANGER
Health Hazard: Severe
Contact Hazard: Severe
Fire Hazard: Severe
Reactivity Hazard: Slight

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SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *m*-Xylene

Product Number : 95670
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 108-38-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,3-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	108-38-3
EC-No.	:	203-576-3
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
m-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H226, H304, H312, H315, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
m-Xylene	108-38-3	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		

		Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
m-Xylene	108-38-3	Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -48 °C (-54 °F) - lit.
f)	Initial boiling point and boiling range	138 - 139 °C (280 - 282 °F) - lit.
g)	Flash point	25.0 °C (77.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	8.0 hPa (6.0 mmHg) at 20.0 °C (68.0 °F) 21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	No data available
m)	Relative density	0.868 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.2 at 20 °C (68 °F)
p)	Auto-ignition temperature	465.0 °C (869.0 °F) 528.0 °C (982.4 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - 6,602 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male - 4 h - 6700 ppm
(Directive 67/548/EEC, Annex V, B.2.)

LD50 Dermal - Rabbit - male - 12,126 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation - 24 h

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (m-Xylene)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: ZE2275000

Liver injury may occur., Kidney injury may occur., Blood disorders, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Dermatitis, Gastrointestinal disturbance

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Fish - 11.23 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available
Toxicity to algae	Remarks: No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
m-Xylene	108-38-3	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.

H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

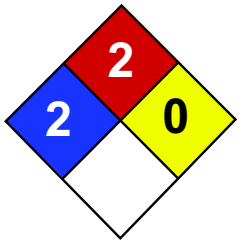
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 06/21/2016







Material Safety Data Sheet
Naphthalene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Naphthalene

Catalog Codes: SLN1789, SLN2401

CAS#: 91-20-3

RTECS: QJ0525000

TSCA: TSCA 8(b) inventory: Naphthalene

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: C10H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Naphthalene	91-20-3	100

Toxicological Data on Ingredients: Naphthalene: ORAL (LD50): Acute: 490 mg/kg [Rat]. 533 mg/kg [Mouse]. 1200 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit]. VAPOR (LC50): Acute: 170 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 567°C (1052.6°F)

Flash Points: CLOSED CUP: 88°C (190.4°F). OPEN CUP: 79°C (174.2°F).

Flammable Limits: LOWER: 0.9% UPPER: 5.9%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Israel: TWA: 10 (ppm) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [1995] TWA: 52 STEL: 79 (mg/m3) from ACGIH [1995] Australia: STEL: 15 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystalline solid.)

Odor: Aromatic.

Taste: Not available.

Molecular Weight: 128.19 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 218°C (424.4°F)

Melting Point: 80.2°C (176.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.162 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 4.4 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.038 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties:
Partially dispersed in hot water, methanol, n-octanol. Very slightly dispersed in cold water. See solubility in methanol, n-octanol.

Solubility:
Partially soluble in methanol, n-octanol. Very slightly soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Highly reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: May attack some forms of rubber and plastic

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 490 mg/kg [Rat]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 170 ppm 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Naphthalene, refined : UN1334 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: Naphthalene Pennsylvania RTK: Naphthalene Florida: Naphthalene Minnesota: Naphthalene Massachusetts RTK: Naphthalene TSCA 8(b) inventory: Naphthalene TSCA 8(a) PAIR: Naphthalene TSCA 8(d) H and S data reporting: Naphthalene: 06/01/87 SARA 313 toxic chemical notification and release reporting: Naphthalene: 1% CERCLA: Hazardous substances.: Naphthalene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36- Irritating to eyes. R40- Possible risks of irreversible effects. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation. R63- Possible risk of harm to the unborn child.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 01:30 PM

Last Updated: 11/06/2008 12:00 PM

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SAFETY DATA SHEET

Revision Date 03-May-2012 **Revision Number** 2

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product Identifier

Product Description: **n-Butylbenzene**
Cat No. **107850000; 107850050; 107850500; 107852500**
Synonyms 1-Phenylbutane

Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number

For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Flammable liquids.	Category 3

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

R-phrase(s) none

Label Elements

SECTION 2. HAZARDS IDENTIFICATION



Signal Word **Warning**

Hazard Statements
H226 - Flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Other Hazards

No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC-No.	Weight %	CAS-No	67/548/EEC Classification	CLP Classification - Regulation (EC) No 1272/2008	REACH No.
Butyl benzene 104-51-8	EEC No. 203-209-7	> 99	104-51-8	-	Flam. Liq. 3 (H226)	-

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 4. FIRST AID MEASURES

Description of first aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.

Ingestion Do not induce vomiting. Clean mouth with water. Aspiration hazard. Get medical attention.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention.

Notes to Physician Treat symptomatically

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media
Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. chemical foam. Do not use a solid water stream as it may scatter and spread fire.

Extinguishing media which must not be used for safety reasons
No information available.

Special hazards arising from the substance or mixture

Combustible material. Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Environmental precautions

Prevent further leakage or spillage if safe to do so

Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use explosion-proof equipment. Use only non-sparking tools.

Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition.

Specific End Uses

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.
Biological limit values	This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.
Derived No Effect Level (DNEL)	No information available.
Predicted No Effect Concentration (PNEC)	No information available.

Exposure controls

Engineering Measures	Ensure adequate ventilation, especially in confined areas
Personal protective equipment	
Eye Protection	Goggles
Hand Protection	Protective gloves
Skin and body protection	Wear appropriate protective gloves and clothing to prevent skin exposure
Respiratory Protection	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice
Environmental exposure controls	No information available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Colorless
odor	odorless
pH	No information available.
Vapor Pressure	1.33 hPa @ 23 °C
Vapor Density	4.6
Boiling Point/Range	183°C / 361.4°F@ 760 mmHg
Melting Point/Range	-88°C / -126.4°F
Flash Point	59°C / 138.2°F
Autoignition Temperature	412°C / 773.6°F
Explosion Limits	
Lower	0.8
Upper	5.8
Water Solubility	Insoluble
Specific Gravity	0.860
Molecular Formula	C10 H14
Molecular Weight	134.22

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	No information available.

Conditions to Avoid

Keep away from open flames, hot surfaces and sources of ignition, Incompatible products.

Incompatible Materials

Strong oxidizing agents, oxygen.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Product Information	No acute toxicity information is available for this product

Component Information

Chronic Toxicity

Carcinogenicity	There are no known carcinogenic chemicals in this product
Sensitization	No information available.
Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.
Target Organs	No information available.
Other Adverse Effects	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information

Endocrine Disruptor Information

SECTION 11. TOXICOLOGICAL INFORMATION

Component	EU - Endocrine Disrupters Candidate List	EU - Endocrine Disruptors - Evaluated Substances	Japan - Endocrine Disruptor Information
Butyl benzene	Group III Chemical		

SECTION 12. ECOLOGICAL INFORMATION

Toxicity

Ecotoxicity effects Contains no substances known to be hazardous to the environment or that are not degradable in waste water treatment plants

Persistence and degradability

No information available

Bioaccumulative potential

No information available.

Component	log Pow
Butyl benzene	4.2

Mobility in soil

Results of PBT and vPvB assessment

Other adverse effects

No information available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from Residues / Unused Products Dispose of in accordance with local regulations

Contaminated Packaging Empty containers should be taken to local recyclers for disposal

SECTION 14. TRANSPORT INFORMATION

IMDG/IMO

SECTION 14. TRANSPORT INFORMATION

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

ADR

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

IATA

UN-No	2709
Hazard Class	3
Packing Group	III
Proper Shipping Name	BUTYLBENZENES

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Butyl benzene	203-209-7	-		X	X	-	X	X	X	X	-

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances
CHINA - China Inventory of Existing Chemical Substances
AICS - Inventory of Chemical Substances
KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment

SECTION 16. OTHER INFORMATION

Full text of R-phrases referred to under sections 2 and 3
No information available.

Revision Date 03-May-2012
Revision Summary

Reason for revision Not applicable
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Creation Date 26-Oct-2009 **Revision Date** 02-Apr-2014 **Revision Number** 1

1. Identification

Product Name **n-Hexane**

Cat No. : **AC326920000; AC326920010; AC326920025; AC326921000; AC326922500**

Synonyms Hex

Recommended Use Laboratory chemicals

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 /
Europe call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 /
Europe: +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 /
Europe:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Heart, Blood.	
Aspiration Toxicity	Category 1

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor

May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May cause drowsiness or dizziness
Suspected of damaging fertility
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Keep cool
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
If skin irritation occurs: Get medical advice/attention
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention.
Ingestion
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Do NOT induce vomiting
Fire
In case of fire: Use CO2, dry chemical, or foam for extinction
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Haz/Non-haz

Component	CAS-No	Weight %
Hexane	110-54-3	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Obtain medical attention. Aspiration into lungs can produce severe lung damage.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately. If vomiting occurs, lean victim forward to reduce the risk of aspiration.

Most important symptoms/effects Breathing difficulties. . Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Notes to Physician Treat symptomatically.

5. Fire-fighting measures

Suitable Extinguishing Media CO_2, dry chemical, dry sand, alcohol-resistant foam. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media Water may be ineffective, This material is lighter than water and insoluble in water. The fire could easily be spread by the use of water in an area where the water cannot be contained.

Flash Point -22°C / -7.6°F

Method - No information available

Autoignition Temperature 223°C / 433.4°F

Explosion Limits

Upper 7.5 vol %

Lower 1.1 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products Carbon monoxide (CO), Carbon dioxide (CO_2).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. Use explosion-proof equipment. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Flammables area.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hexane	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m^3 TWA: 500 ppm TWA: 1800 mg/m^3	IDLH: 1100 ppm TWA: 50 ppm TWA: 180 mg/m^3

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hexane	TWA: 50 ppm TWA: 176 mg/m^3 Skin	TWA: 50 ppm TWA: 176 mg/m^3	TWA: 50 ppm Skin

Legend
ACGIH *- American Conference of Governmental Hygienists*
OSHA *- Occupational Safety and Health Administration*
NIOSH IDLH: *The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health*

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	Petroleum distillates
Odor Threshold	No information available.
pH	No information available.
Melting Point/Range	-95°C / -139°F
Boiling Point/Range	69°C / 156.2°F@ 760 mmHg
Flash Point	-22°C / -7.6°F
Evaporation Rate	No information available.
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	7.5 vol %
Lower	1.1 vol %
Vapor Pressure	160 mbar @ 20 °C
Vapor Density	2.97
Relative Density	0.659
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	223°C / 433.4°F
Decomposition temperature	No information available.
Viscosity	0.31 mPa s at 20 °C
Molecular Formula	C6 H14
Molecular Weight	86.18

10. Stability and reactivity

Reactive Hazard None known, based on information available.

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Exposure to light. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Halogens

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur

Hazardous Reactions None under normal processing

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	25 g/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes and skin

Sensitization No information available.

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects Mutagenic effects have occurred in experimental animals.

Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental Effects Developmental effects have occurred in experimental animals.

Teratogenicity Teratogenic effects have occurred in experimental animals..

STOT - single exposure Respiratory system, Central nervous system (CNS).

STOT - repeated exposure Liver, Heart, Blood.

Aspiration hazard No information available.

Symptoms / effects, both acute and delayed Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.

Endocrine Disruptor Information No information available

Other Adverse Effects Tumorigenic effects have been reported in experimental animals.. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	2.1 - 2.98 mg/L LC50 96 h	Not listed	EC50: 3.87 mg/L/48h

Persistence and Degradability Persistence is unlikely, based on information available.

Bioaccumulation/ Accumulation No information available

Mobility Will likely be mobile in the environment due to its volatility.

Component	log Pow
Hexane	4.11

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

TDG

UN-No	UN1208
Proper Shipping Name	HEXANES
Hazard Class	3
Packing Group	II

IATA

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

IMDG/IMO

UN-No	UN1208
Proper Shipping Name	Hexanes
Hazard Class	3
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Hexane	X	X	-	203-777-6	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hexane	110-54-3	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hexane	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hexane	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hexane	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	Y
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

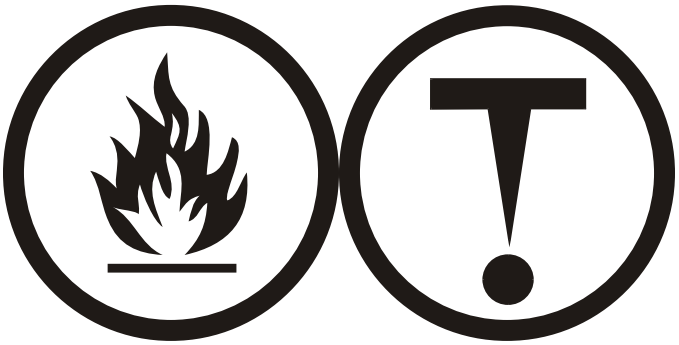
U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade Serious risk, Grade 3

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class B2 Flammable liquid
D2A Very toxic materials



16. Other information

Prepared By	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
Creation Date	26-Oct-2009
Revision Date	02-Apr-2014
Print Date	02-Apr-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Creation Date 04-Oct-2010 **Revision Date** 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Nickel, powder**

Cat No. : **AC193610000; AC193610250; AC193611000; AC193615000**

Synonyms Raney alloy

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin Sensitization	Category 1
Carcinogenicity	Category 2
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Kidney, Blood.	

Label Elements

Signal Word
Danger

Hazard Statements
May cause an allergic skin reaction
Causes damage to organs through prolonged or repeated exposure
Suspected of causing cancer



Precautionary Statements

Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Contaminated work clothing should not be allowed out of the workplace
Response
IF exposed or concerned: Get medical attention/advice
Skin
IF ON SKIN: Wash with plenty of soap and water
If skin irritation or rash occurs: Get medical advice/attention
Wash contaminated clothing before reuse
Storage
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Nickel powder	7440-02-0	>95

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects May cause allergic skin reaction. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature 400 °C / 752 °F
Explosion Limits
Upper No data available
Lower No data available

Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Combustible material.

Hazardous Combustion Products
Nickel oxides.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
3	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Avoid dust formation.

Environmental Precautions Should not be released into the environment. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Do not breathe vapors/dust. Do not ingest.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel powder	TWA: 1.5 mg/m³	(Vacated) TWA: 1 mg/m³ TWA: 1 mg/m³	IDLH: 10 mg/m³ TWA: 0.015 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Nickel powder	TWA: 1 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Brown
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	1455 °C / 2651 °F
Boiling Point/Range	2730 °C / 4946 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 1810 °C
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	400 °C / 752 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Ni
Molecular Weight	58.7

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Nickel oxides

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nickel powder	9000 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization May cause sensitization by skin contact Nickel and nickel compounds may cause a form of dermatitis known as nickel itch. May cause an allergic skin reaction

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Nickel powder	7440-02-0	Group 2B	Reasonably Anticipated	Not listed	X	Not listed

IARC: (International Agency for Research on Cancer) *Group 2B - Possibly Carcinogenic to Humans*

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure Kidney Blood

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
Endocrine Disruptor Information No information available

Other Adverse Effects See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity
Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Do not empty into drains. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Nickel powder	0.18 mg/L EC50 = 72 h 0.174 - 0.311 mg/L EC50 96 h	10.4 mg/L LC50 96 h 1.3 mg/L LC50 96 h 100 mg/L LC50 96 h	Not listed	1 mg/L EC50 = 48 h 100 mg/L EC50 > 48 h

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3089
- **Proper Shipping Name** METAL POWDERS, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** II

TDG
- **UN-No** UN3089
- **Proper Shipping Name** METAL POWDERS, FLAMMABLE, N.O.S.
- **Hazard Class** 4.1
- **Packing Group** II

IATA

UN-No	3089
Proper Shipping Name	METAL POWDERS, FLAMMABLE, N.O.S.
Hazard Class	4.1
Packing Group	II

IMDG/IMO

UN-No	3089
Proper Shipping Name	METAL POWDERS, FLAMMABLE, N.O.S.
Hazard Class	4.1
Packing Group	II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Nickel powder	X	X	-	231-111-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Nickel powder	7440-02-0	>95	0.1

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Nickel powder	-	-	X	X

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Nickel powder	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive

Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Nickel powder	100 lb	-

California Proposition 65 This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Nickel powder	7440-02-0	Carcinogen	-	Carcinogen

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Nickel powder	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D2A Very toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 04-Oct-2010
Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Material Safety Data Sheet

Version 4.0
Revision Date 07/28/2010
Print Date 12/27/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Propylbenzene
Product Number	:	P52407
Brand	:	Aldrich
Company	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone #	:	(314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Combustible Liquid

Target Organs

Lungs, Eyes, Kidney

GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H335	May cause respiratory irritation.
H401	Toxic to aquatic life.

Precautionary statement(s)

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331	Do NOT induce vomiting.

HMIS Classification

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	2
Physical hazards:	0

NFPA Rating

Health hazard:	1
Fire:	2
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Ingestion Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 1-Phenylpropane

Formula : C_9H_{12}

Molecular Weight : 120.19 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Propylbenzene			
103-65-1	203-132-9	601-024-00-X	-

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing give artificial respiration Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters
Wear self contained breathing apparatus for fire fighting if necessary.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Store in cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
For prolonged or repeated contact use protective gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid, clear
Colour	colourless

Safety data

pH	no data available
Melting point	-99 °C (-146 °F) - lit.
Boiling point	159 °C (318 °F) - lit.
Flash point	42.0 °C (107.6 °F) - closed cup
Ignition temperature	450 °C (842 °F)
Lower explosion limit	0.8 %(V)
Upper explosion limit	6 %(V)
Density	0.862 g/cm3 at 25 °C (77 °F)
Water solubility	slightly soluble

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 6,040 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity).

LC50 Inhalation - rat - 2 h - 65000 ppm

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Potential health effects

Inhalation	May be harmful if inhaled. May cause respiratory tract irritation.
Ingestion	Aspiration hazard if swallowed - can enter lungs and cause damage. May be harmful if swallowed.
Skin	May be harmful if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
Damage to the lungs., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Additional Information
RTECS: DA8750000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 1.55 mg/l - 96.0 h

Toxicity to daphnia and other aquatic invertebrates.	Immobilization EC50 - Daphnia magna (Water flea) - 2 mg/l - 24 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Product
This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-Number: 2364 Class: 3 Packing group: III
Proper shipping name: n-Propyl benzene
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN-Number: 2364 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: PROPYLBENZENE
Marine pollutant: No

IATA
UN-Number: 2364 Class: 3 Packing group: III
Proper shipping name: n-Propylbenzene

15. REGULATORY INFORMATION

OSHA Hazards
Combustible Liquid

DSL Status
All components of this product are on the Canadian DSL list.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Propylbenzene	103-65-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Propylbenzene	103-65-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Propylbenzene	103-65-1	2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

SAFETY DATA SHEET

Version 4.7
Revision Date 05/27/2015
Print Date 04/01/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *o*-Cresol

Product Number : C85700
Brand : Sigma-Aldrich
Index-No. : 604-004-00-9

CAS-No. : 95-48-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	2-Methylphenol
Formula	:	C_7H_8O
Molecular weight	:	108.14 g/mol
CAS-No.	:	95-48-7
EC-No.	:	202-423-8
Index-No.	:	604-004-00-9

Hazardous components

Component	Classification	Concentration
o-Cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301 + H311, H314, H318, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Air and light sensitive. Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-Cresol	95-48-7	TWA	5.000000 ppm 22.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin contact does contribute to exposure.		

		TWA	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye, skin, & Upper Respiratory Tract irritation Adopted values or notations enclosed are those for which changes are proposed in the NIC 2010 Revision or addition to the notice of intended changes See Notice of Intended Changes (NIC) Danger of cutaneous absorption		
		TWA	2.300000 ppm 10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	20.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	4.5 at 25.00000 g/l
e)	Melting point/freezing point	Melting point/range: 29 - 31 °C (84 - 88 °F) - lit.
f)	Initial boiling point and boiling range	191 °C (376 °F) - lit.
g)	Flash point	81.0 °C (177.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 58 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	3.1 hPa (2.3 mmHg) at 60.0 °C (140.0 °F) 1.3 hPa (1.0 mmHg) at 38.2 °C (100.8 °F) 0.4 hPa (0.3 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.05 g/cm3 at 20.00 °C (68.00 °F)
n)	Water solubility	25 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	599.0 °C (1,110.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 121.0 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea. Gastrointestinal:Ulceration or bleeding from stomach.

LC50 Inhalation - Rat - 1 h - > 1,220 mg/m3
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation. Behavioral:Somnolence (general depressed activity).

LD50 Dermal - Rabbit - 890.0 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h
(Draize Test)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation
(Draize Test)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6300000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Central nervous system depression, Diarrhoea, Gastrointestinal disturbance

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 10.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 15.8 mg/l - 48 h
Toxicity to algae	EC50 - SELENASTRUM - 100.00 mg/l - 72 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
o-Cresol	95-48-7	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.7 Revision Date: 05/27/2015 Print Date: 04/01/2016

SAFETY DATA SHEET

Version 5.5
Revision Date 06/02/2016
Print Date 06/21/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *o*-Xylene

Product Number : 95660
Brand : Sigma-Aldrich
Index-No. : 601-022-00-9

CAS-No. : 95-47-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.

H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	1,2-Dimethylbenzene
Formula	:	C_8H_{10}
Molecular weight	:	106.17 g/mol
CAS-No.	:	95-47-6
EC-No.	:	202-422-2
Index-No.	:	601-022-00-9

Hazardous components

Component	Classification	Concentration
o-Xylene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; STOT SE 3; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H226, H304, H312 + H332, H315, H319, H335, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
o-Xylene	95-47-6	TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Eye & Upper Respiratory Tract irritation Central Nervous System impairment Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	100.000000 ppm 435.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	150.000000 ppm 655.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	100.000000 ppm 435.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment		

		Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	150 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Eye irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm 435 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
o-Xylene	95-47-6	Methylhippuric acids	1,500.0000 mg/g	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Methylhippuric acids	1.5g/g creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber

Minimum layer thickness: 0.4 mm
Break through time: 30 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -26 - -23 °C (-15 - -9 °F) - lit.
f)	Initial boiling point and boiling range	143 - 145 °C (289 - 293 °F) - lit.
g)	Flash point	31.0 °C (87.8 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 6.7 %(V) Lower explosion limit: 0.9 %(V)
k)	Vapour pressure	21.3 hPa (16.0 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	No data available
m)	Relative density	0.879 g/mL at 20 °C (68 °F)
n)	Water solubility	0.1705 g/l at 25 °C (77 °F) - partly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 3.12 at 20 °C (68 °F)
p)	Auto-ignition temperature	464.0 °C (867.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 29.8 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Rat - male - 6 h - 18,800 mg/m3

Dermal: No data available

LD50 Intraperitoneal - Mouse - 1,364 mg/kg

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 24 h

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Mouse
Result: Does not cause skin sensitisation.
(OECD Test Guideline 429)

Germ cell mutagenicity
Ames test
Salmonella typhimurium
Result: negative

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (o-Xylene)

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information
RTECS: ZE2450000

narcosis, Lung irritation, chest pain, pulmonary edema, Central nervous system depression, Dermatitis, Gastrointestinal disturbance, Liver injury may occur., Kidney injury may occur., Blood disorders

Nerves. -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 16.10 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 69.67 % - Not readily biodegradable. (OECD Test Guideline 301F) Remarks: The 10 day time window criterion is not fulfilled.

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1307 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: XYLENES

IATA
UN number: 1307 Class: 3 Packing group: III
Proper shipping name: Xylenes

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
o-Xylene	95-47-6	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.

H312 + H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 06/02/2016 Print Date: 06/21/2016

MATERIAL SAFETY DATA SHEET

(POLYCHLORINATED BIPHENYLS)

COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients Name: polychlorinated biphenyls (PCBs)

HAZARD IDENTIFICATION

Reports of Carcinogenicity: YES

HEALTH HAZARDS ACUTE AND CHRONIC

- **Eyes**: Moderately irritating to eye tissues.
- **Skin**: Can be absorbed through intact skin, may cause de-fatting, potential for chloracne.
- **Inhalation**: Possible liver injury.
- **Ingestion**: Slightly toxic; reasonably anticipated to be carcinogenic.

EFFECTS OF OVER-EXPOSURE

Can cause dermatological symptoms; however, these are reversible upon removal of exposure source.

FIRST AID MEASURES

- **Eyes**: Irrigate immediately with copious quantities of running water for at least 15 minutes if liquid or solid PCBs get into them.
- **Skin:** Contaminated clothing should be removed and the skin washed thoroughly with soap and water. Hot PCBs may cause thermal burns.
- **Inhalation**: Remove to fresh air; if skin rash or respiratory irritation persists, consult a physician (if electrical equipment arcs over, PCBs may decompose to produce hydrochloric acid).
- **Ingestion**: Consult a physician. Do not induce vomiting or give any oily laxatives. (If large amounts are ingested, gastric lavage is suggested).

FIRE FIGHTING MEASURES: Flash Point: >141 ^{o}C (285.8 ^{o}F)

EXTINGUISHING MEDIA: PCBs are fire-resistant compounds.

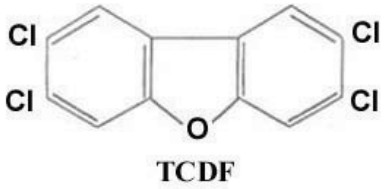
FIRE-FIGHTING PROCEDURES

Standard fire-fighting wearing apparel and self-contained breathing apparatus should be worn when fighting fires that involve possible exposure to chemical combustion products. Fire fighting equipment should be thoroughly cleaned and decontaminated after use.

UNUSUAL FIRE/EXPLOSION HAZARD

If a PCB transformer is involved in a fire-related incident, the owner of the transformer is required to report the incident. Consult and follow appropriate federal, provincial and local regulations.

***Note**: When askarel liquid becomes involved in a fire, toxic by-products of combustion are typically produced including polychlorinated dibenzofurans and polychlorinated dibenzodioxins, both known carcinogens. The structures of these chemical species are as follows:*

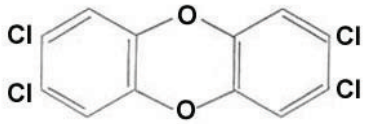


TCDF

$C_{12}H_{8-n}Cl_nO$

$n = 4 - 8$

2,3,7,8-tetrachlorodibenzofuran



TCDD

$C_{12}H_{8-n}Cl_nO_2$

$n = 4 - 8$

2,3,7,8-tetrachloro-dibenzo-p-dioxin

***Note**: 2,3,7,8-tetrachloro-dibenzo-p-dioxin is one of the most potent teratogenic, mutagenic and carcinogenic agents known to man.*

SPILL RELEASE PROCEDURES

Cleanup & disposal of liquid PCBs are strictly regulated by the federal government. Ventilate area. Contain spill/leak. Remove spill by means of absorptive material. Spill clean-up personnel should use proper protective clothing. All wastes and residues containing PCBs should be collected, containerized, marked and disposed of in the manner prescribed by applicable federal, provincial and local laws.

HANDLING AND STORAGE PRECAUTIONS

Care should be taken to prevent entry into the environment through spills, leakage, use, vaporization, or disposal of liquid. Avoid prolonged breathing of vapours or mists. Avoid contact with eyes or prolonged contact with skin. Comply with all federal, provincial and local regulations.

OTHER PRECAUTIONS

Federal regulations require PCBs, PCB items, storage areas, transformer vaults, and transport vehicles to be appropriately labelled.

RESPIRATORY PROTECTION

Use OHSA approved equipment when airborne exposure limits are exceeded. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical splash goggles. The respirator use limitations specified by the manufacturer must be observed.

VENTILATION

Provide natural or mechanical ventilation to control exposure levels below airborne exposure levels.

PROTECTIVE GLOVES: Wear appropriate chemical resistant gloves to prevent skin contact.

EYE PROTECTION: Wear chemical splash goggles and have eye baths available.

OTHER PROTECTIVE EQUIPMENT

Wear appropriate protective clothing. Provide a safety shower at any location where skin contact can occur.

WORK HYGIENIC PRACTICES

Wash thoroughly after handling. Supplemental safety and health : none

PHYSICAL/CHEMICAL PROPERTIES

- **Vapour pressure:** (mm Hg @100 ^{o}F) 0.005 - 0.00006
- **Viscosity:** (CENTISTOKES) 3.6 - 540
- **Stability indicator/materials to avoid:** Yes
- **Stability Condition to Avoid:** PCBs are very stable, fire-resistant compounds.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide, hydrogen chloride, phenolics, aldehydes, furans, dioxins

WASTE DISPOSAL METHODS

Consult the applicable PCB regulations prior to any disposal of PCBs or PCB-contaminated items.

SAFETY DATA SHEET

Version 4.10
Revision Date 11/12/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : *p*-Cresol

Product Number : W233706
Brand : Aldrich
Index-No. : 604-004-00-9

CAS-No. : 106-44-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H314 Causes severe skin burns and eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust or mist.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P322	Specific measures (see supplemental first aid instructions on this label).
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 4-Methylphenol

Formula : C_7H_8O

Molecular weight : 108.14 g/mol

CAS-No. : 106-44-5

EC-No. : 203-398-6

Index-No. : 604-004-00-9

Hazardous components

Component	Classification	Concentration
p-Cresol		
	Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; Aquatic Chronic 2; H301 + H311, H314, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

hygroscopic Air and light sensitive. Handle and store under inert gas.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
p-Cresol	106-44-5	TWA	2.3 ppm 10 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5 ppm 22 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Skin designation The value in mg/m3 is approximate.		

		TWA	20 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen Danger of cutaneous absorption		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.2 mm
Break through time: 30 min
Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing	Melting point/range: 31 - 37 °C (88 - 99 °F)

	point	Melting point/range: 32 - 34 °C (90 - 93 °F) - lit.
f)	Initial boiling point and boiling range	202 °C (396 °F) - lit.
g)	Flash point	85.0 °C (185.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	1.3 hPa (1.0 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.034 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 1.94
p)	Auto-ignition temperature	559.0 °C (1,038.2 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxidizing agents, Bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 207.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Olfaction:Other changes. Behavioral:Convulsions or effect on seizure threshold. Gastrointestinal:Ulceration or bleeding from stomach.

LC50 Inhalation - Rat - 1 h - > 710 mg/m3

LD50 Dermal - Rabbit - 301.0 mg/kg
Remarks: Behavioral:Tremor. Gastrointestinal:Changes in structure or function of salivary glands. Kidney, Ureter, Bladder:Other changes.

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Severe eye irritation

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: GO6475000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, laryngitis, Dizziness, Cardiovascular effects., Muscle cramps/spasms., Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Kidney -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - other fish - 16.00 - 24.00 mg/l - 24 h
	LC50 - Oncorhynchus mykiss (rainbow trout) - 7.9 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.4 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
Does not bioaccumulate.

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 3455 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: CRESOLS, SOLID

IATA
UN number: 3455 Class: 6.1 (8) Packing group: II
Proper shipping name: Cresols, solid

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
p-Cresol	106-44-5	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H301	Toxic if swallowed.
H301 + H311	Toxic if swallowed or in contact with skin
H311	Toxic in contact with skin.
H314	Causes severe skin burns and eye damage.

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	2
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.10 Revision Date: 11/12/2015 Print Date: 02/07/2016

Toronto Research Chemicals
products for innovative research

Safety Data Sheet - Version 5.0

Preparation Date 8/24/2016

Latest Revision Date (If Revised)

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Chemical Name Perfluorodecane Sulfonic Acid

Catalogue # P286540

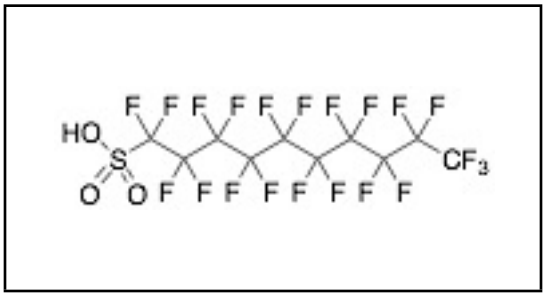
1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone +14166659696
FAX +14166654439
Email orders@trc-canada.com



1.4 Emergency Telephone Number

Emergency# +1(416) 665-9696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)

D2B Toxic Material Causing Other Toxic Effects
Moderate Skin/Eye/Respiratory Tract Irritant

WHMIS Symbols (Canada)



2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Skin Irritation (Category 2)
Serious Eye Irritation (Category 2A)
Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation (Category 3)

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Warning



GHS Hazard Statements

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

GHS Precautionary Statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray
P280	Wear protective gloves/protective clothing/eye protection/face protection.

P305/P351/P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Unclassified Hazards/Hazards Not Otherwise Classified

No data available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular Formula: $C_{10}HF_{21}O_3S$ **Molecular Weight:** 600.14

CAS Registry #: 335-77-3 **EC#:**

Synonyms

1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Heneicosafluoro-1-decanesulfonic Acid
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Henicosafluorodecane-1-sulfonate

3.2 Mixtures

Not a mixture.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice
If medical attention is required, show this safety data sheet to the doctor.

If Inhaled
If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

In Case of Skin Contact
Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

In Case of Eye Contact
Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

If Swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides, Sulfur oxides, Sodium oxides, Hydrogen fluoride

5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information

No data available.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Method and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
Keep in a dry place.

Storage conditions: Hygroscopic, -20°C Freezer, Under inert atmosphere

7.3 Specific End Uses

For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Contains no components with established occupational exposure limits.

8.2 Exposure Controls

Appropriate Engineering Controls
A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

Personal Protective Equipment
All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

Eye/Face Protection
Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

Skin Protection
Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as “chemical resistant” by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.
Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated “chemical resistant” as per EN 734 with the resistance codes corresponding to the anticipated use of the material.
Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

Body Protection
Fire resistant (Nomex) lab coat or coveralls.

Respiratory Protection
Recommended respirators are NIOSH-approved N100 or CEN-approved FFP3 particulate respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance **B) Odour**

Very Dark Brown Solid

C) Odour Threshold
No data available

D) pH
No data available

E) Melting Point/Freezing Point
No data available

F) Initial Boiling Point/Boiling Range
No data available

G) Flash point
No data available

H) Evaporation Rate
No data available

I) Flammability (Solid/Gas)
No data available

J) Upper/Lower Flammability/Explosive Limits
No data available

K) Vapour Pressure
No data available

L) Vapour Density
No data available

M) Relative Density
No data available

N) Solubility
Acetone (Slightly), DMSO (Slightly), Methanol (Slightly)

O) Partition Coefficient: n-octanol/water
No data available

P) Auto-Ignition Temperature
No data available

Q) Decomposition Temperature
No data available

R) Viscosity
No data available

S) Explosive Properties
No data available

T) Oxidizing Properties
No data available

9.2 Other Information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available.

10.2 Chemical Stability
Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions
No data available.

10.4 Conditions to Avoid
No data available.

10.5 Incompatible Materials
Strong oxidizing agents.

10.6 Hazardous Decomposition Products
In the event of fire: See section 5. **Other decomposition products:** No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity
Oral LD50: No data available.
Dermal LD50: No data available.
Inhalation LC50: No data available.

B) Skin Corrosion/Irritation
Moderate skin irritant.

C) Serious Eye Damage/Irritation
Moderate eye irritant.

D) Respiratory or Skin Sensitization
No data available

E) Germ Cell Mutagenicity
No data available

F) Carcinogenicity
No data available

G) Reproductive Toxicity/Teratogenicity
No data available

H) Single Target Organ Toxicity - Single Exposure

Moderate respiratory tract irritation.

I) Single Target Organ Toxicity - Repeated Exposure

No data available

J) Aspiration Hazard

No data available

K) Potential Health Effects and Routes of Exposure

Inhalation

May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion

May be harmful if swallowed.

Skin

May be harmful if absorbed through skin. Causes skin irritation.

Eyes

Causes eye irritation.

L) Signs and Symptoms of Exposure

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or section 11.

To the best of our knowledge, the chemical, physical, and toxicological properties of this material have not been thoroughly investigated.

M) Additional Information

RTECS: Not available.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available.

12.2 Persistance and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB Assessment

No data available.

12.6 Other Adverse Effects

No data available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

A) Product

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging

Dispose of as above.

C) Other Considerations

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number

DOT (US): N/A IATA: N/A IMDG: N/A ADR/RID: N/A

14.2 UN Proper Shipping Name

DOT (US)/IATA:

Not dangerous goods

IMDG/ARD/RID:

Not dangerous goods

14.3 Transport Hazard Class(es)

DOT (US): N/A IATA: N/A IMDG: N/A ADR/RID: N/A

14.4 Packing Group

DOT (US): N/A IATA: N/A IMDG: N/A ADR/RID: N/A

14.5 Environmental Hazards

DOT (US): None IATA: None IMDG: None ADR/RID: None

14.6 Special Precautions for User

None

15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

A) Canada

DSL/NDSL Status: This product is not listed on the Canadian DSL/NDSL.

B) United States

TSCA Status: This product is not listed on the US EPA TSCA.

C) European Union

ECHA Status: This product is not registered with the EU ECHA.

15.2 Chemical Safety Assessment

No data available

16. OTHER INFORMATION

16.1 Revision History

Original Publication Date: 8/24/2016

16.2 List of Abbreviations

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

16.3 Further Information

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.

SAFETY DATA SHEET

Version 4.5
Revision Date 07/08/2014
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : 4-Ethyltoluene

Product Number : E49800
Brand : Aldrich

CAS-No. : 622-96-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Aspiration hazard (Category 1), H304

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.

P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P331	Do NOT induce vomiting.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : C_9H_{12}
Molecular Weight : 120.19 g/mol
CAS-No. : 622-96-8
EC-No. : 210-761-2

Hazardous components

Component	Classification	Concentration
4-Ethyltoluene		
	Flam. Liq. 3; Asp. Tox. 1; H226, H304	-

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm

Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Colour: light yellow
b)	Odour	no data available
c)	Odour Threshold	no data available
d)	pH	no data available
e)	Melting point/freezing point	no data available
f)	Initial boiling point and boiling range	162 °C (324 °F) - lit.
g)	Flash point	43 °C (109 °F) - closed cup
h)	Evapouration rate	no data available
i)	Flammability (solid, gas)	no data available
j)	Upper/lower flammability or explosive limits	no data available
k)	Vapour pressure	no data available
l)	Vapour density	no data available
m)	Relative density	0.861 g/cm3 at 25 °C (77 °F)
n)	Water solubility	no data available
o)	Partition coefficient: n-octanol/water	no data available
p)	Auto-ignition temperature	no data available
q)	Decomposition temperature	no data available
r)	Viscosity	no data available
s)	Explosive properties	no data available

t) Oxidizing properties no data available

9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
no data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - rat - 4,850 mg/kg
Remarks: Behavioral:Convulsions or effect on seizure threshold. Behavioral:Ataxia.

Inhalation: no data available

Dermal: no data available

no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity

mouse
Sister chromatid exchange

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Reproductive toxicity - rat - Oral
Maternal Effects: Other effects. Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Additional Information
RTECS: XT2550000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3295 Class: 3 Packing group: III
Proper shipping name: Hydrocarbons, liquid, n.o.s.
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 3295 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: HYDROCARBONS, LIQUID, N.O.S.
Marine pollutant: No

IATA

UN number: 3295 Class: 3 Packing group: III
Proper shipping name: Hydrocarbons, liquid, n.o.s.

15. REGULATORY INFORMATION

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
4-Ethyltoluene	622-96-8	

New Jersey Right To Know Components

	CAS-No.	Revision Date
4-Ethyltoluene	622-96-8	

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Asp. Tox.	Aspiration hazard
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	2
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

SAFETY DATA SHEET

Version 6.4
Revision Date 04/18/2021
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorooctanoic acid

Product Number : 171468
Brand : Aldrich
CAS-No. : 335-67-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 1B), H360
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 1), Liver, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



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Signal word	Danger
Hazard statement(s)	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs (Liver) through prolonged or repeated exposure.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Pentadecafluorooctanoic acid Perfluorocaprylic acid Perfluorooctanoic acid
Formula	:	$C_8HF_{15}O_2$
Molecular weight	:	414.07 g/mol
CAS-No.	:	335-67-1
EC-No.	:	206-397-9

Component	Classification	Concentration
pentadecafluorooctanoic acid		
	Acute Tox. 4; Skin Corr.	<= 100 %

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	1B; Eye Dam. 1; Carc. 2; Repr. 1B; Lact. ; STOT RE 1; H302, H314, H318, H351, H360, H362, H372	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen fluoride
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

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8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Acid-resistant protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: flakes Color: colorless

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b)	Odor	stinging
c)	Odor Threshold	No data available
d)	pH	2.6 at 1 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 55 - 56 °C (131 - 133 °F) - lit.
f)	Initial boiling point and boiling range	189 °C 372 °F at 981 hPa - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	0.69 hPa at 25 °C (77 °F)
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	3.4 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 6.30 - Potential bioaccumulation, (Lit.)
p)	Autoignition temperature	No data available
q)	Decomposition temperature	> 300 °C (> 572 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Strong acids
Bases

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10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 500.1 mg/kg
(Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l
(Expert judgment)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization

Germ cell mutagenicity
No data available

No data available
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (pentadecafluorooctanoic acid)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage the unborn child.
Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure

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Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure. - Liver

Aspiration hazard

11.2 Additional Information

RTECS: RH0781000

Cough, Shortness of breath, Headache, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

gastric pain
Nausea
Vomiting
Drowsiness
somnolence

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available (pentadecafluorooctanoic acid)
Toxicity to algae	Remarks: No data available (pentadecafluorooctanoic acid)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Discharge into the environment must be avoided.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (pentadecafluorooctanoic acid)

IATA
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
pentadecafluorooctanoic acid	335-67-1	2018-02-01

New Jersey Right To Know Components

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SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.4 Revision Date: 04/18/2021 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
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SAFETY DATA SHEET

Version 4.2
Revision Date 09/08/2015
Print Date 10/19/2018

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Nonafluorobutane-1-sulfonic acid

Product Number : 562629
Brand : Aldrich

CAS-No. : 375-73-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated

	clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/ physician.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Reacts violently with water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_4HF_9O_3S$
Molecular weight	:	300.10 g/mol
CAS-No.	:	375-73-5
EC-No.	:	206-793-1

Hazardous components

Component	Classification	Concentration
1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid		
	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H302, H314	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Sulphur oxides, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Never allow product to get in contact with water during storage.

Recommended storage temperature 2 - 8 °C

Handle and store under inert gas.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	112 - 114 °C (234 - 237 °F) at 19 hPa (14 mmHg) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.811 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Do not allow water to enter container because of violent reaction.
Exposure to moisture

10.5 Incompatible materials
Strong oxidizing agentsStrong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 430 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Skin and Appendages: Other: Hair. Nutritional and Gross Metabolic:Weight loss or decreased weight gain.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: EK5930000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid)

Poison Inhalation Hazard: No

IMDG
UN number: 3265 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid)

IATA
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

CAS-No. Revision Date

1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid	375-73-5

New Jersey Right To Know Components

	CAS-No.	Revision Date
1,1,2,2,3,3,4,4,4-Nonafluorobutane-1-sulphonic acid	375-73-5	

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Eye Dam.	Serious eye damage
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
Skin Corr.	Skin corrosion

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.2 Revision Date: 09/08/2015 Print Date: 10/19/2018

SAFETY DATA SHEET

Version 6.1
Revision Date 01/15/2020
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluoroheptanoic acid

Product Number : 342041
Brand : Aldrich
CAS-No. : 375-85-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 Harmful if swallowed.

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H314	Causes severe skin burns and eye damage.

Precautionary statement(s)

P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P321	Specific treatment (see supplemental first aid instructions on this label).
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	$C_7HF_{13}O_2$
Molecular weight	:	364.06 g/mol
CAS-No.	:	375-85-9
EC-No.	:	206-798-9

Component	Classification	Concentration
Perfluoroheptanoic acid		
	Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; H302, H314, H318	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

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If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen fluoride
Carbon oxides, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): 8B: Non-combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: 30 °C (86 °F)
f)	Initial boiling point and boiling range	175 °C 347 °F at 989 hPa
g)	Flash point	> 113.00 °C (> 235.40 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.792 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

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10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

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Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

DOT (US)
UN number: 3261 Class: 8 Packing group: II
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (Perfluoroheptanoic acid)
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8 Packing group: II EMS-No: F-A, S-B

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Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (Perfluoroheptanoic acid)

IATA
UN number: 3261 Class: 8 Packing group: II
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (Perfluoroheptanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Perfluoroheptanoic acid	CAS-No. 375-85-9	Revision Date

New Jersey Right To Know Components

Perfluoroheptanoic acid	CAS-No. 375-85-9	Revision Date

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the

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information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.1 Revision Date: 01/15/2020 Print Date: 06/19/2021

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AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: S-78941

Description: Perfluorohexane sulfonic acid in Methanol

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

1.4 - Emergency Telephone Number

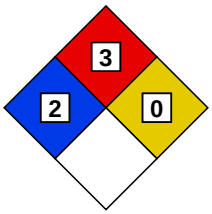
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

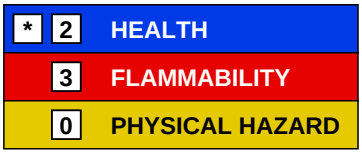
24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements







Signal Word: Danger

Hazard Codes:

H225 - Highly Flammable (Flammable liquids, category 2)

H301 - Toxic if swallowed. (Acute toxicity, oral, category 3)

H311 - Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

H315 - Irritating to skin. (Skin corrosion/irritation, category 2)

H320 - Irritating to eyes. (Eye damage/irritation, category 2B)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

H336 - Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

H360 - California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

H370 - Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

Precautionary Codes:

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Highly Flammable (Flammable liquids, category 2)

Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

After ingestion or inhalation, initial symptoms may be only that of mild intoxication, but may become severe after 12 or 18 hours.

POISON: May be fatal or cause blindness if swallowed.

Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

2.2.2 - Potential Health Effects

Irritating to eyes. (Eye damage/irritation, category 2B)

Irritating to skin. (Skin corrosion/irritation, category 2)

Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

Irritating to mucous membrane and upper respiratory system.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Toxic if swallowed. (Acute toxicity, oral, category 3)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Perfluorohexane sulfonic acid in Methanol

SECTION 3 - COMPOSITION / ANALYTES DATA *- continued*

Analyte	CAS #	% Concentration	ACGIH -TLV (mg/m^3)			OSHA -PEL (mg/m^3)		
			TWA	STEL	Skin	TWA	STEL	Skin
Perfluorohexane sulfonic acid	355-46-4	0.010						
Methanol	67-56-1	99.990				260		

SECTION 4 - FIRST AID MEASURES

4.1 - First Aid Procedures - General

Get medical assistance for all cases of overexposure.

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

Dangerous fire and explosive hazard.

Containers can build up pressure if exposed to heat.

Vapors can travel to a source of ignition and flash back.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

5.2 - Extinguishing Media

Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear suitable protective equipment listed under Exposure Controls / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Dispose as hazardous waste. Comply with Federal, State and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Keep refrigerated.

Avoid breathing vapors or mists.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: N/A

Odor Threshold: N/A

pH: N/A

Melting Point: -93.9 °C

Boiling Point: 65 °C

Flash Point: 52 °F (11 °C) (tcc)

Evaporation Rate (Butyl Acetate=1): 5.9

Flammability Class: N/A

Lower Flammability Level: 6.7

Upper Flammability Level: 36.5

Vapor Pressure: 97 mmHg (20 °C)

Vapor Density (Air = 1): 1.1 g/L

Specific Gravity: 0.791 g/cm3

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES *- continued*

Solubility in Water: Very soluble

Partition Coefficient: log Pow: -0.77

Autoignition Temperature: 385 °C

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: 99.9+

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Acids
Oxidizers

Hazardous Decomposition: Oxides of carbon; Formaldehyde

Hazardous Polymerization: Will not occur

Condition to Avoid: Heat; Contact with ignition sources

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): Human - 143 mg/kg; Rat - 1500 mg/kg

LD50 (Dermal) : Rabbit - >2000 mg/kg

LC50 (Inhalation): Rat - >20 mg/L

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): >1000 mg/L 96H

EC50 (Aquatic Invertebrate): >1000 mg/L 48H

BCF: 1.0

Hydrolyzes readily on contact with water. Readily biodegradable.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

SECTION 14 - TRANSPORT INFORMATION *- continued*

UN Number: UN1230

Class: 3

Packing Group: II

Proper Shipping Name: Methanol

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

This product is subject to SARA section 313 reporting requirements.

All components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

SAFETY DATA SHEET

Santa Cruz Biotechnology, Inc.
Revision date 11-Dec-2015
Version 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name	Perfluorononanoic acid
Product Code	SC-250678

Recommended use of the chemical and restrictions on use

For research use only. Not intended for diagnostic or therapeutic use.

Details of the supplier of the safety data sheet

Santa Cruz Biotechnology, Inc.
10410 Finnell Street
Dallas, TX 75220
831.457.3800
800.457.3801
scbt@scbt.com

Emergency telephone number

Chemtrec
1.800.424.9300 (Within USA)
+1.703.527.3887 (Outside USA)

2. HAZARDS IDENTIFICATION

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification

Skin corrosion/irritation	Category 1 Sub-category C
Serious eye damage/eye irritation	Category 1

Label elements

Signal word	Danger
Hazard statements	Causes severe skin burns and eye damage
Symbols/Pictograms	
Precautionary Statements - Prevention	Do not breathe dust/fume/gas/mist/vapors/spray Wash face, hands and any exposed skin thoroughly after handling Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response	Immediately call a POISON CENTER or doctor/physician IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing Immediately call a POISON CENTER or doctor/physician IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower Wash contaminated clothing before reuse IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing Immediately call a POISON CENTER or doctor/physician IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
Precautionary Statements - Storage	Store locked up
Precautionary Statements - Disposal	Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Hazards not otherwise classified (HNOC)	Not applicable

Other Information

Unknown acute toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity.

NFPA			HMIS		
	Health hazards	-		Health hazards	3
	Flammability	-		Flammability	1
	Stability	-		Physical hazards	1
	Physical and chemical properties	-		Personal protection	-

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS No	375-95-1
Molecular Weight	464.08
Formula	$C_9HF_{17}O_2$

Chemical Name	CAS No	Weight %	Oral LD50	Dermal LD50	Inhalation LC50
Perfluorononanoic acid	375-95-1	>98	-	-	-

4. FIRST AID MEASURES

First Aid Measures

General advice	Consult a physician if necessary. Remove to fresh air.
Eye contact	Wash with plenty of water.
Skin Contact	Wash skin with soap and water.
Inhalation	Remove to fresh air If breathing is difficult, give oxygen If not breathing, give artificial respiration
Ingestion	Never give anything by mouth to an unconscious person. Clean mouth with water.

Most important symptoms and effects, both acute and delayed

Symptoms	No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media	None.

Specific hazards arising from the chemical

Specific hazards arising from the chemical	Thermal decomposition can lead to release of toxic/corrosive gases and vapors.
Hazardous combustion products	Hydrogen fluoride. Carbon oxides. Phosgene.

Explosion data

Sensitivity to Mechanical Impact	No information available.
Sensitivity to Static Discharge	No information available.

Protective equipment and precautions for firefighters

Protective equipment and precautions for firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions	Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for containment	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	Use personal protective equipment as required. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically, placing in appropriate containers for disposal. Avoid creating dust. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Thermal decomposition can lead to release of toxic/corrosive gases and vapors.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store at room temperature.
Incompatible materials	None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines	This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls	Showers Eyewash stations Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and Body Protection	Wear protective gloves and protective clothing.
Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
General Hygiene Considerations	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	crystalline powder
Odor	No information available

Property	**Values**
pH	No information available
Melting point/freezing point	63 °C
Boiling point	218 °C
Flash point	No information available
Density	No information available
Evaporation rate	No information available
Upper flammability limits	No information available
Lower flammability limit	No information available
Vapor pressure	No information available
Vapor density	No information available
Specific gravity	No information available
Water solubility	No information available
Solubility in other solvents	No information available
Partition coefficient	No information available
Autoignition temperature	No information available
Decomposition temperature	No information available
Kinematic viscosity	No information available
Explosive properties	No information available
Oxidizing properties	No information available

10. STABILITY AND REACTIVITY

Reactivity	Not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	None under normal processing.
Hazardous polymerization	No information available.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong oxidizing agents.
Hazardous Decomposition Products	Hydrogen fluoride. Carbon oxides. Phosgene.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	No data available.
Eye contact	No data available.
Skin Contact	No data available.
Ingestion	No data available.

Information on toxicological effects

Symptoms	No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity	No information available.

Numerical measures of toxicity - Product Information

Unknown acute toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity

12. ECOLOGICAL INFORMATION

Ecotoxicity	May cause long lasting harmful effects to aquatic life

100% of the mixture consists of components(s) of unknown hazards to the aquatic environment.

Persistence and degradability	No information available.
Bioaccumulation	No information available.
Mobility	No information available.

13. DISPOSAL CONSIDERATIONS

Disposal of wastes	Disposal should be in accordance with applicable regional, national and local laws and regulations.
Contaminated packaging	Do not reuse container.

14. TRANSPORT INFORMATION

DOT	Not regulated
IMDG	Not regulated
IATA	Not regulated

15. REGULATORY INFORMATION

International Inventories

All of the components in the product are on the following Inventory lists
TSCA (United States): Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) ENCS (Japan):

Chemical Name	TSCA	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Perfluorononanoic acid	X	-	X	X	-	X	-	-	-	-

X - Listed
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute health hazard	No
Chronic Health Hazard	No
Fire hazard	No
Sudden release of pressure hazard	No
Reactive hazard	No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations
This product does not contain any substances regulated by state right-to-know regulations

16. OTHER INFORMATION

Revision note	No information available

Disclaimer
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

SAFETY DATA SHEET

Version 6.4
Revision Date 04/18/2021
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorooctanoic acid

Product Number : 171468
Brand : Aldrich
CAS-No. : 335-67-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 1B), H360
Effects on or via lactation, H362
Specific target organ toxicity - repeated exposure (Category 1), Liver, H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



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operates as MilliporeSigma in the US and Canada

Signal word	Danger
Hazard statement(s)	
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H362	May cause harm to breast-fed children.
H372	Causes damage to organs (Liver) through prolonged or repeated exposure.
Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Pentadecafluorooctanoic acid Perfluorocaprylic acid Perfluorooctanoic acid
Formula	:	$C_8HF_{15}O_2$
Molecular weight	:	414.07 g/mol
CAS-No.	:	335-67-1
EC-No.	:	206-397-9

Component	Classification	Concentration
pentadecafluorooctanoic acid		
	Acute Tox. 4; Skin Corr.	<= 100 %

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	1B; Eye Dam. 1; Carc. 2; Repr. 1B; Lact. ; STOT RE 1; H302, H314, H318, H351, H360, H362, H372	

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen fluoride
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

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8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Acid-resistant protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: flakes Color: colorless

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operates as MilliporeSigma in the US and Canada

b)	Odor	stinging
c)	Odor Threshold	No data available
d)	pH	2.6 at 1 g/l at 20 °C (68 °F)
e)	Melting point/freezing point	Melting point/range: 55 - 56 °C (131 - 133 °F) - lit.
f)	Initial boiling point and boiling range	189 °C 372 °F at 981 hPa - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	0.69 hPa at 25 °C (77 °F)
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	3.4 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 6.30 - Potential bioaccumulation, (Lit.)
p)	Autoignition temperature	No data available
q)	Decomposition temperature	> 300 °C (> 572 °F) -
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
Violent reactions possible with:
Strong oxidizing agents
Strong acids
Bases

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
No data available

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 500.1 mg/kg
(Expert judgment)

Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l
(Expert judgment)

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization

Germ cell mutagenicity
No data available

No data available
No data available

Carcinogenicity
Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (pentadecafluorooctanoic acid)

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
May damage the unborn child.
Studies indicating a hazard to babies during the lactation period

Specific target organ toxicity - single exposure

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Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure. - Liver

Aspiration hazard

11.2 Additional Information

RTECS: RH0781000

Cough, Shortness of breath, Headache, Nausea, Vomiting
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

After absorption:

gastric pain
Nausea
Vomiting
Drowsiness
somnolence

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

No data available

Toxicity to daphnia and other aquatic invertebrates	Remarks: No data available (pentadecafluorooctanoic acid)
Toxicity to algae	Remarks: No data available (pentadecafluorooctanoic acid)

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Discharge into the environment must be avoided.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3261 Class: 8 Packing group: III EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, ORGANIC, N.O.S. (pentadecafluorooctanoic acid)

IATA
UN number: 3261 Class: 8 Packing group: III
Proper shipping name: Corrosive solid, acidic, organic, n.o.s. (pentadecafluorooctanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
pentadecafluorooctanoic acid	335-67-1	2018-02-01

New Jersey Right To Know Components

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SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.4 Revision Date: 04/18/2021 Print Date: 06/19/2021

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SAFETY DATA SHEET

Version 6.2
Revision Date 04/30/2021
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluoropentanoic acid

Product Number : 396575
Brand : Aldrich
CAS-No. : 2706-90-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Serious eye damage (Category 1), H318
Reproductive toxicity (Category 2), H361

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H318 Causes serious eye damage.
H361 Suspected of damaging fertility or the unborn child.

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Precautionary statement(s)	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Nonafluorovaleric acid
Perfluoropentanoic acid
Nonafluoropentanoic acid

Formula : $C_5HF_9O_2$
Molecular weight : 264.05 g/mol
CAS-No. : 2706-90-3
EC-No. : 220-300-7

Component	Classification	Concentration
Perfluorovaleric acid		
	Eye Dam. 1; Repr. 2; H318, H361	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

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If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Hydrogen fluoride
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
required

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: clear, liquid Color: light brown
b)	Odor	No data available

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c)	Odor Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	No data available
f)	Initial boiling point and boiling range	140 °C 284 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

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10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Acute toxicity estimate Oral - 2,501 mg/kg
(Expert judgment)

Inhalation: No data available

Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging the unborn child.
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Not available

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Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

Further information
Not classified as dangerous in the meaning of transport regulations.

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SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.2 Revision Date: 04/30/2021 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
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SAFETY DATA SHEET

Creation Date 01-May-2012 **Revision Date** 11-Aug-2014 **Revision Number** 1

1. Identification

Product Name **Phenanthrene**

Cat No. : **AC130090000; AC130090050; AC130090500; AC130095000**

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 4

Label Elements

Signal Word
Warning

Hazard Statements
Harmful if swallowed



Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Ingestion
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Phenanthrene	85-01-8	>95

4. First-aid measures

General Advice If symptoms persist, call a physician.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact Obtain medical attention. Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Obtain medical attention.

Ingestion Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms/effects None reasonably foreseeable.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature Not applicable
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products
Carbon monoxide (CO) Carbon dioxide (CO_2)
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

- **Eye/face Protection** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
- **Skin and body protection** Long sleeved clothing.
- **Respiratory Protection** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
- **Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Solid
Appearance	Beige
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	95 - 101 °C / 203 - 213.8 °F
Boiling Point/Range	336 °C / 636.8 °F
Flash Point	No information available
Evaporation Rate	Not applicable
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 116 °C
Vapor Density	Not applicable
Relative Density	1.063
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	Not applicable
Decomposition temperature	No information available
Viscosity	Not applicable
Molecular Formula	C14 H10
Molecular Weight	178.23

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat. Avoid dust formation.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Phenanthrene	1.8 g/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Phenanthrene	85-01-8	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

12. Ecological information

Ecotoxicity

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea

Phenanthrene	Not listed	LC50 = 3.2 mg/L 96h	Not listed	LC50 = 0.35 mg/L 48h

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility . Is not likely mobile in the environment due its low water solubility.

Component	log Pow
Phenanthrene	4.46

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

TDG

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE,SOLID, N.O.S.
Hazard Class 9
Packing Group III

IATA

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.*
Hazard Class 9
Packing Group III

IMDG/IMO

UN-No UN3077
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Hazard Class 9
Packing Group III

15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Phenanthrene	X	X	-	201-581-5	-		X	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Phenanthrene	85-01-8	>95	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Phenanthrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Phenanthrene	5000 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Phenanthrene	X	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date	01-May-2012
Revision Date	11-Aug-2014
Print Date	11-Aug-2014
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 3.10
Revision Date 03/03/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Potassium

Product Number : 244864
Brand : Aldrich

CAS-No. : 7440-09-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1A), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.
May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : K
Molecular weight : 39.10 g/mol

Hazardous components

Component		Classification	Concentration
Potassium			
CAS-No. EC-No. Index-No.	7440-09-7 231-119-8 019-001-00-2	Water-react. 1; Skin Corr. 1A; Eye Dam. 1; H260, H314	>= 90 - <= 100 %
Paraffin oils			
CAS-No. EC-No.	8012-95-1 232-384-2	Carc. 1A; H350	>= 1 - < 5 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Potassium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Handle and store under inert gas.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Paraffin oils	8012-95-1	STEL	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation 2014 Adoption Not classifiable as a human carcinogen		
		Upper Respiratory Tract irritation 2014 Adoption Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Fragments Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 64 °C (147 °F)
f)	Initial boiling point and boiling range	774 °C (1,425 °F) at 1,013 hPa (760 mmHg)
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	No data available

	flammability or explosive limits	
k)	Vapour pressure	0.12 hPa (0.09 mmHg) at 260 °C (500 °F)
l)	Vapour density	No data available
m)	Relative density	0.860 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents, Strong oxidizing agents, Carbon oxides, Reacts violently with water., Reacts with water to generate Hydrogen gas.

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Paraffin oils)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Paraffin oils)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2257 Class: 4.3 Packing group: I
Proper shipping name: Potassium
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 2257 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: POTASSIUM

IATA
UN number: 2257 Class: 4.3 Packing group: I
Proper shipping name: Potassium
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Potassium	7440-09-7	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Paraffin oils	8012-95-1	1987-02-27

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
Skin Corr.	Skin corrosion
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating
Health hazard: 3

Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	2

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	2
Special hazard.I:	W

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.10 Revision Date: 03/03/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 4.6
Revision Date 02/25/2016
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Propylene

Product Number : 295663
Brand : Aldrich
Index-No. : 601-011-00-9

CAS-No. : 115-07-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Simple Asphyxiant,

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Propene

Formula : C_3H_6
Molecular weight : 42.08 g/mol
CAS-No. : 115-07-1
EC-No. : 204-062-1
Index-No. : 601-011-00-9

Hazardous components

Component	Classification	Concentration
Propene		
	Flam. Gas 1; Press. Gas Liquefied gas; SA ; H220, H280,	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Contents under pressure.
Storage class (TRGS 510): Gases

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Propene	115-07-1	TWA	500 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Asphyxia Not classifiable as a human carcinogen		
		TWA	500.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Asphyxia Not classifiable as a human carcinogen		

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 60 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: gaseous, liquid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -185 °C (-301 °F) - lit.
f)	Initial boiling point and boiling range	-47.7 °C (-53.9 °F) - lit.
g)	Flash point	-107.99 °C (-162.38 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 11.1 %(V) Lower explosion limit: 2 %(V)
k)	Vapour pressure	15,604 hPa (11,704 mmHg) at 37.7 °C (99.9 °F)
l)	Vapour density	1.45 - (Air = 1.0)
m)	Relative density	No data available

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density 1.45 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Strong acids

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Propene)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: UC6740000

Dizziness, Headache, Central nervous system depression
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1077 Class: 2.1
Proper shipping name: Propylene

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 1077 Class: 2.1 EMS-No: F-D, S-U
Proper shipping name: PROPYLENE

IATA
UN number: 1077 Class: 2.1
Proper shipping name: Propylene
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Propene	115-07-1	1993-04-24

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Propene	115-07-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Propene	115-07-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Propene	115-07-1	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

	May displace oxygen and cause rapid suffocation.
Flam. Gas	Flammable gases
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
Press. Gas	Gases under pressure
SA	Simple Asphyxiant

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	4
Physical Hazard	3

NFPA Rating

Health hazard:	0
Fire Hazard:	4
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 02/25/2016 Print Date: 03/03/2016

Safety data sheet

according to Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU

p-Xylene ≥99 %, for synthesis

article number: **8817**
Version: **3.0 en**
Replaces version of: 04.07.2016
Version: (2)

date of compilation: 11.05.2015
Revision: 11.04.2019

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1 Product identifier

Identification of the substance	**p-Xylene**
Article number	8817
Registration number (REACH)	It is not required to list the identified uses because the substance is not subject to registration according to REACH (< 1 t/a)
Index No	601-022-00-9
EC number	203-396-5
CAS number	106-42-3

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses:	laboratory chemical laboratory and analytical use

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone: +49 (0) 721 - 56 06 0
Telefax: +49 (0) 721 - 56 06 149
e-mail: sicherheit@carlroth.de
Website: www.carlroth.de

Competent person responsible for the safety data sheet	: Department Health, Safety and Environment
e-mail (competent person)	**: sicherheit@carlroth.de**

1.4 Emergency telephone number

Emergency information service	**Poison Centre Munich: +49/(0)89 19240**

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Classification acc. to GHS

Section	Hazard class	Hazard class and category	Hazard statement
2.6	flammable liquid	(Flam. Liq. 3)	H226
3.1D	acute toxicity (dermal)	(Acute Tox. 4)	H312
3.1I	acute toxicity (inhal.)	(Acute Tox. 4)	H332
3.2	skin corrosion/irritation	(Skin Irrit. 2)	H315

Classification acc. to GHS			
Section	**Hazard class**	**Hazard class and category**	**Hazard statement**
3.3	serious eye damage/eye irritation	(Eye Irrit. 2)	H319
3.8R	specific target organ toxicity - single exposure (respiratory tract irritation)	(STOT SE 3)	H335
3.10	aspiration hazard	(Asp. Tox. 1)	H304

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Signal word **Danger**

Pictograms

GHS02, GHS07, GHS08



Hazard statements

H226	Flammable liquid and vapour
H304	May be fatal if swallowed and enters airways
H312+H332	Harmful in contact with skin or if inhaled
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

Precautionary statements

Precautionary statements - prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

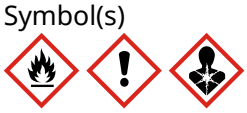
Precautionary statements - response

P301+P310	IF SWALLOWED: Immediately call a doctor.
P302+P352	IF ON SKIN: Wash with plenty of water/...
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P331	Do NOT induce vomiting.

Labelling of packages where the contents do not exceed 125 ml

Signal word: **Danger**

Symbol(s)



H304	May be fatal if swallowed and enters airways.
P301+P310	IF SWALLOWED: Immediately call a doctor.
P331	Do NOT induce vomiting.

2.3 Other hazards

There is no additional information.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	1,4-Dimethylbenzene
Index No	601-022-00-9
EC number	203-396-5
CAS number	106-42-3
Molecular formula	C_8H_{10}
Molar mass	106,2 $^{g}/_{mol}$

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Rinse skin with water/shower. In case of skin irritation, consult a physician.

Following eye contact

Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. In case of eye irritation consult an ophthalmologist.

Following ingestion

Rinse mouth immediately and drink plenty of water. Observe aspiration hazard if vomiting occurs. Call a physician immediately.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects. Vertigo. Dizziness. Unconsciousness. Aspiration hazard. Headache. Cough. Breathing difficulties. Nausea. Vomiting.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings

water spray, foam, dry extinguishing powder, carbon dioxide (CO2)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Combustible. Vapours can form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO2)

5.3 Advice for firefighters

Vapours are heavier than air. Beware of reignition. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Use personal protective equipment as required. Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray. Avoidance of ignition sources.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Explosive properties.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains.

Advices on how to clean up a spill

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents).

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide adequate ventilation as well as local exhaustion at critical locations. Avoid exposure. When not in use, keep containers tightly closed.

- **Measures to prevent fire as well as aerosol and dust generation**


Keep away from sources of ignition - No smoking.

Take precautionary measures against static discharge.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight.

Incompatible substances or mixtures

Observe hints for combined storage.

Consideration of other advice

Ground/bond container and receiving equipment.

• Ventilation requirements

Use local and general ventilation.

• Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C.

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Coun-try	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Source
EU	p-xylene	106-42-3	IOELV	50	221	100	442	2000/39/EC
MT	p-xylene	106-42-3	OELV	50	221	100	442	CAP. 424

Notation

STEL Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

Relevant DNELs/DMELs/PNECs and other threshold levels

• human health values

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	221 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
DNEL	442 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
DNEL	221 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
DNEL	442 mg/m³	human, inhalatory	worker (industry)	acute - local effects
DNEL	212 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects

• environmental values

Endpoint	Threshold level	Environmental compartment	Exposure time
PNEC	0,25 mg/l	water	intermittent release
PNEC	0,044 mg/l	freshwater	short-term (single instance)
PNEC	0,004 mg/l	marine water	short-term (single instance)
PNEC	1,6 mg/l	sewage treatment plant (STP)	short-term (single instance)
PNEC	2,52 mg/kg	freshwater sediment	short-term (single instance)
PNEC	0,252 mg/kg	marine sediment	short-term (single instance)
PNEC	0,852 mg/kg	soil	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

• type of material

FKM (fluoro rubber)

• material thickness

0,4 mm.

• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C , colour code: Brown).

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid (fluid)
Colour	colourless
Odour	characteristic
Odour threshold	No data available

Other physical and chemical parameters

pH (value)	This information is not available.
Melting point/freezing point	13,25 °C at 1.013 hPa
Initial boiling point and boiling range	138,2 °C at 1.013 hPa
Flash point	27 °C at 1.013 hPa
Evaporation rate	no data available
Flammability (solid, gas)	not relevant (fluid)
Explosive limits	
• lower explosion limit (LEL)	0,9 vol%
• upper explosion limit (UEL)	7 vol%
Explosion limits of dust clouds	not relevant
Vapour pressure	8,7 hPa at 20 °C
Density	0,86 $^{g}/_{cm^3}$ at 25 °C
Vapour density	This information is not available.
Bulk density	Not applicable
Relative density	Information on this property is not available.
Solubility(ies)	
Water solubility	170,5 $^{mg}/_{l}$ at 25 °C
Partition coefficient	
n-octanol/water (log KOW)	3,15 (pH value: 7, 20 °C) (ECHA)
Soil organic carbon/water (log KOC)	2,73 (ECHA)
Auto-ignition temperature	528 °C at 1.013 hPa - ECHA
Decomposition temperature	no data available
Viscosity	
• kinematic viscosity	0,7012 $^{mm^2}/_{s}$
• dynamic viscosity	0,603 mPa s at 25 °C
Explosive properties	Shall not be classified as explosive

Oxidising properties	none

9.2 Other information

Surface tension	28,01 $^{mN}/_{m}$ (25 °C)
Temperature class (EU, acc. to ATEX)	T1 (Maximum permissible surface temperature on the equipment: 450°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

Risk of ignition. In case of warming: Vapours can form explosive mixtures with air.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Violent reaction with: Oxidisers, Nitric acid, Sulphuric acid, Sulphur

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5 Incompatible materials

Rubber articles, different plastics

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Exposure route	Endpoint	Value	Species	Source
inhalation: vapour	LC50	19,8 $^{mg}/_{l}$/4h	rat	GESTIS
oral	LD50	3.523 $^{mg}/_{kg}$	rat	ECHA
dermal	LD50	12.126 $^{mg}/_{kg}$	rabbit	ECHA

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant

• Specific target organ toxicity - single exposure

May cause respiratory irritation.

• Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

vomiting, aspiration hazard

• If in eyes

Causes serious eye irritation

• If inhaled

irritant effects, cough, breathing difficulties, pulmonary oedema

• If on skin

causes skin irritation, risk of absorption via the skin

Other information

Other adverse effects: Headache, Vertigo, Dizziness, Nausea, Unconsciousness, Liver and kidney damage, Symptoms can occur only after several hours

SECTION 12: Ecological information

12.1 Toxicity

acc. to 1272/2008/EC: Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	Value	Species	Source	Exposure time
LC50	2,6 $^{mg}/_{l}$	fish	ECHA	96 h
ErC50	4,7 $^{mg}/_{l}$	algae	ECHA	72 h

Aquatic toxicity (chronic)

Endpoint	Value	Species	Source	Exposure time
EC50	2,2 $^{mg}/_{l}$	algae	ECHA	73 h
NOEC	1,57 $^{mg}/_{l}$	aquatic invertebrates	ECHA	21 d
NOEC	0,44 $^{mg}/_{l}$	algae	ECHA	73 h
growth rate (ErCx) 10%	1,9 $^{mg}/_{l}$	algae	ECHA	73 h

12.2 Process of degradability

The substance is readily biodegradable.
Theoretical Oxygen Demand: 3,165 $^{mg}/_{mg}$
Theoretical Carbon Dioxide: 3,316 $^{mg}/_{mg}$

Process	Degradation rate	Time
carbon dioxide generation	50 %	13 d
oxygen depletion	90 %	28 d

12.3 Bioaccumulative potential

Does not significantly accumulate in organisms.

n-octanol/water (log KOW)	3,15 (pH value: 7, 20 °C)
BCF	>5,5 – <12,2 (ECHA)

12.4 Mobility in soil

Henry's law constant	623 $^{Pa\ m^3}/_{mol}$ at 25 °C
The Organic Carbon normalised adsorption coefficient	2,73

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used.

13.2 Relevant provisions relating to waste

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	UN number	**1307**
14.2	UN proper shipping name	**XYLENES**
	Hazardous ingredients	p-Xylene
14.3	Transport hazard class(es)	
	Class	3 (flammable liquids)
14.4	Packing group	III (substance presenting low danger)
14.5	Environmental hazards	none (non-environmentally hazardous acc. to the dangerous goods regulations)

14.6 Special precautions for user

Provisions for dangerous goods (ADR) should be complied within the premises.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

• Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

UN number	1307
Proper shipping name	XYLENES
Particulars in the transport document	UN1307, XYLENES, 3, III, (D/E)
Class	3
Classification code	F1
Packing group	III
Danger label(s)	3



Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	D/E
Hazard identification No	30

• International Maritime Dangerous Goods Code (IMDG)

UN number	1307
Proper shipping name	XYLENES
Particulars in the shipper's declaration	UN1307, XYLENES, 3, III, 27°C c.c.
Class	3

Marine pollutant	-
Packing group	III
Danger label(s)	3



Special provisions (SP)	223
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-E, S-D
Stowage category	A

• International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	1307
Proper shipping name	Xylenes
Particulars in the shipper's declaration	UN1307, Xylenes, 3, III
Class	3
Packing group	III
Danger label(s)	3



Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	10 L

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Relevant provisions of the European Union (EU)

• Regulation 649/2012/EU concerning the export and import of hazardous chemicals (PIC)

Not listed.

• Regulation 1005/2009/EC on substances that deplete the ozone layer (ODS)

Not listed.

• Regulation 850/2004/EC on persistent organic pollutants (POP)

Not listed.

• Restrictions according to REACH, Annex XVII

Name of substance	CAS No	Wt%	Type of registration	Conditions of restriction	No
p-Xylene		100	1907/2006/EC annex XVII	R3	3
p-Xylene		100	1907/2006/EC annex XVII	R40	40

Legend

R3

1. Shall not be used in:
- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes,
- games for one or more participants, or any article intended to be used as such, even with ornamental aspects,
2. Articles not complying with paragraph 1 shall not be placed on the market.
3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:
- can be used as fuel in decorative oil lamps for supply to the general public, and,
- present an aspiration hazard and are labelled with R65 or H304,
4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).
5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:
(a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: 'Keep lamps filled with this liquid out of the reach of children'; and, by 1 December 2010, 'Just a sip of lamp oil - or even sucking the wick of lamps - may lead to life-threatening lung damage';
(b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: 'Just a sip of grill lighter may lead to life threatening lung damage';
(c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.
7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.

R40

1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:
- metallic glitter intended mainly for decoration,
- artificial snow and frost,
- 'whoopee' cushions,
- silly string aerosols,
- imitation excrement,
- horns for parties,
- decorative flakes and foams,
- artificial cobwebs,
- stink bombs.
2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:
'For professional users only'.
3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).
4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

• Restrictions according to REACH, Title VIII

None.

• List of substances subject to authorisation (REACH, Annex XIV)/SVHC - candidate list

not listed

• Seveso Directive

2012/18/EU (Seveso III)				
No	**Dangerous substance/hazard categories**	**Qualifying quantity (tonnes) for the application of lower and upper-tier requirements**		**Notes**
P5c	flammable liquids (cat. 2, 3)	5.000	50.000	51)

Notation
51) Flammable liquids, categories 2 or 3 not covered by P5a and P5b

• Directive 75/324/EEC relating to aerosol dispensers

Filling batch

Deco-Paint Directive (2004/42/EC)

VOC content	100 % 860 $^{g}/_{l}$

Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	100 %
VOC content	860 $^{g}/_{l}$

Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) - Annex II

not listed

Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)

not listed

Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)

not listed

Regulation 98/2013/EU on the marketing and use of explosives precursors

not listed

Regulation 111/2005/EC laying down rules for the monitoring of trade between the Community and third countries in drug precursors

not listed

National inventories

Substance is listed in the following national inventories:

Country	National inventories	Status
AU	AICS	substance is listed
CA	DSL	substance is listed
CN	IECSC	substance is listed
EU	ECSI	substance is listed
EU	REACH Reg.	substance is listed
JP	CSCL-ENCS	substance is listed

Country	National inventories	Status
JP	ISHA-ENCS	substance is listed
KR	KECI	substance is listed
MX	INSQ	substance is listed
NZ	NZIoC	substance is listed
PH	PICCS	substance is listed
TR	CICR	substance is listed
TW	TCSI	substance is listed
US	TSCA	substance is listed

Legend

AICS	Australian Inventory of Chemical Substances
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)
KECI	Korea Existing Chemicals Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
2000/39/EC	Commission Directive establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
BCF	bioconcentration factor
CAP. 424	Occupational Health and Safety Authority Act (CAP. 424)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances

Abbr.	Descriptions of used abbreviations
EmS	Emergency Schedule
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	the Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
IOELV	indicative occupational exposure limit value
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	short-term exposure limit
SVHC	Substance of Very High Concern
TWA	time-weighted average
VOC	Volatile Organic Compounds
vPvB	very Persistent and very Bioaccumulative

Key literature references and sources for data

- Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU
- Regulation (EC) No. 1272/2008 (CLP, EU GHS)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- International Maritime Dangerous Goods Code (IMDG)

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H226	flammable liquid and vapour
H304	may be fatal if swallowed and enters airways
H312	harmful in contact with skin
H315	causes skin irritation
H319	causes serious eye irritation
H332	harmful if inhaled
H335	may cause respiratory irritation

Disclaimer

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

Fisher Scientific

Part of Thermo Fisher Scientific

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Pyrene, ca 96%**

Cat No. : **AC157651000; AC157655000**

Synonyms Benzo[def]phenanthrene

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Label Elements
None required

Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects

3. Composition / information on ingredients

Component	CAS-No	Weight %
Pyrene	129-00-0	96.0

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Move to fresh air.

Ingestion Do not induce vomiting.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media No information available

Flash Point °C
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
1	1	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up No information available.

7. Handling and storage

Handling Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by

OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Yellow
Odor	Odorless
Odor Threshold	No information available
pH	
Melting Point/Range	156 °C
Boiling Point/Range	°C @ 760 mmHg
Flash Point	°C
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	< 1 mmHg @ 20 °C
Vapor Density	No information available
Relative Density	No information available
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C16H10
Molecular Weight	202.25

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Strong oxidizing agents

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Pyrene	2700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic No information available

Products

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Pyrene	129-00-0	group 3	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Pyrene	Not listed	Oncorhynchus mykiss: LC50 > 2mg/L 96h	Not listed	EC50 48h 1.8 mg/L EC50 48h 0.002-0.003 mg/L

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

Component	log Pow
Pyrene	4.88

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT Not regulated
TDG Not regulated
IATA Not regulated
IMDG/IMO Not regulated

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Pyrene	X	X	-	204-927-3	-		X	X	X	X	-

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Pyrene	-	-	X	X

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

Component	Hazardous Substances RQs	CERCLA EHS RQs
Pyrene	5000 lb	5000 lb

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Pyrene	X	X	X	X	-

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

Pfaltz & Bauer
RARE AND FINE CHEMICALS
www.pfaltzandbauer.com

SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Product Name:	sec-Butylcyclohexane 99%
Product Code:	B28290
Supplier:	Pfaltz & Bauer, Inc. 172 E. Aurora Street Waterbury, CT 06708 USA
Phone:	203 574-0075
Fax:	203 574-3181
Emergency Phone:	CHEMTREC, US: 1-800-424-9300
	CHEMTREC, International: 1-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

Statements of Hazard:	Irritant
Acute Health Hazard:	Irritant to eyes, skin, mucous membranes and respiratory system. May be harmful by ingestion, inhalation or skin absorption.
Chronic Health Hazard:	Not Available
HMIS Rating:	H:1 F:2 P:0
NFPA Rating:	H:1 F:2 R:0

To the best of our knowledge, the toxicological properties of this chemical have not been thoroughly investigated. Use appropriate procedures and precautions to prevent or minimize exposure.

Pictogram:



Signal Word: Warning

Hazard Statement(s):

H302 Harmful if swallowed.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

Precautionary Statement(s): **P261** Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313 If skin irritation occurs: Get medical advice/ attention.

SECTION 3: COMPOSITION/INFORMATION on INGREDIENTS

Chemical Name:	sec-Butylcyclohexane
Synonyms:	Not Available
CAS Number:	7058-01-7
MDL Number:	MFCD00019369
EINECS Number:	230-342-8
Beilstein Registry Number:	1900609
Molecular Formula:	$C_{10}H_20$
Molecular Weight:	140.27
Content:	99%
Notes:	Not Available

SECTION 4: FIRST AID MEASURES

Eye Contact:	Flush eyes with large amounts of water for fifteen minutes. Separate eyelids with fingers. If irritation persists, seek medical attention.
Skin Contact:	Wash skin with soap and water. If irritation persists, seek medical attention.
Ingestion:	Do not induce vomiting. Seek medical attention.
Inhalation:	Move to a fresh air environment. Contact a physician if breathing becomes difficult.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point:	48 ºC
Explosion Limits:	Lower: Not Available Upper: Not Available

Auto Ignition Temperature:	Not Available
Extinguishing Media:	Carbon dioxide, dry chemical powder, alcohol-resistant foam or water spray.
Protective Equipment:	Wear self-contained respirator and fully protective impervious suit.
Specific Hazards:	May emit hazardous fumes under fire conditions.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Protection:	Wear a self-contained breathing apparatus, rubber boots and gloves, and disposable coveralls. Dispose of coveralls after use. Keep unprotected persons away.
Environmental Protection:	Keep spills out of sewers and bodies of water. Dike and contain the spill with inert material. Absorb on sand, vermiculite or diatomite. Transfer material to a container for disposal or recovery. Ventilate area and wash spill site after material pickup is complete.

SECTION 7: HANDLING and STORAGE

Handling:	Avoid breathing dust, vapor, mist or gas. Avoid contact with skin and eyes. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Open and handle container with care. Keep ignition sources away.
Storage:	Store in a tightly closed container in a dry, well-ventilated place.
Sensitivities:	Not Available
Storage Temperature:	15 – 30 ºC

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes:	Wear appropriate protective eyeglass or chemical safety goggles. Make sure that there is an eyewash facility in your vicinity.
Skin:	Wear impervious gloves and protective clothing.
Respiratory:	Use a NIOSH approved respiratory when exposure limits are exceeded or if irritation or other symptoms are experienced.

Exposure Limits:

Country	Source	Type	Value
USA	ACGIH	TWA	Not Available

USA	OSHA	STEL	Not Available
USA	OSHA	PEL	Not Available

SECTION 9: PHYSICAL and CHEMICAL PROPERTIES

Appearance:	Liquid
Odor:	Not Available
Melting Point:	-110 ºC
Boiling Point:	179.3 ºC
pH Value:	Not Available
Density:	0.801 g/cm^3
Refractive Index, n^{20}_D:	1.4467
Viscosity:	Not Available
Solubility in Water:	Not Available
Vapor Pressure:	Not Available
Vapor Density(Air=1):	Not Available

SECTION 10: STABILITY and REACTIVITY

Stability: Stable under normal temperatures and pressures.

Incompatibility: Strong oxidizing agents.

Conditions to Avoid: Heat, Flame, Sparks, other ignition sources

Hazardous Decomposition Products: Carbon oxides

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS Reference:	Not Available
Target Organs:	Not Available
Toxicity Data:	Not Available
Skin corrosion/irritation:	Not Available
Serious eye damage/irritation:	Not Available
Carcinogenicity:	Not Available

SECTION 12: ECOLOGICAL INFORMATION

Toxicity: No Available

Persistence and degradability:	Not Available
Bioaccumulative potential:	Not Available
Mobility in soil:	Not Available

PBT and vPvB assessment: Not Available
Other adverse effects: Not Available

SECTION 13: DISPOSAL CONSIDERATIONS

Contact a licensed professional waste disposal service. Dispose in a manner consistent with federal, state and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name: Hydrocarbons, Liquid, N.O.S.

DOT UN Number: UN3295

DOT Hazard Class: Class 3

DOT Packing Group: III

IMDG Shipping Name: Hydrocarbons, Liquid, N.O.S.

IMDG UN Number: UN3295

IMDG Hazard Class: Class 3

IMDG Packing Group: III

IATA Shipping Name: Hydrocarbons, Liquid, N.O.S.

IATA UN Number: UN3295

IATA Hazard Class: Class 3

IATA Packing Group: III

SECTION 15: REGULATORY INFORMATION

United States:
Toxic Substance Control Act (TSCA): Not listed
Superfund Amendments and Reauthorization Act (SARA 302): Not Available
Superfund Amendments and Reauthorization Act (SARA 311/312): Not Available
Superfund Amendments and Reauthorization Act (SARA 313): Not Available

European Union:
European Inventory of Existing Chemical Substances (EINECS): No. 230-342-8
Hazard Codes: Not Available
Risk Statements: Not Available
Safety Statements: Not Available

Canada
Canadian Domestic Substances List (DSL): Not listed
Canadian Domestic Substances List (NDSL): Not listed

SECTION 16: OTHER INFORMATION

Date Prepared: 01/04/2013 MH

The information above is presented in good faith. It is believed to be accurate and represents the best information currently available to us. However we make no warranty with respect to such information and we assume no liability resulting from its use. The user should consider this information as a supplement to other information that may be available and make independent judgment to ensure proper use to protect the health and safety of employees and the environment. Pfaltz and Bauer shall not be held liable for any damage resulting from handling or from contact with the above product.

SAFETY DATA SHEET

Revision Date 10-Feb-2015 **Revision Number** 1

1. Identification

Product Name **Selenium**

Cat No. : **AC419270000; AC419271000; AC419275000**

Synonyms None

Recommended Use Laboratory chemicals.

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Entity / Business Name
Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute Inhalation Toxicity - Dusts and Mists	Category 3
Specific target organ toxicity - (repeated exposure)	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
Toxic if swallowed
Toxic if inhaled
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray

Response

Get medical attention/advice if you feel unwell

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth

Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

May cause long lasting harmful effects to aquatic life

3. Composition / information on ingredients

Component	CAS-No	Weight %
Selenium	7782-49-2	> 99.5

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes.

Inhalation Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Immediate medical attention is required.

Ingestion Do not induce vomiting. Never give anything by mouth to an unconscious person. Drink plenty of water. Call a physician immediately. If possible drink milk afterwards.

Most important symptoms/effects No information available.
Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. chemical foam.

Unsuitable Extinguishing Media No information available

Flash Point No information available
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Vapors may form explosive mixtures with air.

Hazardous Combustion Products
None known
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
3	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment.
Environmental Precautions See Section 12 for additional ecological information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up Sweep up or vacuum up spillage and collect in suitable container for disposal.

7. Handling and storage

Handling Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Use only in area provided with appropriate exhaust ventilation.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep under nitrogen.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Selenium	TWA: 0.2 mg/m³	(Vacated) TWA: 0.2 mg/m³	IDLH: 1 mg/m³ TWA: 0.2 mg/m³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Selenium	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³	TWA: 0.2 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection A NIOSH/MSHA approved air purifying dust or mist respirator or European Standard EN 149.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Powder Solid
Appearance	Grey
Odor	No information available
Odor Threshold	No information available
pH	No information available
Melting Point/Range	217 - 222 °C / 422.6 - 431.6 °F
Boiling Point/Range	685 °C / 1265 °F
Flash Point	No information available
Evaporation Rate	No information available
Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 345 °C
Vapor Density	No information available
Relative Density	4.810
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Se
Molecular Weight	78.96

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products.

Incompatible Materials Acids, Strong oxidizing agents, Fluorine, oxygen, Metals

Hazardous Decomposition Products None under normal use conditions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Selenium	6700 mg/kg (Rat)	Not listed	Not listed

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Selenium	7782-49-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure None known
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available
Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity
Do not empty into drains.

Persistence and Degradability No information available
Bioaccumulation/ Accumulation No information available.

Mobility No information available.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT
- **UN-No** UN3283
- **Hazard Class** 6.1
- **Packing Group** III

TDG
- **UN-No** UN3283
- **Hazard Class** 6.1
- **Packing Group** III

IATA
- **UN-No** 3283
- **Proper Shipping Name** SELENIUM COMPOUND, SOLID, N.O.S.
- **Hazard Class** 6.1
- **Packing Group** III

IMDG/IMO
- **UN-No** 3283
- **Proper Shipping Name** SELENIUM COMPOUND, SOLID, N.O.S.
- **Hazard Class** 6.1
- **Packing Group** III

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Selenium	X	X	-	231-957-4	-		X	-	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Selenium	7782-49-2	> 99.5	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Selenium	-	-	X	X

Clean Air Act Not applicable

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Selenium	X		-

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Selenium	100 lb	-

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Selenium	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ):	N
DOT Marine Pollutant	N
DOT Severe Marine Pollutant	N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class D1A Very toxic materials
D2B Toxic materials



16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Revision Date 10-Feb-2015
Print Date 10-Feb-2015
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS

SAFETY DATA SHEET

Version 4.6
Revision Date 12/02/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Silver

Product Number : 327093
Brand : Aldrich

CAS-No. : 7440-22-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : Ag
Molecular weight : 107.87 g/mol
CAS-No. : 7440-22-4
EC-No. : 231-131-3

Hazardous components

Component	Classification	Concentration
Silver		
		<= 100 %

4. FIRST AID MEASURES

4.1 Description of first aid measures

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Silver/silver oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing vapours, mist or gas.
For personal protection see section 8.

6.2 Environmental precautions
No special environmental precautions required.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. Store under inert gas. Keep in a dry place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Silver	7440-22-4	TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Argyria		
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.010000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Argyria		
		TWA	0.010000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	0.1 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Argyria		
		TWA	0.01 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

8.2 Exposure controls

Appropriate engineering controls
General industrial hygiene practice.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
No special environmental precautions required.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 960 °C (1,760 °F) - lit.
f)	Initial boiling point and boiling range	2,212 °C (4,014 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	10.49 g/cm3
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Oxygen, Strong acids and strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - > 5,000 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

Carcinogenicity - Rat - Unreported
Tumorigenic:Tumors at site or application.

Carcinogenicity classification not possible from current data.

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver).

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Silver)
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

SARA 311/312 Hazards
No SARA Hazards

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date

Silver	7440-22-4	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Silver	7440-22-4	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	0
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 12/02/2015 Print Date: 02/09/2016

SAFETY DATA SHEET

Version 4.11
Revision Date 03/05/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Sodium

Product Number : 483745
Brand : Aldrich

CAS-No. : 7440-23-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Substances and mixtures, which in contact with water, emit flammable gases (Category 1), H260
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Carcinogenicity (Category 1A), H350

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)

H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.

P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P281	Use personal protective equipment as required.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/ wrap in wet bandages.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P402 + P404	Store in a dry place. Store in a closed container.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Reacts violently with water.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Formula : Na
Molecular weight : 22.99 g/mol

Hazardous components

Component		Classification	Concentration
Sodium			
CAS-No. EC-No. Index-No.	7440-23-5 231-132-9 011-001-00-0	Water-react. 1; Skin Corr. 1B; Eye Dam. 1; H260, H314	>= 90 - <= 100 %
Paraffin oils			
CAS-No. EC-No.	8012-95-1 232-384-2	Carc. 1A; H350	>= 90 - <= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Dry powder

5.2 Special hazards arising from the substance or mixture
No data available

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.Keep away from sources of ignition - No smoking.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Never allow product to get in contact with water during storage.

Handle and store under inert gas. Air sensitive.
Storage class (TRGS 510): Hazardous materials, which set free flammable gases upon contact with water

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Paraffin oils	8012-95-1	STEL	10.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation 2014 Adoption Not classifiable as a human carcinogen		
		Upper Respiratory Tract irritation 2014 Adoption Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		
		TWA	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Not classifiable as a human carcinogen		
		TWA	5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	10.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Upper Respiratory Tract irritation Exposure by all routes should be carefully controlled to levels as low as possible. Suspected human carcinogen		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Pieces
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 97.8 °C (208.0 °F) - lit.
f)	Initial boiling point and boiling range	883 °C (1,621 °F) - lit.
g)	Flash point	82 °C (180 °F)
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	0.97 g/cm3

n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Reacts violently with water.

10.4 Conditions to avoid
Air Do not allow water to enter container.
Exposure to moisture

10.5 Incompatible materials
Oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: 1 - Group 1: Carcinogenic to humans (Paraffin oils)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Paraffin oils)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Aspiration may lead to:, lipid pneumonia, Effects due to ingestion may include:, laxative effect, Gastrointestinal disturbance, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1428 Class: 4.3 Packing group: I
Proper shipping name: Sodium
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1428 Class: 4.3 Packing group: I EMS-No: F-G, S-N
Proper shipping name: SODIUM

IATA
UN number: 1428 Class: 4.3 Packing group: I
Proper shipping name: Sodium
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Sodium	7440-23-5	1993-04-24
Paraffin oils	8012-95-1	2007-03-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Paraffin oils	8012-95-1	1987-02-27

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Carc.	Carcinogenicity
Eye Dam.	Serious eye damage
H260	In contact with water releases flammable gases which may ignite spontaneously.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H350	May cause cancer.
Skin Corr.	Skin corrosion
Water-react.	Substances and mixtures, which in contact with water, emit flammable gases

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	2

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	2
Special hazard.I:	W

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.11 Revision Date: 03/05/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 3.14
Revision Date 12/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Styrene

Product Number : 240869
Brand : Aldrich
Index-No. : 601-026-00-0

CAS-No. : 100-42-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H361 Suspected of damaging fertility or the unborn child.

H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	Phenylethylene Vinylbenzene
Formula	:	$C_8H_8C_8H_8$
Molecular weight	:	104.15 g/mol
CAS-No.	:	100-42-5
EC-No.	:	202-851-5
Index-No.	:	601-026-00-0

Hazardous components

Component	Classification	Concentration
Styrene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT RE 1; Aquatic Acute 2; H226, H315, H319, H332, H351, H361, H372, H401	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Container explosion may occur under fire conditions., Vapours may form explosive mixture with air.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Recommended storage temperature 2 - 8 °C

Light sensitive.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Styrene	100-42-5	TWA	50.000000 ppm 215.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	100.000000 ppm 425.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	See Table Z-2		
		TWA	100.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		CEIL	200.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		Peak	600.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		TWA	20.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		STEL	40.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Peripheral neuropathy Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Not classifiable as a human carcinogen		
		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		

		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		
		Peak	600 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.15-1969		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Styrene	0.2000 mg/l	In venous blood	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		Mandelic acid plus phenylglyoxylic acid	400mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			
		Styrene	40 µg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 32 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	sweet
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -31 °C (-24 °F) - lit.
f)	Initial boiling point and boiling range	145 - 146 °C (293 - 295 °F) - lit.
g)	Flash point	32.0 °C (89.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8.9 %(V) Lower explosion limit: 1.1 %(V)
k)	Vapour pressure	6 hPa (5 mmHg) at 20 °C (68 °F)
l)	Vapour density	3.6
m)	Relative density	0.906 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.05 g/l at 25 °C (77 °F) - slightly soluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	490.0 °C (914.0 °F) 480.0 °C (896.0 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	3.6

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.Vapours may form explosive mixture with air.

10.4 Conditions to avoid
May polymerize on exposure to light.
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Copper

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - > 6,000 mg/kg

LC50 Inhalation - Rat - 4 h - 12,000 mg/m3

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation - 24 h

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Does not cause skin sensitisation.
(OECD Test Guideline 406)

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Styrene)
NTP:	Reasonably anticipated to be a human carcinogen (Styrene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Suspected of damaging the unborn child. Suspected human reproductive toxicant

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: WL3675000

Dermatitis, Central nervous system depression, Nausea, Dizziness, Headache, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Endocrine system. -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	NOEC - Pimephales promelas (fathead minnow) - 4 mg/l - 96 h
	LC50 - Pimephales promelas (fathead minnow) - 32 mg/l - 96 h
	LOEC - Pimephales promelas (fathead minnow) - 7.6 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 4.7 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	IC50 - Pseudokirchneriella subcapitata (green algae) - 1.4 mg/l - 72 h

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: > 60 % - Readily biodegradable

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2055 Class: 3 Packing group: III
Proper shipping name: Styrene monomer, stabilized
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2055 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: STYRENE MONOMER, STABILIZED

IATA
UN number: 2055 Class: 3 Packing group: III
Proper shipping name: Styrene monomer, stabilized

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Styrene	100-42-5	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.14 Revision Date: 12/02/2015 Print Date: 02/18/2016

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATHESON TRI-GAS, INC.
150 Allen Road Suite 302
Basking Ridge, New Jersey 07920
Information: 1-800-416-2505

Emergency Contact:
CHEMTREC 1-800-424-9300
Calls Originating Outside the US:
703-527-3887 (Collect Calls Accepted)

SUBSTANCE: TERT-BUTANOL

TRADE NAMES/SYNONYMS:
T-BUTANOL; 1,1-DIMETHYLETHANOL; TRIMETHYLCARBINOL; TRIMETHYLMETHANOL; TRIMETHYL METHANOL; BUTYL ALCOHOL; 2-METHYL-2-PROPANOL; TERT-BUTYL ALCOHOL; TRIMETHYL CARBINOL; UN 1120; C4H10O; 00230215; RTECS EO1925000

CHEMICAL FAMILY: aliphatic, alcohols

CREATION DATE: Dec 01 2003
REVISION DATE: Dec 11 2008

2. COMPOSITION, INFORMATION ON INGREDIENTS

COMPONENT: TERT-BUTANOL
CAS NUMBER: 75-65-0
PERCENTAGE: 100

3. HAZARDS IDENTIFICATION

NFPA RATINGS (SCALE 0-4): HEALTH=2 FIRE=3 REACTIVITY=0



EMERGENCY OVERVIEW:
CHANGE IN APPEARANCE: hygroscopic
COLOR: colorless
PHYSICAL FORM: crystals, liquid
ODOR: pungent odor
MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

POTENTIAL HEALTH EFFECTS:

INHALATION:
SHORT TERM EXPOSURE: irritation, nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, loss of coordination, blurred vision
LONG TERM EXPOSURE: no information on significant adverse effects
SKIN CONTACT:
SHORT TERM EXPOSURE: irritation
LONG TERM EXPOSURE: irritation
EYE CONTACT:
SHORT TERM EXPOSURE: irritation, blurred vision
LONG TERM EXPOSURE: irritation
INGESTION:
SHORT TERM EXPOSURE: nausea, vomiting, diarrhea, stomach pain, headache, drowsiness, dizziness, loss of coordination, unconsciousness
LONG TERM EXPOSURE: no information on significant adverse effects

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

SKIN CONTACT: Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

EYE CONTACT: Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

INGESTION: If a large amount is swallowed, get medical attention.

NOTE TO PHYSICIAN: For inhalation, consider oxygen.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Severe fire hazard. The vapor is heavier than air. Vapors or gases may ignite at distant ignition sources and flash back. Vapor/air mixtures are explosive.

EXTINGUISHING MEDIA: alcohol-resistant foam, carbon dioxide, regular dry chemical, water

Large fires: Use alcohol-resistant foam or flood with fine water spray.

FIRE FIGHTING: Move container from fire area if it can be done without risk. Dike for later disposal. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from

venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Do not attempt to extinguish fire unless flow of material can be stopped first. Flood with fine water spray. Do not scatter spilled material with high-pressure water streams. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FLASH POINT: 52 F (11 C) (CC)
LOWER FLAMMABLE LIMIT: 2.4%
UPPER FLAMMABLE LIMIT: 8.0%
AUTOIGNITION: 892 F (478 C)
FLAMMABILITY CLASS (OSHA): IB

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Avoid heat, flames, sparks and other sources of ignition. Remove sources of ignition. Stop leak if possible without personal risk. Reduce vapors with water spray. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Large spills: Dike for later disposal. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

7. HANDLING AND STORAGE

STORAGE: Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.106. Grounding and bonding required. Keep separated from incompatible substances.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:
TERT-BUTANOL:
TERT-BUTYL ALCOHOL:
100 ppm (300 mg/m3) OSHA TWA
150 ppm (450 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
100 ppm ACGIH TWA
100 ppm (300 mg/m3) NIOSH recommended TWA 10 hour(s)
150 ppm (450 mg/m3) NIOSH recommended STEL

VENTILATION: Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles with a faceshield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.
1600 ppm
Any supplied-air respirator operated in a continuous-flow mode.
Any powered, air-purifying respirator with organic vapor cartridge(s).
Any air-purifying respirator with a full facepiece and an organic vapor canister.
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any self-contained breathing apparatus with a full facepiece.
Any supplied-air respirator with a full facepiece.
Emergency or planned entry into unknown concentrations or IDLH conditions -
Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.
Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.
Escape -
Any air-purifying full-facepiece respirator (gas mask) with a chin-style, front-mounted or back-mounted organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
COLOR: colorless
CHANGE IN APPEARANCE: hygroscopic
PHYSICAL FORM: crystals, liquid
ODOR: pungent odor
MOLECULAR WEIGHT: 74.12
MOLECULAR FORMULA: (C-H3)3-C-O-H
BOILING POINT: 180 F (82 C)
MELTING POINT: 79 F (26 C)
VAPOR PRESSURE: 31 mmHg @ 20 C
VAPOR DENSITY (air=1): 2.6
SPECIFIC GRAVITY (water=1): 0.7887
WATER SOLUBILITY: soluble
PH: Not available
VOLATILITY: Not available
ODOR THRESHOLD: 73 ppm

EVAPORATION RATE: 1.05 (butyl acetate=1)
VISCOSITY: 3.3 cP @ 30 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, acetone, benzene

10. STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressure.

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Containers may rupture or explode if exposed to heat.

INCOMPATIBILITIES: metals, acids, oxidizing materials, combustible materials, metal salts

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: oxides of carbon

POLYMERIZATION: Will not polymerize.

11. TOXICOLOGICAL INFORMATION

TERT-BUTANOL:
IRRITATION DATA: 500 ul/24 hour(s) skin-rabbit mild; 100 ul/24 hour(s) eyes-rabbit severe
TOXICITY DATA: >10000 ppm/4 hour(s) inhalation-rat LC50; >2 gm/kg skin-rabbit LD50; 2743 mg/kg oral-rat LD50
CARCINOGEN STATUS: ACGIH: A4 -Not Classifiable as a Human Carcinogen
LOCAL EFFECTS:
Irritant: inhalation, eye
ACUTE TOXICITY LEVEL:
Moderately Toxic: ingestion
TARGET ORGANS: central nervous system
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies
TUMORIGENIC DATA: Available.
MUTAGENIC DATA: Available.
REPRODUCTIVE EFFECTS DATA: Available.
ADDITIONAL DATA: Alcohol may enhance the toxic effects.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:
FISH TOXICITY: 6410000 ug/L 96 hour(s) LC50 (Mortality) Fathead minnow (Pimephales promelas)

INVERTEBRATE TOXICITY: 5504000 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)

OTHER TOXICITY: 2450000 ug/L 48 hour(s) LC50 (Mortality) Clawed toad (Xenopus laevis)

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001.

14. TRANSPORT INFORMATION



U.S. DOT 49 CFR 172.101:
PROPER SHIPPING NAME: Butanols
ID NUMBER: UN1120
HAZARD CLASS OR DIVISION: 3
PACKING GROUP: II
LABELING REQUIREMENTS: 3

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:
SHIPPING NAME: Butanols
UN NUMBER: UN1120
CLASS: 3
PACKING GROUP/CATEGORY: II

15. REGULATORY INFORMATION

U.S. REGULATIONS:
CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4): Not regulated.

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart B): Not regulated.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355 Subpart C): Not regulated.

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370 Subparts B and C):
ACUTE: Yes
CHRONIC: No
FIRE: Yes
REACTIVE: No

SUDDEN RELEASE: No

SARA TITLE III SECTION 313 (40 CFR 372.65):
TERT-BUTYL ALCOHOL

OSHA PROCESS SAFETY (29 CFR 1910.119): Not regulated.

STATE REGULATIONS:
California Proposition 65: Not regulated.

CANADIAN REGULATIONS:
WHMIS CLASSIFICATION: Not determined.

NATIONAL INVENTORY STATUS:
U.S. INVENTORY (TSCA): Listed on inventory.

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CANADA INVENTORY (DSL/NDSL): Not determined.

16. OTHER INFORMATION

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SAFETY DATA SHEET

Version 8.6
Revision Date 02/07/2023
Print Date 02/15/2023

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Tetrachloroethylene

Product Number : 371696
Brand : Sigma-Aldrich
Index-No. : 602-028-00-4
CAS-No. : 127-18-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitization (Category 1), H317
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336
Short-term (acute) aquatic hazard (Category 2), H401
Long-term (chronic) aquatic hazard (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

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Pictogram	
Signal Word	Warning

Hazard statement(s)

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing mist or vapors.
P264	Wash skin thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Perchloroethylene PCE
Formula	:	C_2Cl_4
Molecular weight	:	165.83 g/mol
CAS-No.	:	127-18-4
EC-No.	:	204-825-9
Index-No.	:	602-028-00-4

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Component	Classification	Concentration
Tetrachlorethylene		
	Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 2; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 2; H315, H319, H317, H351, H336, H401, H411 Concentration limits: >= 20 %: STOT SE 3, H336;	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

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5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen chloride gas
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrachlorethylene	127-18-4	TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Confirmed animal carcinogen with unknown relevance to humans		
		STEL	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Confirmed animal carcinogen with unknown relevance to humans		
		Potential Occupational Carcinogen		
		TWA	100 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		CEIL	200 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Peak	300 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	25 ppm 170 mg/m3	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
		PEL	25 ppm 170 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		STEL	100 ppm 685 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		C	300 ppm	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Tetrachlorethylene	127-18-4	Tetrachloroethylene	3parts per million	In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
	Remarks	Prior to shift (16 hours after exposure ceases)			
		Tetrachloroethylene	0.5 mg/l	In blood	ACGIH - Biological Exposure Indices (BEI)
		Prior to shift (16 hours after exposure ceases)			

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8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 240 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Color: colorless
b)	Odor	No data available
c)	Odor Threshold	No data available
d)	pH	No data available

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e)	Melting point/freezing point	Melting point/range: -22 °C (-8 °F) - lit.
f)	Initial boiling point and boiling range	121 °C 250 °F - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	25.3 hPa at 25.0 °C (77.0 °F) 17.3 hPa at 20.0 °C(68.0 °F)
l)	Vapor density	No data available
m)	Density	1.623 g/cm3 at 25 °C (77 °F) - lit.
	Relative density	No data available
n)	Water solubility	0.15 g/l at 25 °C (77 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.53 at 23 °C (73 °F) - Bioaccumulation is not expected.
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Surface tension	32.1 mN/m at 20 °C (68 °F)

SECTION 10: Stability and reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Risk of explosion with:
Alkali metals
Aluminum
sodium amide
Barium
nitrogen dioxide
Oxygen

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with
alkali hydroxides
Exothermic reaction with:
strong alkalis
Alkaline earth metals
strong alkalis
Light metals
Powdered metals
Oxidizing agents
Strong acids
Strong bases
nitrous gases
Risk of ignition or formation of inflammable gases or vapours with:
zinc oxide
with
Aluminum

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
various plastics

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 3,420 mg/kg
(OECD Test Guideline 401)
Remarks: (ECHA)
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)
Remarks: (ECHA)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Mild eye irritation - 24 h
(Draize Test)
Remarks: (RTECS)

Respiratory or skin sensitization
Local lymph node assay (LLNA) - Mouse
Result: May cause sensitization by skin contact.
(OECD Test Guideline 429)
Remarks: (ECHA)

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Germ cell mutagenicity
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Remarks: (ECHA)
Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Remarks: (ECHA)

Test Type: Micronucleus test
Species: Mouse

Application Route: Intraperitoneal
Method: OECD Test Guideline 474
Result: negative
Remarks: (ECHA)

Carcinogenicity
Suspected of causing cancer.

IARC:	2A - Group 2A: Probably carcinogenic to humans (Tetrachlorethylene)
NTP:	RAHC - Reasonably anticipated to be a human carcinogen (Tetrachlorethylene)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Repeated dose toxicity - Mouse - female - Oral - LOAEL (Lowest observed adverse effect level) - 390 mg/kg

RTECS: KX3850000
narcosis, Liver injury may occur., Kidney injury may occur.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Oncorhynchus mykiss (rainbow trout) - 5 mg/l - 96 h

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Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 7.50 mg/l - 48 h
Toxicity to algae	ErC50 - Chlamydomonas reinhardtii (green algae) - 3.64 mg/l - 72 h Remarks: (ECHA)
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Jordanella floridae - 1.99 mg/l - 10 d Remarks: (ECHA)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - 0.51 mg/l - 28 d Remarks: (ECHA)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 11 % - Not readily biodegradable. (OECD Test Guideline 301C)

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 0.00343 mg/l(Tetrachlorethylene) Bioconcentration factor (BCF): 49

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 1897 Class: 6.1 Packing group: III

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Proper shipping name: Tetrachloroethylene
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 100 lbs
Reportable Quantity (RQ): 10 lbs
Reportable Quantity (RQ): 10 lbs
Poison Inhalation Hazard: No

IMDG
UN number: 1897 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TETRACHLOROETHYLENE
Marine pollutant : yes

IATA
UN number: 1897 Class: 6.1 Packing group: III
Proper shipping name: Tetrachloroethylene

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Tetrachlorethylene	127-18-4	2020-07-14

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Reportable Quantity : D039 lbs

F001 lbs

F002 lbs

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrachlorethylene	127-18-4	2020-07-14

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrachlorethylene	127-18-4	2020-07-14

California Prop. 65 Components

, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.Tetrachlorethylene	CAS-No. 127-18-4	Revision Date 2017-04-11

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SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 8.6 Revision Date: 02/07/2023 Print Date: 02/15/2023

The life science business of Merck KGaA, Darmstadt, Germany
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Thallium

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Thallium Solid

Formula: Tl

Supplier: ESPI Metals
1050 Benson Way
Ashland, OR 97520

Telephone: 800-638-2581

Fax: 541-488-8313

Email: sales@espimetals.com

Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)

Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200): Acute toxicity - oral, category 2.

GHS Label Elements:



Signal Word: Danger

Hazard Statements: H300 Fatal if swallowed.

Precautionary Statements: P264 Wash hands thoroughly after handling, P270 Do not eat, drink or smoke when using this product, P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician, P330 Rinse mouth, P405 Store locked up, P501 Dispose of contents/container in accordance with local, state or federal regulations.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Thallium

CAS#: 7440-28-0

%: 100

EC#: 231-138-1

4 FIRST AID MEASURES

General Measures: Emergency responders should take care to avoid secondary exposure to thallium if it is present. Wear appropriate protective equipment.

INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek immediate medical attention. If mouth-to-mouth is necessary always use a barrier or bag-valve-mask device.

INGESTION: Rinse mouth with water. Do not induce vomiting. Seek immediate medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing, wash affected area with soap and water taking care not to break the skin and to cover all open wounds. Seek medical attention. Contaminated clothing should be safely contained and properly disposed of.

EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention immediately.

Most Important Symptoms/Effects, Acute and Delayed: Symptoms are usually delayed and include gastrointestinal distress and neurological symptoms. See section 11 for more information.

Indication of Immediate Medical Attention and Special Treatment: No other information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use extinguishing media suitable for surrounding materials and type of fire.

Unsuitable Extinguishing Media: No further information available.

Specific Hazards Arising from the Material: Under fire conditions, thallium may release highly toxic fumes or gases.

Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area and provide ventilation. Avoid breathing dust or fume. Avoid contact with skin and eyes. Eliminate all sources of ignition.

Methods and Materials for Containment and Cleaning Up: Scoop up or vacuum with a system utilizing a HEPA filtration system and place in properly labeled sealed containers. Special precautions must be taken when changing filters on HEPA vacuum cleaners used to clean up hazardous materials. Avoid creating dusts. Avoid contamination of air and water.

Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Wear appropriate respiratory and protective equipment specified in section 8. Only trained personnel should work with this product. Handle in a well-ventilated area. Avoid exposure to high temperature. Avoid breathing fumes. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking.

Conditions for Safe Storage, Including Any Incompatibilities: Store under dry, inert gas such as argon, or can also be stored under deaerated water. Store in sealed unbreakable containers; the original labeled shipping container when possible. Store in an area that is cool, dry and temperature-controlled, away from direct sunlight, heat and ignition sources or where freezing is possible. Do not store together with acids, halogens or oxidizers. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Thallium (Soluble compounds, as Tl)

OSHA/PEL: 0.1 mg/m^3

ACGIH/TLV: 0.02 mg/m^3(inhalable)

Appropriate Engineering Controls: Handle in an enclosed, controlled process under dry argon. Whenever possible the use of local exhaust ventilation, process enclosure or other engineering controls is the preferred method of controlling exposure to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Clothing worn in areas of exposure to thallium dust or vapor should be restricted to the workplace and stored in special lockers.

Individual Protection Measures, Such as Personal Protective Equipment:

Respiratory Protection: When potential exposures are above the occupational limits, approved respirators must be used.

Eye Protection: Splash goggles or safety glasses.

Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:

Form: Rod

Color: Gray metallic

Odor: Odorless

Odor Threshold: Not determined

pH: N/A

Melting Point: 303.5 ^{o}C

Boiling Point: 1457±10 ^{o}C

Flash Point: N/A

Evaporation Rate: N/A

Flammability: No data

Upper Flammable Limit: No data

Lower Flammable Limit: No data

Vapor Pressure: 1 mm Hg @ 825 ^{o}C

Vapor Density: N/A

Relative Density (Specific Gravity): 11.85 g/cc

Solubility in H_2O: Insoluble

Partition Coefficient (n-octanol/water): Not determined

Autoignition Temperature: No data

Decomposition Temperature: No data

Viscosity: N/A

10 STABILITY AND REACTIVITY

Reactivity: No data

Chemical Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: High temperatures will generate toxic thallium oxide fumes.

Conditions to Avoid: Avoid high temperatures, reacts slowly with moist air.

Incompatible Materials: Oxidizing agents, strong acids, halogens, air and moisture.

Hazardous Decomposition Products: Thallium oxide fume.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin and eyes.

Symptoms of Exposure: Abdominal pain and vomiting, extreme pain in the extremities, lethargy, hair loss.

Acute and Chronic Effects: Almost all of the available information refers to ingestion of thallium compounds, largely due to accidental ingestion, intentional poisoning and suicide attempts. Adverse reactions are dose dependent and occur in 3 stages. Massive doses may cause gastrointestinal distress (nausea, vomiting and abdominal pain) within 30 minutes but symptoms are usually delayed for 8 hours or longer. Gastrointestinal symptoms from smaller doses may

be delayed 24-48 hours. This is followed by neurological effects 2-5 days or even longer after ingestion, although it may occur as early as 12 hours after massive exposure. Other effects include hair loss, severe pain in the extremities, lethargy, ataxia, back pain, abnormal reflexes, neuropathy, muscle weakness, mental abnormalities, tremors, abnormal vision, headache, coma, convulsion, and death. There was no information available for exposure to thallium metal specifically rather than thallium compounds, and little conclusive information regarding exposure via inhalation.

Acute Toxicity: No data

Carcinogenicity: **NTP**: Not identified as carcinogenic **IARC**: Not identified as carcinogenic

To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: LC50 - Cyprinodon variegatus (sheepshead minnow) - 21.0 mg/l - 96.0 h

Persistence and Degradability: No data

Bioaccumulative Potential: No data

Mobility in Soil: No data

Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Product: Dispose of in accordance with Federal, State and Local regulations.

Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

UN Number: UN3288

UN Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Thallium)

Transport Hazard Class: 6.1

Packing Group: II

Marine Pollutant: Yes

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.

Regulation (EC) No 1272/2008 (CLP): Acute toxicity - oral, category 2, Hazardous to the aquatic environment - acute hazard, category 3, Hazardous to the aquatic environment - chronic hazard, category 3.

Canada WHMIS Classification (CPR, SOR/88-66): Acute toxicity.

HMIS Ratings: **Health**: 3 **Flammability**: 0 **Physical**: 0

NFPA Ratings: **Health**: 3 **Flammability**: 0 **Instability**: 0

Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The information contained in this document is based on the state of our knowledge at the time of publication and is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI Metals makes no representation, warranty, or guarantee of any kind with respect to the information contained in this document or any use of the product based on this information. ESPI Metals shall not be held liable for any damages resulting from handling or from contact with the above product. Users should satisfy themselves that they have all current data relevant to their particular use.

Prepared by: ESPI Metals

Revised/Reviewed: July 2015

Safety Data Sheets (SDS)

SECTION 1-IDENTIFICATION

Product name: Toluene

Other names:-

Proper shipping name: Toluene

Recommended use of the chemical and restrictions on use:
The major use of toluene is as a mixture added to gasoline to improve octane ratings. Used as a solvent for paint, resins, lacquers inks & adhesives. Component of solvent blends and thinners. Used in the manufacture of chemicals, dyes, explosives, benzoic acid. Some grades of toluene may contain traces of xylene and benzene.
The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.
WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.

Manufacturer/Supplier Name: Taiwan SM Corp., Kaohsiung plant
Address: NO.7, Industrial 1st Rd, Lin-Yuan Kaohsiung County 83203, Taiwan, R.O.C.
Phone No.: 886-7-6414511

Emergency phone No./Fax No.: 886-7-6414511 Ext. 221 (on duty), 886-7-6414517 (off duty)/886-7-6423828

SECTION 2-HAZARDS IDENTIFICATION

GHS Classification:

Flammable Liquid Category 2
Acute Toxicity (Oral) Category 4
Skin Corrosion/ Irritation Category 2
Serious Eye Damage/ Eye Irritation Category 2
Specific Target Organ Toxicity Repeated Exposure Category 2
Hazardous To The Aquatic Environment (Acute) Category 3
Aspiration Hazard Category 1

GHS Label elements:

Hazard symbols



Signal word

Danger

Hazard statements

Highly flammable liquid and vapor
Harmful if inhaled
Causes skin irritation
Causes serious eye irritation
May cause damage to organs through prolonged or repeated exposure.
May cause long lasting harmful effects to aquatic life.
May be fatal if swallowed and enters airways.

Precautionary statements

Use only in well ventilated area.
Control of exposure by mechanical ventilation in an unventilated or confined space.
Avoid breathing vapors and contact with skin and eyes.
Wear breathing apparatus/protective gloves/face protection.
Store in well-ventilated place.
Disposal must be in accordance with applicable federal, state, or local regulations.

Other hazards: —

SECTION 3-COMPOSITION/INFORMATION ON INGREDIENTS

CAS No.	Chemical Name	wt% by weight	EINECS No.
00108-88-3	Toluene	97.0 min.	203-625-9
Synonyms	**Methylbenzol; Methylbenzene; Toluol; Phenylmethane**		

SECTION 4-FIRST AID MEASURES

Description of necessary first aid measures

Eye:

1. Flush immediately with warm water for at least 20 minutes.
2. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
3. If pain persists or recurs seek medical attention.
4. Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin:

1. Removing contaminated clothing, shoes, and leathery wearings, cleaning procedure is available before reused or waste treatment.
2. Washing affected area thoroughly with soap and water for at least 20 minutes.
3. Call a Physician if irritation develops or persists.

Ingestion:

1. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomits.
2. If victim is conscious and alert, give 2～4 cupfuls of milk/water to dilute the substance in stomach.
3. Never give anything by mouth to an unconscious person.
4. Don't induce vomiting unless directed to do so by medical person.
5. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
6. Then seek for medical attention.

Inhalation:

1. Remove from further exposure and flush thoroughly with air.
2. Lay patient down. Keep warm and rested.
3. Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
4. If respiratory irritation, seek immediate medical assistance and call a physician.

Most important symptoms/effects, acute and delayed

Headache, fatigue, drowsiness, insomnia, anorexia and pain in limbs, nervousness, impairment of memory.

Indication of immediate medical attention and special treatment needed, if necessary

For acute or short term repeated exposures to toluene:

Inhalation:

1. Inhalation overexposure can produce toxic effects. Monitor for respiratory distress.
2. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.
3. This material (or a component) sensitizes the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material.
4. Administration of sympathomimetic drugs should be avoided.

Ingestion:

1. If ingested, this material presents a significant aspiration and chemical pneumonitis hazard.
2. Induction of emesis is not recommended.
3. Consider activated charcoal and/or gastric lavage.
4. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.

SECTION 5-FIRE FIGHTING MEASURES

Extinguishing media

Foam、CO_2、Dry chemical、Water fog.

Specific hazards arising from the chemical

1. Liquid and vapor are highly flammable.
2. Severe fire hazard when exposed to heat, flame and/or oxidizers.
3. Vapor may travel a considerable distance to source of ignition.
4. Heating may cause expansion or decomposition leading to violent rupture of containers.
5. On combustion, may emit toxic fumes of carbon monoxide (CO).

Special protective equipment and precautions for fire-fighters

1. Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies.
2. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.
3. Cover pooling liquid with foam.
4. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out.
5. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines.
6. Be aware that burning liquid will float on water.
7. Notify appropriate authorities of potential fire and explosion hazard if liquid enter sewers or waterways

SECTION 6-ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedure

1. Personal protective equipment (specified in Section 8)
   Eyes : Chemical safety goggles are recommended, and a face shield is added when needed.
   Skin : Wear appropriate protective gloves to avoid skin contact.
   Clothing: When direct contact is likely, use rubberized clothings, apron and boots.
   Respiratory : When limits are exceeded, wear a respirator approved by NIOSH/MSHA for protection against organic dust, mists and vapors.
2. Remove all sources of ignition. No smoking, naked lights or ignition sources. Ventilate area of leak or spill.
3. Keep unnecessary and unprotected personnel from entering. Evacuate personnel from the danger area. Consult with an expert about the emergency procedures.

Environmental precautions

1. Prevent spillage from entering drains, surface, and groundwater.
2. Contain and recover liquid when possible. Use non-sparking tools and equipment.
3. Collect liquid in an appropriate container or absorb with an inert material (e.g. vermiculite, dry sand, earth), and place in a chemical waste container.
4. Report the accidental spill/release to Local/State government.

Methods and materials for containment and cleaning up

Minor spill:

1. Remove all ignition sources.
2. Clean up all spills immediately.
3. Avoid breathing vapors and contact with skin and eyes.
4. Control personal contact by using protective equipment.
5. Contain and absorb small quantities with vermiculite or other absorbent material.
6. Wipe up.
7. Collect residues in a flammable waste container.

Major spill

1. Clear area of personnel and move upwind.
2. Alert emergency responders and tell them location and nature of hazard.
3. May be violently or explosively reactive.
4. Wear breathing apparatus plus protective gloves.
5. Prevent spillage from entering drains or water course.
6. No smoking, naked lights or ignition sources. Increase ventilation.
7. Stop leak if safe to do so.
8. Water spray or fog may be used to disperse/absorb vapor.
9. Contain spill with sand, earth or vermiculite.
10. Use only spark-free shovels and explosion proof equipment.
11. Collect recoverable product into labeled containers for recycling..
12. Absorb remaining product with sand, earth or vermiculite.
13. Collect solid residues and seal in labeled drums for disposal.
14. Wash area and prevent runoff into drains.
15. If contamination of drains or waterways occurs, advise emergency services.

SECTION 7-HANDLING AND STORAGE

Precautions for safe handling

1. Wash thoroughly after handling.
2. Use only in well ventilated area.
3. Ground and bond containers when transferring.
4. Use spark-free tools and explosion proof equipment.
5. Empty containers retain product residue (liquid/vapor), and can be dangerous.
6. Do not pressurize, cut, weld, braze, solder, drill, or expose empty containers to heat, sparks or open flames.

Conditions for safe storage, including any incompatibilities

1. Store in original containers in approved flame-proof area.
2. No smoking, naked lights, heat or ignition sources.
3. DO NOT store in pits, depressions, basements or areas where vapors may be trapped.
4. Keep containers securely sealed.
5. Store away from incompatible materials in a cool, dry well ventilated area.
6. Protect containers against physical damage and check regularly for leaks.
7. Keep containers tightly closed and store in a cool, dry, well-ventilated place, plainly labeled, and out of closed vehicles.
8. Ground all equipment containing this material.
9. Observe manufacturer's storing and handling recommendations.
10. Containers should be able to withstand pressures expected from warming and cooling in storage. This flammable liquid should be stored in a separate safety cabinet or room. A refrigerated room is preferable for materials with a flash point temperature lower than 70°F (21°C).

SECTION 8-EXPOSURE CONTROLS, PERSONAL PROTECTION

OSHA - Final PELs : 200 ppm TWA.
OSHA Ceiling : 300ppm.
ACGIH : 50 ppm, skin -potential forcutaneous absorption.
NIOSH : 100 ppm TWA; 375 mg/m^3 TWA; 500 ppm IDLH.
Taiwan TWA : 100 ppm (skin).
Taiwan STEL : 125 ppm (skin).
Taiwan Ceiling : -------.
Taiwan BEI : 1 mg/l (before on duty).

Engineering control

1. Process should be located at least 17 meter (50 feet) away from open flames and all high temperature operations likely to cause ignition of the styrene monomer vapor.
2. In venting styrene monomer vapors, consideration should be given to possible halogenation of the vapors by low concentrations of free chlorine and bromine with the resultant formation of lacrimations.
3. Process should be designed so that the operator is not exposed to direct contact with Toluene or the vapor. The technical problems of designing equipment, providing adequate ventilation and operating procedures which promise maximum security and economy, can best be handled by competent engineers.
4. It is essential for safety that equipment be used and maintained as recommended by the manufacturer.
5. Tanks used to store or process Toluene should be closed vessels vented to a safe point of discharge in the outside atmosphere away from operating stations, roadways, and at least 17 meter (50 feet) from possible sources of ignitions. All sparks, flames, heated surface, or other sources of ignition should be kept away from all vents. It is advisable, to provide suction on vessels when inspection or observation openings are made, to minimize or eliminate escape of vapors.

Personal protective equipment

Eye Protection:
Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. A suitable emergency eye wash water and safety shower should be located near the work station.

Skin protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Clothing:
Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discard contaminated leather goods.

Respirators:
For known vapor concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator if adequate protection is provided. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134). For airborne vapor concentrations that exceed the recommended protection factors for organic vapor respirators, use a full-face, positive-pressure, supplied air respirator. Due to fire and explosion hazards, do not enter atmospheres containing concentrations greater than 10% of the lower flammable limit of this product.

SECTION 9-PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Transparent liquid	Upper/lower explosive limits : 1.2%～7.1%
Odour : pleasant aromatic petroleum odour	Vapor Pressure : 22 mmHg @20℃/68℉
Odour threshold : 0.16～37 ppm (detect) 1.9～69 ppm (recognition)	Vapor Density : 3.1 (air=1)
PH : Not available	Relative density : 0.86 (water=1)
Melting/Freezing Point : －95 ℃	Solubility in water : 54～58 mg/100 ml
Initial boiling point/boiling range : 110.6 ℃	Partition coefficient : 2.73 (n-octanol/water)
Flash point : 4.4 ℃ (closed cup)	Auto-ignition temperature : 480℃
Evaporation Rate : 2.24 (BuAc=1)	Decomposition temperature : Not available
Flammability (solid/gas) : Not available	Viscosity : 0.6 mPa.s max @20℃
Molecular Formula : $C_6H_5CH_3$	Molecular Weight : 92.056

SECTION 10-STABILITY AND REACTIVITY

Reactivity
Vapor is explosive when exposed to heat or flame

Chemical stability
Stable at room temperature in closed containers under normal storage and handling conditions.

Possibility of hazardous reaction
Has not been reported.

Condition to avoid
Product is highly flammable – Keep away from sources of ignition. Avoid the higher temperatures. Keep away from open fire, heating elements and heat radiating surface and prevent from forming of the vapours mixtures with air in explosion limits.

Incompatible materials
Heat, flame, strong oxidizers, nitric and sulfuric acids, chlorine, nitrogen tetraoxide; will attack some forms of plastics, rubber, coatings.

Hazardous decomposition products
Carbon monoxide, carbon dioxide, hydrocarbons.

SECTION 11-TOXICOLOGICAL INFORMATION

Routes of exposure
Eye, Skin, inhalation, Ingestion.

Symptoms (treatments as indicated in Section 4)
Eye: The liquid produces a high level of eye discomfort and is capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if not promptly and adequately treated. There is evidence that material may produce eye irritation in some persons and produce eye damage 24 hours or more after instillation. Severe inflammation may be expected with pain. There may be damage to the cornea. Unless treatment is prompt and adequate there may be permanent loss of vision. Conjunctivitis can occur following repeated exposure.

Skin: Contact with the material may damage the health of the individual; systemic effects may result following absorption. The material may cause moderate inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterized by redness, swelling and blistering. Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Ingestion: Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733). Considered an unlikely route of entry in commercial/industrial environments. The liquid may produce gastrointestinal discomfort and may be harmful if swallowed. Ingestion may result in nausea, pain and vomiting. Vomit entering the lungs by aspiration may cause potentially lethal chemical pneumonitis.

Inhalation: Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual. There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination. If exposure to highly concentrated solvent atmosphere is prolonged this may lead to narcosis, unconsciousness, even coma and possible death. The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.

Chronic exposure: There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Toxicity
LD50: <870 mg/kg (rat, oral)
LC50: 6000 ppm/6h (rat, inhalation)

Chronic effect
Carcinogenicity:
ACGIH : A4-Not classifiable as a Human Carcinogen.
OSHA : Possible select carcinogen.
IARC : Group 3 carcinogen.

Epide miology: Not available.

Teratogenicity: Teratogenic effects have occurred in experimental animals.

Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.

Neurotoxicity: Not available.

Mutagenicity: Not available.

SECTION 12-ECOLOGICAL INFORMATION

Ecotoxicity
LC_{50} (96 hr.) Fish: 7.3～22.8 mg/l
EC_{50} (48 hr.) Water flea: —
Biocencentration factor (BCF): 1.67～380

Persistence and degradability
1. The material are expected to form a slick on the surface of waters after release in calm sea conditions. This is expected to evaporate and enter the atmosphere where it will be degraded through reaction with hydroxyl radicals.
2. Some of the material will become associated with benthic sediments, and it is likely to be spread over a fairly wide area of sea floor. Marine sediments may be either aerobic or anaerobic. The material, in probability, is biodegradable, under aerobic conditions. Evidence also suggests that the hydrocarbons may be degradable under anaerobic conditions although such degradation in benthic sediments may be a relatively slow process.
3. Under aerobic conditions the material will degrade to water and carbon dioxide, while under aerobic processes it will produce water, methane, carbon dioxide and carbon dioxide.
4. Based on test results, as well as theoretical considerations, the potential for bioaccumulation may be high. Toxic effects are often observed in species such as blue mussel, daphnia, freshwater green algae, marine copepods and amphipods.

Half-life (Air): 10～104 hr
Half-life (Surface water): 96～528 hr
Half-life (Ground water): 168～672 hr
Half-life (Soil): 96～528 hr

Bioaccumulative potential
This material is not expected to significantly bioaccumulate.

Mobility in soil: —

Other adverse effects: —

SECTION 13-DISPOSAL CONSIDERATIONS

Residues and spilled material are hazardous waste due to ignitability. Disposal must be in accordance with applicable federal, state, or local regulations.
The container for this product can present explosion or fire hazards, even when emptied. To avoid risk of injury, do not cut, puncture, or weld on or near this container. Since the emptied containers retain product residue, follow label warnings even after container is emptied.

SECTION 14-TRANSPORTATION INFORMATION

US DOT	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3		
	UN Number	1294		
	Packing Group	II		
Sea(IMO/IMDG)	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3.2		
	UN Number	1294		
	Packing Group	II		
	IMDG Code Page	3285		
	MARPOL	Not a DOT "Marine Pollutant" per 49 CFR 171.8.		
Air(ICAO/IATA)	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3.2		
	Subsidiary Class	1294		
	Packing Group	II		
RID/ ADR	No information available.			
Canadian TDG	Shipping Name	Toluene	Hazard Labels	
	Hazard Class	3		
	UN Number	1294		
	Packing Group	II		
	Subsidiary Class	9.2		

SECTION 15-REGULATORY INFORMATION

US FEDERAL

TSCA

CAS# 108-88-3 is listed on the TSCA inventory.

Health & Safety Reporting List

CAS# 108-88-3: Effective Date: 10/4/82; Sunset Date: 10/4/92

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 108-88-3 : final RQ = 1000 pounds (454 kg)

Section 302 (TPQ)

None of the chemicals in this material have a TPQ.

SARA Codes

CAS# 108-88-3 : acute, flammable.

Section 313

This material contains Toluene (CAS# 108-88-3, 99% & 100%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

Clean Air Act

CAS# 108-88-3 is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act

CAS# 108-88-3 is listed as a Hazardous Substance under the CWA.
CAS# 108-88-3 is listed as a Priority Pollutant under the Clean Water Act.
CAS# 108-88-3 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Toluene can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

WARNING: This product contains Toluene, a chemical known to the state of California to cause birth defects or other reproductive harm.

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN F
Risk Phrases : R 10 Flammable.
R 20 Harmful by inhalation.
Safety Phrases : S 9 Keep container in a well-ventilated place.
S 16 Keep away from sources of ignition - No smoking.
S 25 Avoid contact with eyes.
S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 108-88-3: 2

United Kingdom Occupational Exposure Limits

CAS# 108-88-3: OES-United Kingdom, TWA 50 ppm TWA; 191 mg/m3 TWA.
CAS# 108-88-3: OES-United Kingdom, STEL 150 ppm STEL; 574 mg/m3 STEL.

CANADA

CAS#100-42-5 is listed on Canada's DSL/NDSL list.
This product has a WHMIS classification of B2, D2A (99%)/B3, D2A (100%).
CAS# 105-05-5 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

- CAS# 108-88-3: OEL-AUSTRALIA:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
- OEL-BELGIUM:TWA 100 ppm (377 mg/m3);STEL 150 ppm (565 mg/m3)
- OEL-CZECHOSLOVAKIA:TWA 200 mg/m3;STEL 1000 mg/m3
- OEL-DENMARK:TWA 50 ppm (190 mg/m3);Skin
- OEL-FINLAND:TWA 100 ppm (375 mg/m3);STEL 150 ppm; Skin
- OEL-FRANCE:TWA 100 ppm (375 mg/m3);STEL 150 ppm (560 mg/m3)
- OEL-GERMANY:TWA 100 ppm (380 mg/m3)
- OEL-HUNGARY:TWA 100 mg/m3;STEL 300 mg/m3;Skin
- OEL-JAPAN:TWA 100 ppm (380 mg/m3)
- OEL-THE NETHERLANDS:TWA 100 ppm (375 mg/m3);Skin
- OEL-THE PHILIPPINES:TWA 100 ppm (375 mg/m3)
- OEL-POLAND:TWA 100 mg/m3
- OEL-RUSSIA:TWA 100 ppm; STEL 50 mg/m3
- OEL-SWEDEN:TWA 50 ppm (200 mg/m3);STEL 100 ppm (400 mg/m3);Skin
- OEL-SWITZERLAND:TWA 100 ppm (380 mg/m3);STEL 500 ppm
- OEL-THAILAND:TWA 200 ppm; STEL 300 ppm
- OEL-TURKEY:TWA 200 ppm (750 mg/m3)
- OEL-UNITED KINGDOM:TWA 100 ppm (375 mg/m3);STEL 150 ppm; Skin OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

SECTION 16-OTHER INFORMATION

References and sources

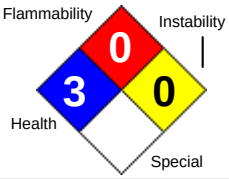
1. CHEMINFO Data Bank, CCINFO CD, 2005-3
2. HAZARD TEXT Data Bank, TOMES PLUS CD, Vol.65, 2005
3. RETECS Data Bank, TOMES CPS CD, Vol.65, 2005
4. HSDB Data Bank, TOMES CPS CD, Vol.65, 2005
5. Hazardous Substance Data Bank, Environment Protection, Administration, Executive Yuan, ROC (Taiwan)
6. Chemwatch Data Bank, 2005-1
7. SDS, GHS in Taiwan, Council of Labor Affairs, Executive Yuan, ROC (Taiwan)

Version	Date	Remark
Version 1	06/01/1998	Original Version.
Version 2	04/20/2001	Updated 10 sections to 16 sections.
Version 3	08/01/2003	Updated “SECTION 9-PHYSICAL AND CHEMICAL PROPERTIES”.
Version 4	01/01/2006	Updated “SECTION 14-TRANSPORTATION INFORMATION”.
Version 5	08/05/2008	Updated each section by GHS SDS.
Prepared by	Safety & Environment Protection Section, Taiwan SM Corporation Kaohsiung Plant.	

MATERIAL SAFETY DATA SHEET
SIFCO Process Trivalent Chromium Conversion



HEALTH	*	3
FLAMMABILITY		0
PHYSICAL HAZ.		0
PPE		X



Printed: 12/03/2010
Revision: 12/03/2010
Supercedes Revision: 11/02/2010
Date Created: 07/13/2009

1. Product and Company Identification

Product Code: 3007
Product Name: SIFCO Process Trivalent Chromium Conversion
Manufacturer Information
Company Name: SIFCO Applied Surface Concepts
Division of SIFCO Industries, Inc.
5708 E. Schaaf Road
Independence, OH 44131
Phone Number: (216)524-0099
Fax Number: (216)524-6331
Emergency Contact: CHEMTREC (United States) (800)424-9300
Information: CHEMTREC (International-Collect) +1 (703)527-3887
Web site address: http://www.SIFCOASC.com
Email address: info@sifcoasc.com

2. Hazards Identification

Emergency Overview

Blue liquid with no characteristic odor.
Caution! May cause eye and skin burns. May be harmful if swallowed.
Contains materials that can cause target organ damage. Contains materials which can cause cancer. Emergency Response Guide #171

Route(s) of Entry: Inhalation? Yes Skin? Yes Eyes? Yes Ingestion? Yes

Health Hazards (Acute and Chronic)

INHALATION: May give off gas, vapor or dust that is irritating to the respiratory system. Exposure to decomposition products may cause a health hazard.
INGESTION: Harmful if swallowed. May cause burns to mouth, throat and stomach.
EYE: May be corrosive to eyes. May cause burns.
SKIN CONTACT: May be corrosive to the skin. May cause burns.
CHRONIC EFFECTS: Contains material that may cause target organ damage.

Signs and Symptoms Of Exposure

Dependant on route(s) of entry. See section above for details.

3. Composition/Information on Ingredients

Hazardous Components (Chemical Name)	CAS #	Concentration	Formula	RTECS #
1. Sodium nitrate	7631-99-4	1.0 -3.0 %	NaNO3	WC5600000
2. Chromium hydroxide sulphate (Cr(OH)(SO4))	12336-95-7	1.0 -3.0 %	CrHO5S	GB6240000
3. Cobalt sulfate heptahydrate	10026-24-1	0.3 -1.0 %	CoSO4.7H2O	GG3200000
4. Ammonium bifluoride	1341-49-7	0.3 -1.0 %	F2H5N	BQ9200000
5. Water	7732-18-5	92.0 -97.4 %	H2O	ZC0110000

4. First Aid Measures

Emergency and First Aid Procedures

First aid providers must take proper precautions for their own safety before entering contaminated areas to assist chemical accident victims and handling their contaminated clothing and equipment. Another person should immediately call the Emergency Medical Service, 911-Operator, Hospital, Physician, Ophthalmologist or Poison Control Center, as applicable. Give the following information: Location of the accident, your phone number, description of the accident, name of chemical agent and product, number and condition of casualties, what is

being done for the victims.

Stay on the phone until the other party hangs up! Remove victim from contaminated area to a clean, quiet, ventilated area. Keep them calm and warm.
EYES: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes.
SKIN: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Thoroughly decontaminate (or discard) clothing and shoes.
INHALATION: Remove to fresh air. Lay victim down, legs raised. Loosen tight clothing, cover with a blanket. If not breathing, give artificial respiration.
INGESTION: DO NOT induce vomiting, unless advised by EMS. Give large quantities of water. Never give anything by mouth to an unconscious person.

5. Fire Fighting Measures

Flammability Classification: Material will not burn

Flash Pt:

Explosive Limits: LEL: UEL:

Special Fire Fighting Procedures

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Unusual Fire and Explosion Hazards

Suitable Extinguishing Media

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable Extinguishing Media

None known.

6. Accidental Release Measures

Steps To Be Taken In Case Material Is Released Or Spilled

Do not touch or walk through spilled material. Isolate hazard area and keep people away. Notify your facility emergency coordinator. Eliminate all sources of ignition. Provide maximum ventilation. Do not release into soil, sewers, or natural bodies of water. Wear proper personal protective equipment (PPE). Carefully mop up or vacuum spill and triple rinse with water into suitable plastic container. Release of a reportable quantity (RQ) requires notification of proper authorities. Dispose of according to local, state, and federal regulations.

7. Handling and Storage

Precautions To Be Taken in Handling

Put on appropriate personal protective equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.

Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Precautions To Be Taken in Storing

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8. Exposure Controls/Personal Protection

Hazardous Components (Chemical Name)	CAS #	OSHA PEL	ACGIH TLV	Other Limits
1. Sodium nitrate	7631-99-4		10 mg/m3	
2. Chromium hydroxide sulphate (Cr(OH)(SO4))	12336-95-7			
3. Cobalt sulfate heptahydrate	10026-24-1			
4. Ammonium bifluoride	1341-49-7			
5. Water	7732-18-5			

Respiratory Equipment (Specify Type)

If engineering controls are not feasible, the respiratory protection program must comply with OSHA 29 CFR 1910.134

Eye Protection

Face shield and safety glasses w/side shields or splash-proof chemical goggles. Do not wear contact lenses. Eye wash station, safety shower, washing facilities near work area.

Protective Gloves

Nitrile gloves.

Ventilation

If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Work/Hygienic/Maintenance Practices

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical and Chemical Properties

Physical States: [ ] Gas [X] Liquid [ ] Solid

Explosive Limits: LEL: UEL:

Specific Gravity (Water = 1): 1.045 - 1.050

Density: 1.03 - 1.07

pH: 2.0 - 2.5

Appearance and Odor

Blue liquid with no characteristic odor.

10. Stability and Reactivity

Stability: Unstable [ ] Stable [X]

Conditions To Avoid - Instability

Incompatibility - Materials To Avoid

Hazardous Decomposition Or Byproducts

Possibility of Hazardous Reactions: Will occur [ ] Will not occur [X]

Conditions To Avoid - Hazardous Reactions

Avoid exposure - obtain special instructions before use.

11. Toxicological Information

Inhalation : May give off gas, vapor or dust that is irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard.

Ingestion : Harmful if swallowed. May cause burns to mouth, throat and stomach.

Skin : May be corrosive to the skin. May cause burns.

Eyes : May be corrosive to eyes. May cause burns.

Carcinogenicity/Other Information

Hazardous Components (Chemical Name)	CAS #	NTP	IARC	ACGIH	OSHA
1. Sodium nitrate	7631-99-4				
2. Chromium hydroxide sulphate (Cr(OH)(SO4))	12336-95-7				
3. Cobalt sulfate heptahydrate	10026-24-1		2B	A3	
4. Ammonium bifluoride	1341-49-7				
5. Water	7732-18-5				

Carcinogenicity: NTP? Unknown IARC Monographs? Unknown OSHA Regulated? Unknown

12. Ecological Information

No known significant effects or critical hazards.

13. Disposal Considerations

Waste Disposal Method

Ship to approved treatment/disposal facility. Dispose of according to local, state, and federal regulations. Follow the applicable regulations for disposal of empty containers and rinsate. The disposal information applies to the material as manufactured. Contamination may affect the disposal requirements. The responsibility for proper waste disposal is with the generator of the waste.

14. Transport Information

LAND TRANSPORT (US DOT)

DOT Proper Shipping Name UN3082, Environmentally hazardous substances, liquid, n.o.s. (Chromium Sulphate) PG III - ERG 171
DOT Hazard Class: 9
DOT Hazard Label: CLASS 9
UN/NA Number: UN3082
Packing Group: III

LAND TRANSPORT (Canadian TDG)

UN Number: 3082
Packing Group: III

LAND TRANSPORT (European ADR/RID)

UN Number: 3082
Packing Group: III

AIR TRANSPORT (ICAO/IATA)

UN Number: 3082
Packing Group: III
IATA Classification: 9

MARINE TRANSPORT (IMDG/IMO)

UN Number: 3082
Packing Group: III
Marine Pollutant: No

15. Regulatory Information

US EPA SARA Title III

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
1. Sodium nitrate	7631-99-4	No	No	Yes-Cat. N511	No
2. Chromium hydroxide sulphate (Cr(OH)(SO4))	12336-95-7	No	No	Yes-Cat. N090	No
3. Cobalt sulfate heptahydrate	10026-24-1	No	No	No	No
4. Ammonium bifluoride	1341-49-7	No	Yes 100 LB	No	No

Hazardous Components (Chemical Name)	CAS #	Sec.302 (EHS)	Sec.304 RQ	Sec.313 (TRI)	Sec.110
5. Water	7732-18-5	No	No	No	No

US EPA CAA, CWA, TSCA

Hazardous Components (Chemical Name)	CAS #	EPA CAA	EPA CWA NPDES	EPA TSCA	CA PROP 65
1. Sodium nitrate	7631-99-4	HAP, ODC ()	No	Inventory, 8A CAIR	No
2. Chromium hydroxide sulphate (Cr(OH)(SO4))	12336-95-7	HAP, ODC ()	No	Inventory	No
3. Cobalt sulfate heptahydrate	10026-24-1	HAP, ODC ()	No	No	Yes
4. Ammonium bifluoride	1341-49-7	HAP, ODC ()	No	Inventory	No
5. Water	7732-18-5	HAP, ODC ()	No	Inventory	No

SARA (Superfund Amendments and Reauthorization Act of 1986) Lists:

Sec.302: EPA SARA Title III Section 302 Extremely Hazardous Chemical with TPQ. * indicates 10000 LB TPQ if not volatile.

Sec.304: EPA SARA Title III Section 304: CERCLA Reportable + Sec.302 with Reportable Quantity. ** indicates statutory RQ.

Sec.313: EPA SARA Title III Section 313 Toxic Release Inventory. Note: -Cat indicates a member of a chemical category.

Sec.110: EPA SARA 110 Superfund Site Priority Contaminant List

TSCA (Toxic Substances Control Act) Lists:

Inventory: Chemical Listed in the TSCA Inventory.

5A(2): Chemical Subject to Significant New Rules (SNURS)

6A: Commercial Chemical Control Rules

8A: Toxic Substances Subject To Information Rules on Production

8A CAIR: Comprehensive Assessment Information Rules - (CAIR)

8A PAIR: Preliminary Assessment Information Rules - (PAIR)

8C: Records of Allegations of Significant Adverse Reactions

8D: Health and Safety Data Reporting Rules

8D TERM: Health and Safety Data Reporting Rule Terminations

12(b): Notice of Export

Other Important Lists:

CWA NPDES: EPA Clean Water Act NPDES Permit Chemical

CAA HAP: EPA Clean Air Act Hazardous Air Pollutant

CAA ODC: EPA Clean Air Act Ozone Depleting Chemical (1=CFC, 2=HCFC)

CA PROP 65: California Proposition 65

International Regulatory Lists:

EPA Hazard Categories:

This material meets the EPA 'Hazard Categories' defined for SARA Title III Sections 311/312 as indicated:

[X] Yes [ ] No Acute (immediate) Health Hazard
[X] Yes [ ] No Chronic (delayed) Health Hazard
[ ] Yes [X] No Fire Hazard
[ ] Yes [X] No Sudden Release of Pressure Hazard
[ ] Yes [X] No Reactive Hazard

Regulatory Information

U.S. FEDERAL REGULATIONS:

1. Supplier Notification about toxic Chemicals.

SIFCO Applied Surface Concepts is required to inform you, that this product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372, if specified annual thresholds are met or exceeded.

Toxic Chemical	CAS #	Wt.% (Maximum)
Chromium Sulphate	12336-95-7	3%

Your other suppliers of trade name products or mixtures containing section 313 chemicals must also notify you. If you repackage or otherwise redistribute this product to industrial customers you are required to furnish similar notification to them.

2. CERCLA and EPCRA:
Threshold Planning Quantity: N/A
(Release) Reportable Quantity: N/A
Extremely Hazardous Substance: None

3. EPCRA Hazard Categories:
Immediate (Acute) Health: Yes
Delayed (Chronic) Health: Yes
Fire: No
Sudden release of Pressure: No
Reactivity: No

4. TSCA Statement.
All ingredients of this product are listed under the Toxic Substances Control Act (TSCA).

5. ODS Certification.
This product does not contain and is not manufactured with Ozone Depleting Substances (ODS).

6. VOC Certification.
This product does not contain any Volatile Organic Compounds (VOC).

7. PCB Certification.
This product does not contain any polychlorinated biphenyls (PCB).

STATE REGULATIONS:
California Prop. 65:
WARNING! This product contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.

INTERNATIONAL REGULATIONS:
WHMIS Classification.
Class D-2B

16. Other Information

Company Policy or Disclaimer

DISCLAIMER:
This information is believed to be accurate and represents the best information currently available to us. However, we make no warrenty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

SAFETY DATA SHEET

Version 5.8
Revision Date 03/13/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Vanadium(V) oxide

Product Number : 204854
Brand : Aldrich
Index-No. : 023-001-00-8

CAS-No. : 1314-62-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Serious eye damage (Category 1), H318
Germ cell mutagenicity (Category 2), H341
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 + H332 Harmful if swallowed or if inhaled
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H341 Suspected of causing genetic defects.
H361 Suspected of damaging fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure.

H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	O_5V_2
Molecular weight	:	181.88 g/mol
CAS-No.	:	1314-62-1
EC-No.	:	215-239-8
Index-No.	:	023-001-00-8

Hazardous components

Component	Classification	Concentration
Vanadium pentoxide		
	Acute Tox. 4; Eye Dam. 1; Muta. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 2; Aquatic Chronic 2; H302 + H332, H318, H335, H341, H361, H372, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Vanadium/vanadium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Vanadium pentoxide	1314-62-1	C	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		C	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	Ceiling limit is to be determined from breathing-zone air samples.		
		TWA	0.050000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Lower Respiratory Tract irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		TWA	0.05 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Lower Respiratory Tract irritation Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.100000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	0.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Ceiling limit is to be determined from breathing-zone air samples.		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		
		C	0.050000 mg/m3	USA. NIOSH Recommended Exposure Limits
		15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Vanadium pentoxide	1314-62-1	Vanadium	0.0500 mg/g	In urine	
	Remarks	End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 690 °C (1,274 °F) - lit.
f)	Initial boiling point and boiling range	No data available
g)	Flash point	Not applicable

h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	3.35 g/mL at 25 °C (77 °F)
n)	Water solubility	904 g/l at 20 °C (68 °F) - OECD Test Guideline 105
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Solubility in other solvents	Ethanol - insoluble

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
Harmful if swallowed. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

LC50 Inhalation - Rat - female - 4 h - 2.21 mg/l
(OECD Test Guideline 403)

LC50 Dermal - Rat - > 2,500 mg/kg
(OECD Test Guideline 402)

No data available

Skin corrosion/irritation
Skin - in vitro assay
Result: No skin irritation

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vitro tests showed mutagenic effects

Carcinogenicity

No data available

IARC:	2B - Group 2B: Possibly carcinogenic to humans (Vanadium pentoxide)
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Possible risk of congenital malformation in the fetus.
Suspected human reproductive toxicant

No data available

Specific target organ toxicity - single exposure
May cause respiratory irritation.
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 5.2 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	LC50 - Daphnia magna (Water flea) - 1.52 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
Toxic to aquatic life with long lasting effects.
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2862 Class: 6.1 Packing group: III
Proper shipping name: Vanadium pentoxide
Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 2862 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: VANADIUM PENTOXIDE
Marine pollutant:yes

IATA
UN number: 2862 Class: 6.1 Packing group: III
Proper shipping name: Vanadium pentoxide

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

SARA 313 Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Vanadium pentoxide	1314-62-1	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H318	Causes serious eye damage.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H341	Suspected of causing genetic defects.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.
H401	Toxic to aquatic life.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.8 Revision Date: 03/13/2015 Print Date: 01/29/2016

SAFETY DATA SHEET
Xylene

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Date issued 11.11.2013

1.1. Product identifier

Product name	Xylene
Chemical name	Xylene
Synonyms	Xylol, dimethyl benzene, xylenol
REACH Reg No.	01-2119488216-32-0000
CAS no.	1330-20-7
EC no.	215-535-7
Index no.	601-022-00-9
Article no.	13000000

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/preparation For the preparation of paints and as a solvent. General purpose cleaner.

1.3. Details of the supplier of the safety data sheet

Manufacturer

Company name	Fred Holmberg & Co AB
Office address	Geijersgatan 8
Postal address	Box 60056
Postcode	S-216 10
City	Limhamn
Country	Sweden
Tel	+46 (0)40 15 79 20
Fax	+46 (0)40 16 22 95
E-mail	info@holmberg.se
Website	http://www.holmberg.se/en/

1.4. Emergency telephone number

Emergency telephone 112 (Europe)

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to 67/548/EEC or 1999/45/EC	Xi; R38 Xn; R20/21 R10
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Flam. Liq. 3; H226; Acute tox. 4; H312; Skin Irrit. 2; H315; Acute tox. 4; H332;

2.2. Label elements

Hazard Pictograms (CLP)



Signal word	Danger
Hazard statements	H226 Flammable liquid and vapour. H312 Harmful in contact with skin. H315 Causes skin irritation. H332 Harmful if inhaled.
Precautionary statements	P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking. P233 Keep container tightly closed. P243 Take precautionary measures against static discharge. P280 Wear protective gloves/protective clothing/eye protection/face protection. P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. P331 Do NOT induce vomiting. P403 + P235 Store in a well-ventilated place. Keep cool.

2.3. Other hazards

Other hazards	Not known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Xylene	CAS no.: 1330-20-7 EC no.: 215-535-7 Index no.: 601-022-00-9	R10 Xn; R20/21 Xi; R38 Flam. Liq. 3; H226 Acute tox. 4; H332 Acute tox. 4; H312 Skin Irrit. 2; H315 Note : C	75 - 90 %
Ethylbenzene	CAS no.: 100-41-4 EC no.: 202-849-4 Index no.: 601-023-00-4 Synonyms: Ethylbenzene	F; R11 Xn; R20 Flam. Liq. 2; H225 Acute tox. 4; H332	10 - 25 %

Column headings	CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremly flammable, F = Very flammable, N = Environmental hazard

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.
Skin contact	Remove contaminated clothes and rinse skin thoroughly with water.
Eye contact	Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. Get medical attention if any discomfort continues.
Ingestion	NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do not induce vomiting. Rinse mouth with water. Get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Information for health personnel	Treat Symptomatically. Do not give victim anything to drink if he is

unconscious.

4.3. Indication of any immediate medical attention and special treatment needed

Specific details on antidotes	No recommendation given.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	Solvent vapours may form explosive mixtures with air.
Hazardous combustion products	Fire creates: Carbon monoxide (CO). Carbon dioxide (CO2).

5.3. Advice for firefighters

Fire fighting procedures	No specific fire fighting procedure given.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Ventilate well. Stop leak if possible without risk. Avoid contact with skin and eyes. Do not breathe vapour.

6.2. Environmental precautions

Environmental precautionary measures	Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Cleaning method	Dam and absorb spillages with sand, earth or other non-combustible material.

6.4. Reference to other sections

Other instructions	No recommendation given.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Mechanical ventilation may be required.

Protective Safety Measures

Advice on general occupational hygiene	Provide easy access to water supply and eye wash facilities.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Keep away from heat, sparks and open flame. Ground container and transfer equipment to eliminate static electric sparks. Store in a cool and well-ventilated place.

7.3. Specific end use(s)

Specific use(s)	Not entered.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL / PNEC

Method of testing	Contents
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: Etylbenzen Value: 289 mg/kg/dag

DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 77 mg/kg/dag
DNEL	Group: Industrial Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 180 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 14,8 mg/kg/dag
DNEL	Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 108 mg/kg/dag
DNEL	Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Critical Component: Etylbenzen Type of effect: Systemic effect Value: 1,6 mg/kg/dag
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: xylen Value: 442 mg/kg/dag
DNEL	Group: Industrial Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 221 mg/kg/dag
DNEL	Group: Industrial Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 3182 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Short term (acute) Critical Component: xylen Value: 260 mg/kg/dag
DNEL	Group: Consumer Exposure route: Inhalation Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect

	Value: 65,3 mg/kg/dag
DNEL	Group: Consumer Exposure route: Dermal Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 1872 mg/kg/dag
DNEL	Group: Consumer Exposure route: Oral Exposure frequency: Long term (repeated) Critical Component: xylen Type of effect: Systemic effect Value: 12,5 mg/kg/dag
Exposure guidelines	Country of origin: Sverige Limit value type: NGV 200 mg/m3 OEL Short Term Value: 450 mg/m3 Source: Nationella hygieniska gränsvärden, AFS 2005:17
Other Information	Ovanstående NGV resp. KTV gäller både xylen och etylbenzen

8.2. Exposure controls

Occupational exposure limits: Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours. Protective gloves and goggles are recommended. Provide eyewash, quick drench.

Safety signs



Respiratory protection

Respiratory protection: Respiratory protection must be used if air contamination exceeds acceptable level. Use respiratory equipment with gas filter, type A2.

Hand protection

Hand protection: Use protective gloves. Chemical resistant gloves required for prolonged or repeated contact. Gloves of nitrile rubber, PVA or Viton are recommended.

Eye / face protection

Eye protection: Use safety goggles or face shield in case of splash risk.

Skin protection

Skin protection (except hands): Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene / Environmental

Specific hygiene measures: Wash hands after contact.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Fluid.
Colour	Colourless.
Odour	Aromatic.
Comments, pH (as supplied)	Not relevant.
Melting point/melting range	Value: < -48 °C
Boiling point / boiling range	Value: 136-145 °C
Flash point	Value: 27 °C
Evaporation rate	Value: 13,5
Explosion limit	Value: 1-7,1 %
Vapour pressure	Value: 1 kPa Test temperature: 20 °C

Vapour density	Value: 3,7
Specific gravity	Value: 0,870 kg/m3 Test temperature: 20 °C
Solubility description	Soluble in: Organic solvents. Not soluble in water.
Partition coefficient: n-octanol/water	Value: 3,15
Spontaneous combustability	Value: > 432-530 °C
Viscosity	Value: < 0,90 mPas Method of testing: Kinematisk Test temperature: 25 °C

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity: Heating may cause a fire.

10.2. Chemical stability

Stability: Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions: Not known.

10.4. Conditions to avoid

Conditions to avoid: Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

Materials to avoid: Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates). Strong acids.

10.6. Hazardous decomposition products

Hazardous decomposition products: Fire creates: Carbon monoxide (CO). Carbon dioxide (CO_2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information:

Other toxicological data: Acute Toxicity (Oral LD50): mg/kg (oral rat) > 2000
Acute Toxicity (Inhalation LC50): mg/l (vapours) (4h) > 20
Acute Toxicity (Dermal LD50): mg/kg Rabbit > 2000

Toxicological data for substances

Potential acute effects

Inhalation	In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.)
Skin contact	Prolonged or frequent contact may cause redness, itching, eczema and skin cracking. Defats the skin.
Eye contact	May irritate and cause redness and pain.
Ingestion	Ingestion of large amounts may cause unconsciousness. However, ingestion may cause nausea, headache, dizziness and intoxication. Ingestion may cause irritation of the gastrointestinal tract, vomiting and diarrhoea. May cause irritation to the mouth and throat.

Delayed effects / repeated exposure

Sensitisation	Not known.
Chronic effects	None known.

Carcinogenic, Mutagenic or Reprotoxic

Carcinogenicity	None.
Mutagenicity	Not known.
Teratogenic properties	Suspected of damaging the unborn child

Reproductive toxicity	Not known.

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic, fish	Value: 2 mg/l Method of testing: LC50 Fish, species: Roccus saxatilis Duration: 96h
Acute aquatic, algae	Value: > 3,2 mg/l Method of testing: IC50 Algae, species: Selenastrum Capricornum Duration: 72h
Acute aquatic, Daphnia	Value: 8,5 mg/l Method of testing: EC50 Daphnia, species: Daphnia magna Duration: 48h

12.2. Persistence and degradability

Persistence and degradability description	Lättnedbrytbar av biologiska organismer.
Chemical oxygen demand (COD)	Value: 5 Method of testing: COD
Biological oxygen demand (BOD)	Value: 0,55 Method of testing: BOD

12.3. Bioaccumulative potential

Bioaccumulative potential	Will not bio-accumulate.
Bioconcentration factor (BCF)	Value: 22 Method of testing: BCF

12.4. Mobility in soil

Mobility	The product is insoluble in water and will spread on the water surface.

12.5. Results of PBT and vPvB assessment

PBT assessment results	This substance is not classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects / Remarks	None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Confirm disposal procedures with environmental engineer and local regulations. Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid components can be disposed of by incineration.
Product classified as hazardous waste	Yes
Packaging classified as hazardous waste	Yes

SECTION 14: Transport information

14.1. UN number

ADR	1307
RID	1307
IMDG	1307
ICAO/IATA	1307

14.2. UN proper shipping name

ADR	XYLENES

RID	XYLENES
IMDG	XYLENES
ICAO/IATA	XYLENES

14.3. Transport hazard class(es)

ADR	3
Hazard no.	30
RID	3
ADN	33
IMDG	3
ICAO/IATA	3

14.4. Packing group

ADR	III
RID	III
IMDG	III
ICAO/IATA	III

14.5. Environmental hazards

Comment	Not relevant.

14.6. Special precautions for user

EmS	F-E, S-D

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

EC no.	215-535-7

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Other Label Information	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 with amendments.
Legislation and regulations	Dangerous Substance Directive 67/548/EEC. The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (S.I 2009 No. 716). The List of Wastes (England) (Amendment) Regulations 2005. (SI 2005 No. 895). Avfallsförordningen (2011:927).

15.2. Chemical safety assessment

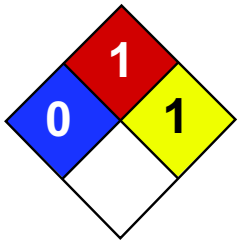
SECTION 16: Other information

Hazard symbol



R-phrases	R10 Flammable. R38 Irritating to skin. R20/22 Harmful by inhalation and if swallowed. R38 Irritating to skin.
S-phrases	S7 Keep container tightly closed. S16 Keep away from sources of ignition - No smoking.
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS]	Flam. Liq. 3; H226; Acute tox. 4; H312; Skin Irrit. 2; H315;

	Acute tox. 4; H332;
List of relevant R-phrases (under headings 2 and 3).	R38 Irritating to skin. R11 Highly flammable. R10 Flammable. R20/21 Harmful by inhalation and in contact with skin. R20 Harmful by inhalation.
List of relevant H-phrases (Section 2 and 3).	H332 Harmful if inhaled. H312 Harmful in contact with skin. H225 Highly flammable liquid and vapour. H226 Flammable liquid and vapour. H315 Causes skin irritation.
Responsible for safety data sheet	Fred Holmberg & Co AB





Material Safety Data Sheet
Zinc Metal MSDS

Section 1: Chemical Product and Company Identification

Product Name: Zinc Metal

Catalog Codes: SLZ1054, SLZ1159, SLZ1267, SLZ1099, SLZ1204

CAS#: 7440-66-6

RTECS: ZG8600000

TSCA: TSCA 8(b) inventory: Zinc Metal

CI#: Not applicable.

Synonym: Zinc Metal Sheets; Zinc Metal Shot; Zinc Metal Strips

Chemical Name: Zinc Metal

Chemical Formula: Zn

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Zinc Metal	7440-66-6	100

Toxicological Data on Ingredients: Zinc Metal LD50: Not available. LC50: Not available.

Section 3: Hazards Identification

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops.

Serious Skin Contact: Not available.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: Not available.

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of open flames and sparks, of heat, of oxidizing materials, of acids, of alkalis, of moisture. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards:
Zinc + NaOH causes ignition. Oxidation of zinc by potassium proceeds with incandescence. Residues from zinc dust /acetic acid reduction operations may ignite after long delay if discarded into waste bins with paper. Incandescent reaction when Zinc and Arsenic or Tellurium, or Selenium are combined. When hydrazine mononitrate is heated in contact with zinc, a flamming decomposition occurs at temperatures a little above its melting point. Contact with acids and alkali hydroxides (sodium hydroxide, postasium hydroxide, calcium hydroxide, etc.) results in evolution of hydrogen with sufficient heat of reaction to ignite the hydrogen gas. Zinc foil ignites if traces of moisture are present. It is water reactive and produces flammable gases on contact with water. It may ignite on contact with water or moist air.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Flammable solid that, in contact with water, emits flammable gases. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Cover with dry earth, sand or other non-combustible material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not breathe dust. Keep away from incompatibles such as oxidizing agents, acids, alkalis, moisture.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Keep from any possible contact with water. Do not allow water to get into container because of violent reaction.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Lustrous solid. Metal solid.)

Odor: Not available.

Taste: Not available.

Molecular Weight: 65.39 g/mole

Color: Bluish-grey

pH (1% soln/water): Not applicable.

Boiling Point: 907°C (1664.6°F)

Melting Point: 419°C (786.2°F)

Critical Temperature: Not available.

Specific Gravity: Not available.

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility: Insoluble in cold water, hot water, methanol, diethyl ether, n-octanol, acetone.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Excess heat, incompatible materials, moisture

Incompatibility with various substances:
Reactive with oxidizing agents, acids, alkalis. Slightly reactive to reactive with moisture. The product may react violently with water to emit flammable but non toxic gases.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Incompatible with acids, halogenated hydrocarbons, NH4NO3, barium oxide, Ba(NO3)2, Cadmium, CS2, chlorates, Cl2, CrO3, F2, Hydroxylamine, Pb(N3)2, MnCl2, HNO3, performic acid, KClO3, KNO3, N2O2, Selenium, NaClO3, Na2O2, Sulfur, Te, water, (NH4)2S, As2O3, CS2, CaCl2, chlorinated rubber, catalytic metals, halocarbons, o-nitroanisole, nitrobenzene, nonmetals, oxidants, paint primer base, pentacarbonoyliron, transition metal halides, seleninyl bromide, HCl, H2SO4, (Mg +Ba(NO3)2 +BaO2), (ethyl acetoacetate +tribromoneopentyl alcohol. Contact with Alkali Hydroxides(Sodium Hydroxide, Potassium Hydroxide, Calcium Hydroxide, etc) results in evolution of hydrogen. Ammonium nitrate + zinc + water causes a violent reaction with evolution of steam and zinc oxide. May react with water.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals:
LD50: Not available. LC50: Not available.

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. Dermal exposure to zinc may produce leg pains, fatigue, anorexia and weight loss. Eyes: May cause eye irritation. Ingestion: May be harmul if swallowed. May cause digestive tract irritation with tightness in throat, nausea, vomiting, diarrhea, loss of appetite, malaise, abdominal pain. fever, and chills. May affect behavior/central nervous system and autonomic nervous system with ataxia, lethargy, staggering gait, mild derrangement in cerebellar function, lightheadness, dizzness, irritability, muscular stiffness, and pain. May also affect blood. Inhalation: Inhalation of zinc dust or fumes may cause respiratory tract and mucous membrane irritation with cough and chest pain. It can also cause "metal fume fever", a flu-like condition characterized appearance of chills, headached fever, maliase, fatigue, sweating, extreme thirst, aches in the legs and chest, and difficulty in breathing. A sweet taste may also be be present in metal fume fever, as well as a dry throat, aches, nausea, and vomiting, and pale grey cyanosis. The toxicological properties of this substance have not been fully investisgated.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: Not available.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York release reporting list: Zinc Metal Rhode Island RTK hazardous substances: Zinc Metal Pennsylvania RTK: Zinc Metal Florida: Zinc Metal Michigan critical material: Zinc Metal Massachusetts RTK: Zinc Metal New Jersey: Zinc Metal California Director's List of Hazardous Substances: Zinc Metal TSCA 8(b) inventory: Zinc Metal TSCA 12(b) one time export: Zinc Metal SARA 313 toxic chemical notification and release reporting: Zinc Metal CERCLA: Hazardous substances.: Zinc Metal: 1000 lbs. (453.6 kg)

Other Regulations: EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): Not Available

DSCL (EEC):
R15- Contact with water liberates extremely flammable gases. R17- Spontaneously flammable in air. S7/8- Keep container tightly closed and dry.

HMIS (U.S.A.):

Health Hazard: 1

Fire Hazard: 1

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 1

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

Section 16: Other Information

References: Not available.

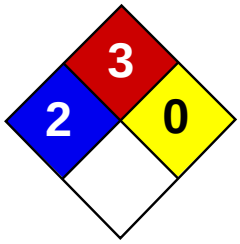
Other Special Considerations: Not available.

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Material Safety Data Sheet
2-Hexanone MSDS

Section 1: Chemical Product and Company Identification

Product Name: 2-Hexanone

Catalog Codes: SLH2950

CAS#: 591-78-6

RTECS: MP1400000

TSCA: TSCA 8(b) inventory: 2-Hexanone

CI#: Not available.

Synonym: Methyl butyl ketone

Chemical Formula: C6H12O

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
{2-}Hexanone	591-78-6	100

Toxicological Data on Ingredients: 2-Hexanone: ORAL (LD50): Acute: 2590 mg/kg [Rat]. 2430 mg/kg [Mouse]. DERMAL (LD50): Acute: 4860 mg/kg [Rabbit]. VAPOR (LC50): Acute: 8000 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of eye contact (irritant), of inhalation (lung irritant). Hazardous in case of skin contact (irritant), of ingestion, . Slightly hazardous in case of skin contact (permeator). Inflammation of the eye is characterized by redness, watering, and itching.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. Repeated or prolonged exposure is not known to aggravate medical condition.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 533°C (991.4°F)

Flash Points: CLOSED CUP: 23°C (73.4°F). OPEN CUP: 28°C (82.4°F) (TAG).

Flammable Limits: LOWER: 1.2% UPPER: 8%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Flammable in presence of open flames and sparks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 CEIL: 40 (ppm) TWA: 100 CEIL: 165 (mg/m3) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 100.16 g/mole

Color: Colorless to light yellow.

pH (1% soln/water): Not available.

Boiling Point: 127.5°C (261.5°F)

Melting Point: -56.9°C (-70.4°F)

Critical Temperature: Not available.

Specific Gravity: 0.8113 (Water = 1)

Vapor Pressure: 12 mm of Hg (@ 20°C)

Vapor Density: 3.45 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.18 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, acetone.

Solubility:

Easily soluble in acetone. Partially soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2430 mg/kg [Mouse]. Acute dermal toxicity (LD50): 4860 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 8000 ppm 4 hour(s) [Rat].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans:
Very hazardous in case of inhalation (lung irritant). Hazardous in case of skin contact (irritant), of ingestion, . Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in animal. Testicular damage in animal.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: Class 3: Flammable liquid.

Identification: : Ketone Liquid, n.o.s.(2-Hexanone) : UN1224 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: 2-Hexanone Pennsylvania RTK: 2-Hexanone Florida: 2-Hexanone Massachusetts RTK: 2-Hexanone New Jersey: 2-Hexanone TSCA 8(b) inventory: 2-Hexanone

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

DSCL (EEC):
R10- Flammable. R37/38- Irritating to respiratory system and skin. R41- Risk of serious damage to eyes.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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SAFETY DATA SHEET

Version 5.4
Revision Date 01/02/2015
Print Date 02/18/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Benzyl butyl phthalate

Product Number : 308501
Brand : Aldrich
Index-No. : 607-430-00-3

CAS-No. : 85-68-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Reproductive toxicity (Category 1B), H360
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H360 May damage fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P281 Use personal protective equipment as required.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.
P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	$C_{19}H_{20}O_4$
Molecular weight	:	312.36 g/mol
CAS-No.	:	85-68-7
EC-No.	:	201-622-7
Index-No.	:	607-430-00-3

Hazardous components

Component	Classification	Concentration
Benzyl butyl phthalate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
	Repr. 1B; Aquatic Acute 1; Aquatic Chronic 1; H360, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.
For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid inhalation of vapour or mist.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nature latex/chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 60 min

Material tested:Lapren® (KCL 706 / Aldrich Z677558, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/freezing point: < -34.99 °C (< -30.98 °F)
f)	Initial boiling point and boiling range	370 °C (698 °F)
g)	Flash point	113.0 °C (235.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	19.2 hPa (14.4 mmHg) at 250.0 °C (482.0 °F) 0.3 hPa (0.2 mmHg) at 150.0 °C (302.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.1 g/cm3 at 25 °C (77 °F)
n)	Water solubility	0.00269 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - slightly soluble
o)	Partition coefficient: n-octanol/water	log Pow: 4.91 at 20 °C (68 °F)
p)	Auto-ignition temperature	232.0 °C (449.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available

t) Oxidizing properties No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male and female - 2,330 mg/kg
(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rabbit - > 10,000 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
- Guinea pig
Result: Does not cause skin sensitisation.

Germ cell mutagenicity
Ames test
S. typhimurium
Result: negative

Carcinogenicity

This product is or contains a component that has been reported to be possibly carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC:	3 - Group 3: Not classifiable as to its carcinogenicity to humans (Benzyl butyl phthalate)
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a

carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Presumed human reproductive toxicant

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information

Repeated dose toxicity - Rat - male - Oral - No observed adverse effect level - 550 mg/kg
RTECS: TH9990000

May cause endocrine disruption.

pancreas -

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Lepomis macrochirus (Bluegill) - 1.7 mg/l - 96.0 h
	NOEC - Oncorhynchus mykiss (rainbow trout) - 0.48 mg/l - 96.0 h
	flow-through test LC50 - Pimephales promelas (fathead minnow) - 2.1 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test LC50 - Daphnia magna (Water flea) - 1.8 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Desmodesmus subspicatus (green algae) - 0.31 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 14 d Result: 81 % - Readily biodegradable

12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus (Bluegill) - 21 d - 0.00973 mg/l
	Bioconcentration factor (BCF): 663

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Benzyl butyl phthalate)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3082 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Benzyl butyl phthalate)
Marine pollutant:yes

IATA
UN number: 3082 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (Benzyl butyl phthalate)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Benzyl butyl phthalate	85-68-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Benzyl butyl phthalate	85-68-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Benzyl butyl phthalate	85-68-7	1993-04-24

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Benzyl butyl phthalate	85-68-7	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H360	May damage fertility or the unborn child.

H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Repr.	Reproductive toxicity

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	*
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	1
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 01/02/2015 Print Date: 02/18/2016

SAFETY DATA SHEET

Version 4.6
Revision Date 12/29/2015
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Beryllium

Product Number : 378135
Brand : Aldrich

CAS-No. : 7440-41-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 3), H301
Acute toxicity, Inhalation (Category 2), H330
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Skin sensitisation (Category 1), H317
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Specific target organ toxicity - repeated exposure (Category 1), H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H301 Toxic if swallowed.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H350 May cause cancer.

H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	Be
Molecular weight	:	9.01 g/mol
CAS-No.	:	7440-41-7
EC-No.	:	231-150-7

Hazardous components

Component	Classification	Concentration
Berylium foil		
	Acute Tox. 3; Acute Tox. 2; Skin Irrit. 2; Eye Irrit. 2A; Skin Sens. 1; Carc. 1B; STOT SE 3; STOT RE 1; H301, H315, H317, H319, H330, H335, H350, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Beryllium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Berylium foil	7440-41-7	TWA	2.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		CEIL	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Peak	25.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	0.000050 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Beryllium sensitization Chronic beryllium disease (berylliosis) Confirmed human carcinogen Danger of cutaneous absorption Sensitizer		
		C	0.000500 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	2.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5.000000microg ram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25.000000micro gram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		TWA	0.000050 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Beryllium sensitization		

		Chronic beryllium disease (berylliosis) Adopted values or notations enclosed are those for which changes are proposed in the NIC See Notice of Intended Changes (NIC) Confirmed human carcinogen Danger of cutaneous absorption Sensitizer		
		C	0.000500 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		See Table Z-2		
		TWA	2microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		CEIL	5microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		Peak	25microgram per cubic meter	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z27.29-1970		
		C	0.0005 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: grey
b)	Odour	odourless
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 1,278 °C (2,332 °F) - lit.
f)	Initial boiling point and boiling range	2,970 °C (5,378 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	1.85 g/cm3 at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Alkali metals

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

LD50 Intravenous - Rat - 0.496 mg/kg
Remarks: Liver:Hepatitis (hepatocellular necrosis), zonal.

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
Hamster
Lungs
Result: negative

Carcinogenicity

Carcinogenicity - Rat - Intratracheal
Tumorigenic:Neoplastic by RTECS criteria. Lungs, Thorax, or Respiration:Tumors. Lungs, Thorax, or Respiration:Bronchiogenic carcinoma.

Carcinogenicity - Rabbit - Intravenous
Tumorigenic:Equivocal tumorigenic agent by RTECS criteria. Musculoskeletal:Tumors.

Possible human carcinogen

IARC:	1 - Group 1: Carcinogenic to humans (Berylium foil)
NTP:	Known to be human carcinogen (Berylium foil)
	Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Berylium foil)
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: DS1750000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1567 Class: 6.1 (4.1) Packing group: II
Proper shipping name: Beryllium, powder
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1567 Class: 6.1 (4.1) Packing group: II EMS-No: F-G, S-G
Proper shipping name: BERYLLIUM POWDER

IATA
UN number: 1567 Class: 6.1 (4.1) Packing group: II
Proper shipping name: Beryllium powder

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Berylium foil	7440-41-7	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Berylium foil	7440-41-7	2008-10-10

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
H301	Toxic if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	4
Fire Hazard:	3
Reactivity Hazard:	3

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

SAFETY DATA SHEET

Version 3.7
Revision Date 11/25/2014
Print Date 01/29/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dibenzofuran

Product Number : 236373
Brand : Aldrich

CAS-No. : 132-64-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H302 Harmful if swallowed.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P391 Collect spillage.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : Diphenylene oxide

Formula : $C_{12}H_8O$
Molecular weight : 168.19 g/mol
CAS-No. : 132-64-9
EC-No. : 205-071-3

Hazardous components

Component	Classification	Concentration
Dibenzofuran		
	Acute Tox. 4; Aquatic Acute 2; Aquatic Chronic 2; H302, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an

industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator.For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: crystalline Colour: white, beige
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 80 - 82 °C (176 - 180 °F) - lit.
f)	Initial boiling point and boiling range	154 - 155 °C (309 - 311 °F) at 27 hPa (20 mmHg) - lit.
g)	Flash point	130.0 °C (266.0 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	log Pow: 3.77
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
The preceding data, or interpretation of data, was determined using Quantitative Structure Activity Relationship (QSAR) modeling.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: HP4430000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	NOEC - Cyprinodon variegatus (sheepshead minnow) - 1 mg/l - 96.0 h
	LC50 - Pimephales promelas (fathead minnow) - 1.05 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)
Reportable Quantity (RQ): 100 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Dibenzofuran)
Marine pollutant:yes

IATA
UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Dibenzofuran)

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date

Dibenzofuran	132-64-9	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dibenzofuran	132-64-9	2007-07-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H401	Toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	1
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	1
Reactivity Hazard:	0

Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.7 Revision Date: 11/25/2014 Print Date: 01/29/2016

SAFETY DATA SHEET

Version 5.5
Revision Date 02/28/2015
Print Date 02/09/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Dieldrin

Product Number : 291218
Brand : Aldrich
Index-No. : 602-049-00-9

CAS-No. : 60-57-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Dermal (Category 3), H311
Carcinogenicity (Category 2), H351
Specific target organ toxicity - repeated exposure, Oral (Category 1), H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H300 Fatal if swallowed.
H311 Toxic in contact with skin.
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P201 Obtain special instructions before use.

P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P281	Use personal protective equipment as required.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.
P302 + P352 + P312	IF ON SKIN: Wash with plenty of soap and water. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms : 1,2,3,4,10,10-Hexachloro-1,4,4a,5,6,7,8,8a-octahydro-6,7-epoxy-1,4:5,8-dimethanonaphthalene

Formula : $C_{12}H_8Cl_6O$

Molecular weight : 380.91 g/mol

CAS-No. : 60-57-1

EC-No. : 200-484-5

Index-No. : 602-049-00-9

Hazardous components

Component	Classification	Concentration
Dieldrin		
	Acute Tox. 2; Acute Tox. 3; Carc. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H300, H311, H351, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Dieldrin	60-57-1	TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Liver damage Reproductive effects Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		

		TWA	0.250000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A Potential for dermal absorption		
		TWA	0.250000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		Skin designation		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: solid
b)	Odour	No data available
c)	Odour Threshold	No data available

d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 143 - 144 °C (289 - 291 °F)
f)	Initial boiling point and boiling range	No data available
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Mouse - 38.0 mg/kg

LD50 Oral - Dog - 65.0 mg/kg

LD50 Oral - Monkey - 3.0 mg/kg

LD50 Oral - Rabbit - 45.0 mg/kg

LD50 Oral - Pig - 38.0 mg/kg

LD50 Oral - Guinea pig - 49.0 mg/kg

LD50 Oral - Hamster - 60.0 mg/kg

LD50 Oral - Pigeon - 23.7 mg/kg

LD50 Oral - Chicken - 20.0 mg/kg
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Miosis (pupilliary constriction). Behavioral:Excitement. Behavioral:Food intake (animal).

LD50 Oral - Quail - 10.8 mg/kg
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Somnolence (general depressed activity). Behavioral:Irritability.

LD50 Oral - Duck - 381.0 mg/kg

LD50 Oral - Mammal - 94.0 mg/kg
Remarks: Peripheral Nerve and Sensation:Flaccid paralysis without anesthesia (usually neuromuscular blockage). Behavioral:Tremor. Behavioral:Convulsions or effect on seizure threshold.

LD50 Oral - Bird (wild) - 13.3 mg/kg

LDLO Oral - Rat - 30.0 mg/kg
Remarks: Liver:Other changes.

LDLO Oral - Human - male - 65.0 mg/kg

LDLO Oral - Cat - 500 mg/kg
Remarks: Lungs, Thorax, or Respiration:Chronic pulmonary edema. Liver:Fatty liver degeneration. Kidney, Ureter, Bladder:Other changes.

TDLo Oral - Rat - 140 mg/kg
Remarks: Liver:Other changes. Blood:Other changes. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Other esterases.

TDLo Oral - Rat - 109 mg/kg
Remarks: Liver:Changes in liver weight.

TDLo Oral - Rat - 88 mg/kg
Remarks: Behavioral:Food intake (animal). Nutritional and Gross Metabolic:Weight loss or decreased weight gain. Biochemical:Enzyme inhibition, induction, or change in blood or tissue levels: Phosphatases.

Inhalation: No data available

LD50 Dermal - Rabbit - 250.0 mg/kg

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies

IARC: 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Dieldrin)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Ingestion - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: IO1750000

Discomfort, Headache, Nausea, Vomiting, Dizziness, Tremors, tonic convulsions, clonic spasms, Coma., respiratory failure, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Blood - Irregularities - Based on Human Evidence
Blood - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	mortality LC50 - Carassius auratus (goldfish) - 1.6 µg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	Immobilization EC50 - Daphnia magna (Water flea) - 79.5 µg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solids, organic, n.o.s. (Dieldrin)
Reportable Quantity (RQ): 1 lbs
Marine pollutant:yes
Poison Inhalation Hazard: No

IMDG
UN number: 2811 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Dieldrin)
Marine pollutant:yes

IATA
UN number: 2811 Class: 6.1 Packing group: I
Proper shipping name: Toxic solid, organic, n.o.s. (Dieldrin)
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Dieldrin	60-57-1	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer. Dieldrin	CAS-No. 60-57-1	Revision Date 2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Carc.	Carcinogenicity
H300	Fatal if swallowed.
H311	Toxic in contact with skin.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.5 Revision Date: 02/28/2015 Print Date: 02/09/2016

Bis(2-ethylhexyl) phthalate

sc-254975

Material Safety Data Sheet

Hazard Alert Code Key:	EXTREME	HIGH	MODERATE	LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
Bis(2-ethylhexyl) phthalate

STATEMENT OF HAZARDOUS NATURE
CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER
Santa Cruz Biotechnology, Inc.
2145 Delaware Avenue
Santa Cruz, California 95060
800.457.3801 or 831.457.3800
EMERGENCY:
ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS
C24-H38-O4, "1, 2-benzenecarboxylic acid, bis(2-ethylhexyl) ester", "bis(2-ethylhexyl)-1, 2-benzenedicarboxylate", "bis(2-ethylhexyl) phthalate", "dioctyl phthalate", di(2-ethylhexyl)orthophthalate, DEHP, "di(2-ethylhexyl) phthalate", "2-ethylhexyl phthalate", "phthalic acid dioctyl ester", "Bisoflex 81", "Bisoflex DOP", "Compound 889", "Ergoplast FDO", "Eviplast 80, 81", Fleximel, "Flexol DOP", "Good-rite GP-264", "Hatcol DOP", "Hercoflex 260", "Jayflex DOP", "Kodaflex DOP", "Mollan O", NCI-C52733, "Nuoplaz DOP", Octoil, "Palatinol AM", "Platinol DOP", "RC Plasticizer DOP", "Reomol DOP", "Reomol D-79P", "Sicol 150", "Staflex DOP", "Truflex DOP", "Vestinol AH", "Vinicizer 80", "Witcizer 312", "plasticiser/ plasticizer", "Era Polymers DOP"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

		Min	Max
Flammability:	1		
Toxicity:	2		
Body Contact:	1		
Reactivity:	1		
Chronic:	3		

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Limited evidence of a carcinogenic effect.
May impair fertility.
May cause harm to the unborn child.
May cause long-term adverse effects in the environment.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

■ Accidental ingestion of the material may be damaging to the health of the individual.
■ The toxicity of phthalates is not excessive due to slow oral absorption and metabolism.
Absorption is affected by fat in the diet.

EYE

■ Although the liquid is not thought to be an irritant, direct contact with the eye may produce transient discomfort characterized by tearing or conjunctival redness (as with windburn).

SKIN

■ The liquid may be miscible with fats or oils and may degrease the skin, producing a skin reaction described as non-allergic contact dermatitis.
The material is unlikely to produce an irritant dermatitis as described in EC Directives .
■ Open cuts, abraded or irritated skin should not be exposed to this material.
■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

INHALED

■ The material is not thought to produce either adverse health effects or irritation of the respiratory tract following inhalation (as classified using animal models).
Nevertheless, adverse effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
■ Inhalation hazard is increased at higher temperatures.
■ Not normally a hazard due to non-volatile nature of product.

CHRONIC HEALTH EFFECTS

■ There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.
Ample evidence exists from experimentation that reduced human fertility is directly caused by exposure to the material.
Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material.
Results in experiments suggest that this material may cause disorders in the development of the embryo or fetus, even when no signs of poisoning show in the mother.
Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.
For di-sec-octyl phthalate:
Oral studies of 90-days to 2-years in rat, 1-year in guinea pig and up to 1-year in dog have shown a no-effect level of about 60 mg/kg/day. Higher doses produced growth retardation and increased weights of livers and kidneys.
Rats and mice fed on diets containing 6000-12000 (rats) and 3000-6000 (mice) mg/kg body weight for 103 weeks showed an increased incidence of hepatocellular carcinomas in female rats and male and female mice, and an increased incidence of either hepatocellular carcinomas or neoplastic nodules in male rats. About 35% of the hepatocellular carcinomas in mice had metastasised to the lungs.
The substance can cause testicular damage in rats (dietary and gavage studies) with a no-effect level in 0.3% to 0.5% in the diet. Inhalation or dermal exposures did not produce testicular effects. When the substance was fed to pregnant rats (5 ml/kg) it produced slight effects on embryonic and foetal development with skeletal abnormalities more common.
Exposure to phthalates over years leads to pain, numbness and spasms in the hands and feet. Many people have developed multiple disorders in the nervous system and the balancing system.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
di-sec-octyl phthalate	117-81-7	>99

Section 4 - FIRST AID MEASURES

SWALLOWED
· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE
■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN
■ If skin or hair contact occurs: · Flush skin and hair with running water (and soap if available). · Seek medical attention in event of irritation.

INHALED
· If fumes or combustion products are inhaled remove from contaminated area. · Other measures are usually unnecessary.

NOTES TO PHYSICIAN
■ Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	1.275 @ 200 C
Upper Explosive Limit (%):	Not available.
Specific Gravity (water=1):	0.99 @ 20 C
Lower Explosive Limit (%):	0.3

EXTINGUISHING MEDIA
· Foam.
· Dry chemical powder.

FIRE FIGHTING
· Alert Emergency Responders and tell them location and nature of hazard.
· Wear full body protective clothing with breathing apparatus.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS
· Combustible.
· Slight fire hazard when exposed to heat or flame.
Combustion products include: carbon dioxide (CO_2), other pyrolysis products typical of burning organic material.
May emit poisonous fumes.

FIRE INCOMPATIBILITY
■ Avoid contamination with oxidizing agents i.e. nitrates, oxidizing acids,chlorine bleaches, pool chlorine etc. as ignition may result.

PERSONAL PROTECTION
Glasses:
Safety Glasses.
Chemical goggles.
Gloves:
1.VITON 2.BUTYL 3.NITRILE
Respirator:
Type A-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
■ Environmental hazard - contain spillage.
· Remove all ignition sources.
· Clean up all spills immediately.
MAJOR SPILLS
■ Environmental hazard - contain spillage.
Moderate hazard.
· Clear area of personnel and move upwind.
· Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
· Avoid all personal contact, including inhalation.
· Wear protective clothing when risk of exposure occurs.

RECOMMENDED STORAGE METHODS
· Metal can or drum
· Packing as recommended by manufacturer.

STORAGE REQUIREMENTS
· Store in original containers.
· Keep containers securely sealed.
· No smoking, naked lights or ignition sources.
· Store in a cool, dry, well-ventilated area.
· Store away from incompatible materials and foodstuff containers.
· Protect containers against physical damage and check regularly for leaks.
· Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m³	STEL ppm	STEL mg/m³	Peak ppm	Peak mg/m³	TWA F/CC	Notes
US - Minnesota Permissible Exposure Limits (PELs)	di-sec-octyl phthalate (Di-sec octyl phthalate (Di-2-ethylhexyl-phthalate))		5		10				
US ACGIH Threshold Limit Values (TLV)	di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate [DEHP])		5						TLV Basis: lower respiratory tract irritation
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	di-sec-octyl phthalate (Di-sec-octyl phthalate)		5		10				
US OSHA Permissible Exposure Levels (PELs) - Table Z1	di-sec-octyl phthalate (Di-sec octyl phthalate (Di-(2-ethylhexyl) phthalate))		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	di-sec-octyl phthalate (Di-sec octyl phthalate (Di-2-ethylhexyl-phthalate))		5						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	di-sec-octyl phthalate (Di-sec octyl phthalate (Di-2-ethylhexyl-phthalate))		5		10				
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	di-sec-octyl phthalate (Di-sec octyl phthalate (Di-2-ethylhexyl-phthalate))		5		10				

US - California Permissible Exposure Limits for Chemical Contaminants	di-sec-octyl phthalate (Di-sec-octyl phthalate; bis(2 ethylhexyl) phthalate)		5				
US - Idaho - Limits for Air Contaminants	di-sec-octyl phthalate (Di-sec, octyl phthalate (Di-(2-ethylhexyl)phthalate))		5				
US - Hawaii Air Contaminant Limits	di-sec-octyl phthalate (Di-sec-octyl phthalate (Di-2-ethylhexyl-phthalate))		5		10		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	di-sec-octyl phthalate (Di-sec, octyl phthalate (Di-2-ethylhexyl phthalate or DEHP))		5		10		T20
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	di-sec-octyl phthalate (Di-sec,octyl phthalate (Di-2-ethylhexylphthalate)	-	5	-	10		
US - Washington Permissible exposure limits of air contaminants	di-sec-octyl phthalate (Di-sec, Octyl phthalate (Di-2-ethylhexylphthalate))		5		10		
US - Alaska Limits for Air Contaminants	di-sec-octyl phthalate (Di-sec-octyl phthalate (Di-2-ethylhexylphthalate))		5		10		
Canada - Prince Edward Island Occupational Exposure Limits	di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate [DEHP])		5				TLV Basis: lower respiratory tract irritation
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	di-sec-octyl phthalate (Di-sec octyl phthalate (Di-(2-ethylhexyl) phthalate))		5				
Canada - Nova Scotia Occupational Exposure Limits	di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate [DEHP])		5				TLV Basis: lower respiratory tract irritation
US - Michigan Exposure Limits for Air Contaminants	di-sec-octyl phthalate (Di-sec-octyl phthalate[Di(2-ethylhexyl)phthalate])		5		10		
Canada - Northwest Territories Occupational Exposure Limits (English)	di-sec-octyl phthalate (Di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate))		5		10		

Canada - British Columbia Occupational Exposure Limits	di-sec-octyl phthalate (Diesel fuel, as total hydrocarbons, Inhalable)		100 (V)		Skin
Canada - British Columbia Occupational Exposure Limits	di-sec-octyl phthalate (Kerosene /Jet fuels, as total hydrocarbon vapour, Revised 2003)		200 (P)		Skin
Canada - Alberta Occupational Exposure Limits	di-sec-octyl phthalate (Diesel fuel, as total hydrocarbons)		100		
Canada - Alberta Occupational Exposure Limits	di-sec-octyl phthalate (Kerosene/Jet fuels, as total hydrocarbon vapour)		200		
Canada - British Columbia Occupational Exposure Limits	di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate (DEHP))		5		
Canada - Ontario Occupational Exposure Limits	di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate (DEHP) / Phtalate de dioctyle secondaire (DEHP))		3	5	
Canada - Alberta Occupational Exposure Limits	di-sec-octyl phthalate (Di(2-ethylhexyl)phthalate (DEHP, Di-sec-octyl phthalate))		5		
US - Oregon Permissible Exposure Limits (Z-1)	di-sec-octyl phthalate (Di-sec, octyl phthalate (Di-2-ethylhexylphthalate))	-	5		
US NIOSH Recommended Exposure Limits (RELs)	di-sec-octyl phthalate (Di-sec octyl phthalate)		5	10	See Appendix A; Ca

ENDOELTABLE

PERSONAL PROTECTION





RESPIRATOR

• type a-p filter of sufficient capacity.

EYE

· Safety glasses with side shields
· Chemical goggles.

HANDS/FEET

■ Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.

· When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes

according to EN 374) is recommended.
· Contaminated gloves should be replaced.
Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
· Neoprene rubber gloves.
Wear chemical protective gloves, eg. PVC.

OTHER

· Overalls.
· P.V.C. apron.
· Barrier cream.
· Skin cleansing cream.
· Eye wash unit.

ENGINEERING CONTROLS

■ General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear an approved respirator.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.
Does not mix with water.
Floats on water.

State	Liquid	Molecular Weight	390.54
Melting Range (°F)	-67	Viscosity	Not Available
Boiling Range (°F)	725	Solubility in water (g/L)	Insoluble
Flash Point (°F)	426	pH (1% solution)	Not applicable.
Decomposition Temp (°F)	Not available.	pH (as supplied)	Not applicable
Autoignition Temp (°F)	734	Vapor Pressure (mmHg)	1.275 @ 200 C
Upper Explosive Limit (%)	Not available.	Specific Gravity (water=1)	0.99 @ 20 C
Lower Explosive Limit (%)	0.3	Relative Vapor Density (air=1)	13.45
Volatile Component (%vol)	Not available	Evaporation Rate	Very Slow

APPEARANCE

Light-coloured, odourless and oily liquid; insoluble in water; Mixes with mineral oil and most organic solvents.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

· Presence of incompatible materials.
· Product is considered stable.

STORAGE INCOMPATIBILITY

■ Phthalates:
· react with strong acids, strong oxidisers, permanganates and nitrates
· attack some form of plastics.
Avoid reaction with oxidizing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

di-sec-octyl phthalate

TOXICITY AND IRRITATION

DI-SEC-OCTYL PHTHALATE:
■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 30000 mg/kg	Skin (rabbit): 500 mg/24h Mild
Oral (human) TDLo: 143 mg/kg	Eye (rabbit): 500 mg/24h Mild
Oral (mouse) LD50: 1500 mg/kg	

Oral (rabbit) LD50: 34000 mg/kg
Dermal (rabbit) LD50: 25000 mg/kg
Oral (guinea pig) LD50: 26000 mg/kg
Dermal (g.pig) LD50: 10000 mg/kg
Intraperitoneal (Rat) LD50: 30700 mg/kg
Intravenous (Rat) LD50: 250 mg/kg
Intravenous (Mouse) LD50: 1060 mg/kg
Oral (Mouse) TDLo: 984.6 mg/kg

■ Di-sec-octyl phthalate (DEHP) is not acutely toxic in small laboratory animals via the oral route. The oral LD50 reported for mice is 26.3 g/kg; for rats, it is 33.8 g/kg . No skin irritation or sensitisation potential has been demonstrated in either animals or humans, and the lethal dermal dose in rabbits is about 25 ml/kg. Deaths in rats and chronic diffuse inflammation of the lung in mice exposed to DEHP at unspecified levels have been reported.

Long-term dietary toxicity studies in rats, guinea pigs, and dogs have established a no-effect dose level of about 60 mg/kg/day, and no carcinogenic or histologic abnormalities were observed at this level . Higher doses were associated with growth retardation and increased liver and kidney weights but not histologic abnormalities. Metabolic studies have demonstrated that laboratory animals do not appreciably metabolise DEHP . Teratogenicity studies in pregnant rats indicated that fertility is unaffected at doses of 0.1, 0.2, or 0.33 percent of the acute intraperitoneal LD50 dose for rats, although slight effects on embryonic and foetal development were observed in these animals; skeletal deformities were the most common teratogenic effects observed . Mutagenic effects were observed at intravenous doses of one-third, one-half, and two-thirds of the acute LD50; these effects are consistent with DEHP's ability to produce dominant lethal mutations .

A study of workers exposed to a mixture of the vapors of diethyl phthalate, dibutyl phthalate, and di-2-ethylhexyl phthalate reported that exposures to 1 to 6 ppm caused no peripheral polyneuritis However, Russian investigators examined male and female workers exposed to between 1.7 and 66 mg/m3 of various combinations of airborne phthalates (including butyl phthalate, higher aryl phthalates, dioctyl phthalate and others) and noted complaints of pain, numbness, and spasms in the upper and lower extremities after six to seven years of exposure. Polyneuritis was observed in 32 percent of the workers studied, and 78 percent of these workers showed depression of vestibular receptors.

The material may produce peroxisome proliferation. Peroxisomes are single, membrane limited, cytoplasmic organelles that are found in the cells of animals, plants, fungi and protozoa. Peroxisome proliferators include certain hypolipidaemic drugs, phthalate ester plasticisers, industrial solvents, herbicides, food flavours, leukotriene D4 antagonists and hormones. Numerous studies in rats and mice have demonstrated the hepatocarcinogenic effects of peroxisome proliferators, and these compounds have been unequivocally established as carcinogens. However it is generally conceded that compounds inducing proliferation in rats and mice have little, if any, effect on human liver except at very high doses or extreme conditions of exposure.

The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Transitional Phthalate Esters: produced from alcohols with straight-chain carbon backbones of C4 to C6. This subcategory also includes a phthalate produced from benzyl alcohol as one ester group with the second ester composed of an alkyl group with a C5 carbon backbone and butyrate group. Phthalate esters containing >10% C4 to C6 molecules were conservatively included in this subcategory. Branched C7 and C8 isomers (di-iso-heptyl, di-iso-octyl and diethylhexyl phthalates) in contrast to linear dihexyl and dioctyl phthalate are members of this family.

Transitional phthalates have varied uses, but are largely used as plasticisers for PVC. Physicochemical properties also vary in that the lower molecular weight transitional phthalates are more water-soluble than higher molecular weight transitional phthalates, but none would be characterised as highly water soluble. Transitional phthalates have lower water solubility than the low molecular weight phthalates and except for butylbenzyl phthalate (BBP), existing data suggest they do not exhibit acute or chronic aquatic toxicity. What distinguishes some of the transitional phthalates from others is their greater mammalian toxicity potential, particularly with regard to reproductive and developmental effects, compared to either the low or high molecular weight phthalate subcategories

Acute Toxicity. The available data on phthalates spanning the carbon range from C4 to C6 indicate that phthalate esters in the transitional subcategory are minimally toxic by acute oral and dermal administration. The oral LD50 value for BBP exceeds 2 g/ kg, and for materials with higher molecular weights, the LD50 values exceed the maximum amounts which can be administered to the animals in a manner consistent with the principles of responsible animal use.

One member of this subcategory, diethylhexyl phthalate (DEHP), has been tested for acute inhalation toxicity. It did not cause an effect at the highest concentration tested. Further, considering the low volatility of these substances, inhalation exposure at toxicologically significant levels is not anticipated.

Repeated Dose Toxicity. Several substances in the C4 to C6 range, including BBP, have been tested for repeated dose toxicity in studies ranging from 3 weeks to 2 years . The principal effects found in these studies were those associated with peroxisome proliferation including liver enlargement and induction of peroxisomal enzymes. As shown in a comparative study of liver effects, the strongest inducers of peroxisome proliferation are diisononyl phthalate (DINP) and di-iso-decyl phthalate (DIDP) with substances of shorter chain length (e.g., BBP) showing much less pronounced effects. Thus it is reasonable to conclude that other members of this subcategory would show effects similar to BBP and less pronounced than DINP or DIDP. It should also be noted that the relevance of these findings to human health is, at best, questionable. It has been shown that these effects are mediated through the peroxisome proliferation-activated receptor alpha (PPARa) and that levels of PPARa are much higher in rodents than they are in humans. Thus one would expect humans to be substantially less responsive than rodents to peroxisome proliferating agents. Empirical evidence that this is true is provided by studies in primates in which repeated administration of DINP had no effects on liver, kidney or testicular parameters.

Several of the substances in the transitional phthalate esters subcategory, however, have been shown to produce testicular atrophy when given to juvenile rats at high levels. Testicular atrophy has been associated with BBP and other substances with C4 to C6 linear carbon chains. However, molecules with fewer than 4 or more than 6 carbons did not produce testicular atrophy in these studies.

Although the relevance of these data are uncertain, as the testes is not a target organ for diethylhexyl phthalate (DEHP) in primates, these data do provide one of the distinguishing toxicological characteristics of this subcategory and are one of the underlying reasons supporting the differentiation of phthalate esters on the basis of length of the linear region of the carbon chain.
Genetic Toxicity (Salmonella). A number of the substances in this subcategory including the reference substance BBP has been assessed in the Salmonella and mouse lymphoma assays. All of these substances were inactive in these assays.
Chromosomal Aberrations. BBP and dihexyl phthalate (DHP) were inactive in micronucleus assays in mice. DEHP was inactive in a cytogenetics assay in rat bone marrow. Diisoheptyl phthalate was inactive in CHO cells, in vitro..
Reproductive toxicity: A series of studies assessed the structure-activity relationship of the effects of phthalate esters on fertility using a continuous breeding protocol . The test substances included in these studies were diethyl-, dipropyl-, dibutyl-, dipentyl-, d-n-hexyl-, di-2(ethylhexyl)-, and di-n-octyl phthalates. The most profound effects were on fertility (i.e., number of females delivering/ number mated) and number of live births. The substance showing the greatest activity was DEHP which produced effects at dietary levels of 0.1 % with a no effect level of 0.01 %. The next most active compounds were di-n-hexyl- and di-n-pentyl phthalate which showed effects in the range of 0.3 to 0.5 %; no effect levels were not experimentally defined. Dipropyl phthalate had an effect on live birth index at 2.5 % but produced no effects at 1.25 %. Diethyl phthalate and di-n-octyl phthalate were inactive at the highest levels tested, 2.5 % and 5.0 %, respectively. These data demonstrated that molecules with linear alkyl chains of 4 to 6 carbons profoundly affect fertility in rodents, with DEHP being the most active. Molecules with longer or shorter side chains are essentially inactive in these assays. These data were also a basis for the separation of phthalates into three categories based on length of side chain.
In addition to these data there are reproductive toxicity studies on BBP and DEHP .
A 2-generation reproductive study was conducted in rats in which BBP was administered via the diet. Parental effects were limited to changes in body weight, weight gain, and increased absolute and relative liver weights. In the F1 parents, treatment with BBP affected mating and fertility indices and sperm number and motility. The F1 male offspring exhibited shortened anogenital distance, delayed acquisition of puberty and retention of nipples and areolae as well as reproductive effects. The NOAEL of the study was reported to be 3750 mg/ kg for reproductive effects. However, for male F1 and F2 offspring, the NOEL for reproductive effects was reported to be 50 mg/ kg based on reductions in anogenital distance. These studies along with previous data provide a good basis to assess the reproductive effects of C4 to C6 phthalate esters. Although several substances (diheptyl, heptyl nonyl, heptyl undecyl) have ester side chain constituents that predominately fall in the high molecular weight subcategory, these substances are conservatively assumed to exhibit reproductive effects similar to other transitional phthalates .
Developmental toxicity: There have been extensive studies of the developmental toxicity of BBP and DEHP. These substances produce structural malformations and also affect male reproductive development. No effect levels are in the range of 50 to 300 mg/ kg bw/ day. There is also an unpublished developmental toxicity study of di-isoheptyl phthalate (DIHP). The results of these studies are broadly consistent with the structure-activity relationships previously described, i.e., that phthalate esters with linear carbon chains of C4 to C6 carbons produce much more profound effects that either shorter or longer molecules.
Phthalate esters with >10% C4 to C6 isomers were conservatively placed in the transitional subcategory. This conclusion is supported by developmental test data on "711P*" (which showed structural malformations in rats at 1000 mg/ kg/ day with a NOAEL of 200 mg/ kg/ day ."711P" is an equal composition mixture of six phthalate esters consisting of linear and methyl-branched C7, C9, and C11 ester side chains. This test substance is considered by EPA under the following CAS Numbers.: 68515-44-6 (di C7), 68515-45-7 (di C9), 3648-20-2 (di C1 I), 111381-89-6 (C7, C9), 111381-90-9 (C7, C11), and 111381-91-0 (C9, C11). The overall content of C4 to C6 isomers in "71 1P" is approximately 10%, based on the contribution from methyl-branched C7 isomers e.g., di C7 (30% C4-C6); C7, C9 (15% C4-C6); and C7, C11 (15 % C4-C6). Test data on 711P were used selectively as read-across data to the C7-containing substances in the mixture, based on the C4 to C6 content of each substance in the mixture.
NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.
Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen
[National Toxicology Program: U.S. Dep. of Health & Human Services 2002].
Oral (rat) NOAEL: 28.9-36.1 mg/kg/day
Gastrointestinal changes, respiratory system changes, somnolence, haemorrhage, necrotic changes in GI tract, lowered blood pressure, liver, endocrine tumours, foetotoxicity, paternal effects, maternal effects, specific developmental abnormalities (hepatobiliary system, musculoskeletal system, cardiovascular system, urogenital system, central nervous system, eye/ear), foetolethality recorded.

CARCINOGEN

Di(2-ethylhexyl) phthalate (NB: Overall evaluation downgraded to Group 3 with supporting evidence from other relevant data)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3
Bis(2-ethylhexyl) phthalate (see Di(2-ethylhexyl) phthalate)	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	
Di (2-ethylhexyl)phthalate (DEHP)	US EPA Carcinogens Listing	Carcinogenicity	B2
Di (2-ethylhexyl)phthalate (DEHP)	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	B2
Di(2-ethylhexyl)phthalate [DEHP]	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	A3
di-sec-octyl phthalate	US - Rhode Island Hazardous Substance List	IARC	

BIS(2-ETHYLHEXYL)PHTHALATE	US Environmental Defense Scorecard Recognized Carcinogens	Reference(s)	P65
BIS(2-ETHYLHEXYL)PHTHALATE	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65
BROMINE COMPOUNDS (ORGANIC OR INORGANIC)	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	P65-MC
Diethylhexylphthalate	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2B
Di(2-ethylhexyl)phthalate [DEHP]	US NIOSH Recommended Exposure Limits (RELs) - Carcinogens	Carcinogen	Ca
di-sec-octyl phthalate	US - Maine Chemicals of High Concern List	Carcinogen	B2
TWAPPM~	US - Maine Chemicals of High Concern List	Carcinogen	A3
PBIT_(PERS~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IRIS; NTP 11th ROC

SKIN

di-sec-octyl phthalate	Canada - British Columbia Occupational Exposure Limits - Skin	Notation	Skin
di-sec-octyl phthalate	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1

Section 12 - ECOLOGICAL INFORMATION

May cause long-term adverse effects in the environment.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
di-sec-octyl phthalate	LOW	LOW	LOW	LOW

GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No _____ Di- (2- 642 275 0 4 R 0 0 0 0 1 1 1 R Fp 3 ethylhexy 1 l) phthalate / CAS:117- 81- 7 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships) NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation, B1=Acuteaquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg), C2=Acutemammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation & corrosion, D2=Eye irritation& corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lunginjury, N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

B. Component Waste Numbers
When di-sec-octyl phthalate is present as a solid waste as a discarded commercial chemical product, off-specification species, as a container residue, or a spill residue, use EPA waste number U028 (waste code T).

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.
¦ Puncture containers to prevent re-use and bury at an authorized landfill.
Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.
A Hierarchy of Controls seems to be common - the user should investigate:
· Reduction
· Reuse
· Recycling
· Disposal (if all else fails)
This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.
· Recycle wherever possible or consult manufacturer for recycling options.
· Consult Waste Management Authority for disposal.

Section 14 - TRANSPORTATION INFORMATION

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: DOT, IATA, IMDG

Section 15 - REGULATORY INFORMATION

di-sec-octyl phthalate (CAS: 117-81-7) is found on the following regulatory lists;
"Canada - Northwest Territories Occupational Exposure Limits (English)","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)","Canada - Saskatchewan Industrial Hazardous Substances","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada - Saskatchewan Occupational Health and Safety Regulations - Designated Chemical Substances","Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances","Canada ARET (Accelerated Reduction / Elimination of Toxics) Substance List","Canada Environmental Protection Act (CEPA) 1999 - Schedule 1 Toxic Substances List","Canada Environmental Quality Guidelines (EQGs) Water: Aquatic life","Canada Ingredient Disclosure List (SOR/88-64)","Canada Priority Substances List (PSL1, PSL 2)","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk","International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs","International Fragrance Association (IFRA) Survey: Transparency List","OECD Representative List of High Production Volume (HPV) Chemicals","OSPAR List of Chemicals for Priority Action","OSPAR List of Substances of Possible Concern","US - Alaska Limits for Air Contaminants","US - California Air Toxics ""Hot Spots"" List (Assembly Bill 2588) Substances for which emissions must be quantified","US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List","US - California Permissible Exposure Limits for Chemical Contaminants","US - California Proposition 65 - No Significant Risk Levels (NSRLs) for Carcinogens","US - California Proposition 65 - Priority List for the Development of MADLs for Chemicals Causing Reproductive Toxicity","US - California Toxic Air Contaminant List Category II","US - California Toys and Childcare Articles - Phthalate Prohibitions","US - Connecticut Hazardous Air Pollutants","US - Hawaii Air Contaminant Limits","US - Idaho - Limits for Air Contaminants","US - Massachusetts Oil & Hazardous Material List","US - Michigan Exposure Limits for Air Contaminants","US - Minnesota Hazardous Substance List","US - Minnesota Permissible Exposure Limits (PELs)","US - New Jersey Right to Know Hazardous Substances","US - Pennsylvania - Hazardous Substance List","US - Rhode Island Hazardous Substance List","US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants","US - Texas Drinking Water Standards - Maximum Contaminant Levels (MCLs) for synthetic organic contaminants","US - Vermont Hazardous Constituents","US - Vermont Hazardous wastes which are Discarded Commercial Chemical Products or Off-Specification Batches of Commercial Chemical Products or Spill Residues of Either","US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants","US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants","US - Washington Class A toxic air pollutants: Known and Probable Carcinogens","US - Washington Dangerous waste constituents list","US - Washington Discarded Chemical Products List - ""U"" Chemical Products","US - Washington Permissible exposure limits of air contaminants","US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US ATSDR Minimal Risk Levels for Hazardous Substances (MRLs)","US CERCLA Priority List of Hazardous Substances","US Clean Air Act - Hazardous Air Pollutants","US CWA (Clean Water Act) - Priority Pollutants","US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides","US DOE Temporary Emergency Exposure Limits (TEELs)","US DOT Coast Guard Bulk Hazardous Materials - List of Flammable and Combustible Bulk Liquid Cargoes","US EPA Carcinogens Listing","US EPA High Production Volume Program Chemical List","US EPA Master Testing List - Index I Chemicals Listed","US EPA National Priorities List - Superfund Chemical Data Matrix (SCDM) - Hazard Ranking System - Hazardous Substance Benchmarks","US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act","US National Toxicology Program (NTP) 11th Report Part B. Reasonably Anticipated to be a Human Carcinogen","US OSHA Permissible Exposure Levels (PELs) - Table Z1","US RCRA (Resource Conservation & Recovery Act) - Appendix IX to Part 264 Ground-Water Monitoring List 1","US RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Inorganic and Organic Constituents 1","US RCRA (Resource Conservation & Recovery Act) - List of Hazardous Wastes","US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory","US TSCA Section 4 - Chemicals Subject to Testing Consent Orders","US TSCA Section 4/12 (b) - Sunset Date/Status","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health

significance in drinking-water"

Section 16 - OTHER INFORMATION

LIMITED EVIDENCE

■ Ingestion may produce health damage*.
■ Cumulative effects may result following exposure*.
* (limited evidence).

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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Issue Date: Apr-21-2011

Print Date:Jun-4-2011

N-ethyl-N-[(heptadecafluorooctyl)sulphonyl]glycine SDS

Post Buying Request

SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

Version: 1.0

Creation Date: Aug 20, 2017

Revision Date: Aug 20, 2017

1.Identification

1.1 GHS Product identifier

Product name	N-ethylperfluorooctane sulfonamidoacetic acid

1.2 Other means of identification

Product number	-
Other names	N-ethyl perfluorooctanesulfonamidoacetic acid

1.3 Recommended use of the chemical and restrictions on use

Identified uses	For industry use only.
Uses advised against	no data available

1.4 Supplier's details

1.5 Emergency phone number

Emergency phone number	-
Service hours	Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2.Hazard identification

2.1 Classification of the substance or mixture

no data available

2.2 GHS label elements, including precautionary statements

Pictogram(s)	no data available
Signal word	no data available
Hazard statement(s)	no data available
Precautionary statement(s)	
Prevention	no data available
Response	no data available
Storage	no data available
Disposal	no data available

2.3 Other hazards which do not result in classification

no data available

3.Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
N-ethylperfluorooctane sulfonamidoacetic acid	N-ethylperfluorooctane sulfonamidoacetic acid	2991-50-6	none	100%

4.First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms/effects, acute and delayed

no data available

4.3 Indication of immediate medical attention and special treatment needed, if necessary

no data available

5.Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Specific hazards arising from the chemical

no data available

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

8.Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique(without touching glove's outer surface) to avoid skin contact with this product.

Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	no data available
Colour	no data available
Odour	no data available
Melting point/ freezing point	no data available
Boiling point or initial boiling point and boiling range	343.4oC at 760 mmHg
Flammability	no data available
Lower and upper explosion limit / flammability limit	no data available
Flash point	161.5oC
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	no data available
Partition coefficient n-octanol/water (log value)	no data available
Vapour pressure	1.27E-05mmHg at 25°C
Density and/or relative density	1.708g/cm3
Relative vapour density	no data available
Particle characteristics	no data available

10.Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

no data available

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

no data available

11.Toxicological information

Acute toxicity
Oral: no data available
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information

12.1 Toxicity

Toxicity to fish: no data available
Toxicity to daphnia and other aquatic invertebrates: no data available
Toxicity to algae: no data available
Toxicity to microorganisms: no data available

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

no data available

12.4 Mobility in soil

no data available

12.5 Other adverse effects

no data available

13.Disposal considerations

13.1 Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information

14.1 UN Number

ADR/RID: no data available IMDG: no data available IATA: no data available

14.2 UN Proper Shipping Name

ADR/RID: no data available

IMDG: no data available

IATA: no data available

14.3 Transport hazard class(es)

ADR/RID: no data available IMDG: no data available IATA: no data available

14.4 Packing group, if applicable

ADR/RID: no data available IMDG: no data available IATA: no data available

14.5 Environmental hazards

ADR/RID: no IMDG: no IATA: no

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
N-ethylperfluorooctane sulfonamidoacetic acid	N-ethylperfluorooctane sulfonamidoacetic acid	2991-50-6	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.

16.Other information

Information on revision

Creation Date	Aug 20, 2017
Revision Date	Aug 20, 2017

Abbreviations and acronyms
CAS: Chemical Abstracts Service
ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
IMDG: International Maritime Dangerous Goods
IATA: International Air Transportation Association
TWA: Time Weighted Average
STEL: Short term exposure limit
LC50: Lethal Concentration 50%
LD50: Lethal Dose 50%
EC50: Effective Concentration 50%
References
IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
ECHA - European Chemicals Agency, website: https://echa.europa.eu/

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.

Please post your buying leads,so that our qualified suppliers will soon contact you!

*Required Fields

CAS No.: 2991-50-6

* Product Name: N-ethyl-N-[(heptadecafluorooctyl)sulphonyl]gly

* Your email:

Your email will be used to sign-in to LookChem.com

* Requirements:

Quantity:
Quality Standards:
Packing:
Place of Origin:
Purity:
Standard:
Detailed Description:

* Valid for: 5 Days 10 Days 20 Days 1 Month 3 Months 6 Months

Send

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N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 16/10/2018 Revision date: : Version: 1.0

ULM-10656-S

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixtures

Product name : N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL

Product code : ULM-10656-S

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Professional use

Industrial/Professional use spec : For professional use only

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flam. Liq. 2	H225
Acute Tox. 3 (Oral)	H301
Acute Tox. 3 (Dermal)	H311
Acute Tox. 3 (Inhalation:vapour)	H331
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 1	H370

Full text of hazard classes and H-statements : see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

F; R11
T; R39/23/24/25
Xi; R36/38

Full text of R-phrases: see section 16

GHS-US classification

Flam. Liq. 2	H225
Acute Tox. 3 (Oral)	H301
Acute Tox. 3 (Dermal)	H311
Acute Tox. 3 (Inhalation:vapour)	H331
Skin Irrit. 2	H315
Eye Irrit. 2A	H319
STOT SE 1	H370

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Eyes, Kidney, Liver, Heart, Central nervous system. Highly flammable liquid and vapour. Causes damage to organs (eyes, kidneys, liver, heart, central nervous system) (if inhaled, if swallowed, in contact with skin). Toxic in contact with skin. Toxic if inhaled. Toxic if swallowed. Causes skin irritation. Causes serious eye irritation.

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02 GHS08 GHS06

Signal word (CLP) : Danger

Hazard statements (CLP) : H225 - Highly flammable liquid and vapour
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H370 - Causes damage to organs (eyes, heart, kidneys, liver, central nervous system) (in contact with skin, if inhaled, if swallowed)

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P260 - Do not breathe dust, mist, vapors, fume, gas, spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS02 GHS08 GHS06

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H225 - Highly flammable liquid and vapour
H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H370 - Causes damage to organs (eyes, kidneys, liver, heart, central nervous system) (Dermal, Inhalation, oral)

Precautionary statements (GHS-US) : P210 - Keep away from heat, open flames, sparks. - No smoking.
P233 - Keep container tightly closed.
P240 - Ground/Bond container and receiving equipment
P241 - Use explosion-proof electrical, lighting, ventilating equipment
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P260 - Do not breathe dust, fume, mist, gas, spray, vapors.
P261 - Avoid breathing dust, fume, gas, spray, vapors, mist.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective clothing, protective gloves.
P301+P310 - If swallowed: Immediately call a doctor, a POISON CENTER
P302+P352 - If on skin: Wash with plenty of water
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P307+P311 - If exposed: Call a poison center/doctor
P311 - Call a doctor, a POISON CENTER

P312 - Call a doctor, a POISON CENTER if you feel unwell
P321 - Specific treatment (see Hazardous component(s) for labeling on this label)
P322 - Specific treatment (see Hazard pictograms (CLP) on this label)
P330 - Rinse mouth.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO2), dry extinguishing powder to extinguish.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

PBT: not relevant – no registration required

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	Classification according to Directive 67/548/EEC
100% METHANOL UNLABELED	(CAS-No.) 67-56-1 (EC-No.) 200-659-6 (EC Index-No.) 603-001-00-X (REACH-no) 01-2119433307-44	99.9937	F; R11 T; R39/23/24/25 Xi; R36/38
N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED -	(CAS-No.) 2355-31-9 (EC Index-No.)	0.0063	Xi; R36/37/38

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
100% METHANOL UNLABELED	(CAS-No.) 67-56-1 (EC-No.) 200-659-6 (EC Index-No.) 603-001-00-X (REACH-no) 01-2119433307-44	99.9937	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:vapour), H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 1, H370
N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED -	(CAS-No.) 2355-31-9 (EC Index-No.)	0.0063	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335

Name	Product identifier	%	GHS-US classification
100% METHANOL UNLABELED	(CAS-No.) 67-56-1	99.9937	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:vapour), H331 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 1, H370
N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED -	(CAS-No.) 2355-31-9	0.0063	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of R- and H- phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If medical advice is needed, have product container or label at hand. Call a physician immediately. Evacuate danger area.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. Call a doctor.

First-aid measures after skin contact : Rinse skin with water/shower. Take immediately victim to hospital. Remove/Take off immediately all contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Do not induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : Toxic if inhaled.

Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Toxic if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Dry sand.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Highly flammable liquid and vapour.

Reactivity : vapors may form flammable mixture with air. Highly flammable liquid and vapour.

5.3. Advice for firefighters

Firefighting instructions : Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. Wear recommended personal protective equipment.

Other information : Use water spray to cool exposed surfaces.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Wear respiratory protection. Do not breathe dust, mist, gas, spray, vapors, fume. Avoid contact with skin, eyes and clothing. Ventilate spillage area. Remove all sources of ignition. No open flames, no sparks, and no smoking. Ensure adequate air ventilation. Special attention should be given to low areas/pits where flammable vapors can accumulate.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent entry to sewers and public waters. Do not allow to enter drains or water courses. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Dike and contain spill.

Methods for cleaning up : Take up liquid spill into absorbent material. Notify authorities if product enters sewers or public waters. This material and its container must be disposed of in a safe way, and as per local legislation.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapors may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Do not breathe dust, fume, gas, spray, vapors, mist. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area.

Hygiene measures : Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.00000000 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	250 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Headache. Nausea. Dizziness. Eye damage. Substances for which there is a Biological Exposure Index or Indices (see BEI section). Danger of cutaneous absorption.
USA NIOSH	NIOSH REL (TWA) (mg/m³)	260 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (mg/m³)	325 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (ppm)	250 ppm Basis: NIOSH Recommended Exposure Limits
USA NIOSH	Remark (NIOSH)	Potential for dermal absorption.
USA OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³ Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (mg/m³)	325 mg/m³ Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (ppm)	250 ppm Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (Ceiling) (ppm)	1000 ppm California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	Remark (OSHA)	The value in mg/m3 is approximate. Skin notation.

100% METHANOL UNLABELED (67-56-1)		
Italy - Portugal - USA ACGIH	ACGIH TWA (ppm)	200.00000000 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	ACGIH STEL (ppm)	250 ppm Basis: USA. ACGIH Threshold Limit Values (TLV)
Italy - Portugal - USA ACGIH	Remark (ACGIH)	Headache. Nausea. Dizziness. Eye damage. Substances for which there is a Biological Exposure Index or Indices (see BEI section). Danger of cutaneous absorption.
USA NIOSH	NIOSH REL (TWA) (mg/m³)	260 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (TWA) (ppm)	200 ppm Basis: NIOSH Recommended Exposure Limits

100% METHANOL UNLABELED (67-56-1)		
USA NIOSH	NIOSH REL (STEL) (mg/m³)	325 mg/m³ Basis: NIOSH Recommended Exposure Limits
USA NIOSH	NIOSH REL (STEL) (ppm)	250 ppm Basis: NIOSH Recommended Exposure Limits
USA NIOSH	Remark (NIOSH)	Potential for dermal absorption.
USA OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³ Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (TWA) (ppm)	200 ppm Basis: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (mg/m³)	325 mg/m³ Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (STEL) (ppm)	250 ppm Basis: USA. OSHA - Table Z-1 Limits for Air Contaminants - 1910.1000. California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	OSHA PEL (Ceiling) (ppm)	1000 ppm California permissible exposure limits for chemical contaminants (Title 8, Article 107)
USA OSHA	Remark (OSHA)	The value in mg/m3 is approximate. Skin notation.

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
DNEL/DMEL (Workers)	
Acute - systemic effects, dermal	40 mg/kg bodyweight/day
Acute - systemic effects, inhalation	260 mg/m³
Acute - local effects, dermal	260 mg/cm²
Long-term - systemic effects, dermal	40 mg/kg bodyweight/day
Long-term - local effects, dermal	260 mg/cm²
Long-term - local effects, inhalation	260 mg/m³
DNEL/DMEL (General population)	
Acute - systemic effects, dermal	8 mg/kg body weight
Acute - systemic effects, inhalation	50 mg/m³
Acute - systemic effects, oral	8 mg/kg body weight
Acute - local effects, inhalation	50 mg/m³
Long-term - systemic effects,oral	8 mg/kg bodyweight/day
Long-term - systemic effects, inhalation	50 mg/m³
Long-term - systemic effects, dermal	8 mg/kg bodyweight/day
Long-term - local effects, inhalation	50 mg/m³
PNEC (Water)	
PNEC aqua (freshwater)	154 mg/l
PNEC aqua (marine water)	15.4 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	570.4 mg/kg dwt
PNEC (Soil)	
PNEC soil	23.5 mg/kg dwt
PNEC (STP)	
PNEC sewage treatment plant	100 mg/kg

8.2. Exposure controls

Appropriate engineering controls : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

Personal protective equipment	:	Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Materials for protective clothing	:	Wear suitable protective clothing and gloves.
Hand protection	:	Wear suitable protective clothing and gloves.
Eye protection	:	Wear eye protection. Chemical goggles or face shield with safety glasses.
Skin and body protection	:	Wear suitable protective clothing, gloves and eye/face protection.
Respiratory protection	:	In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator.
Environmental exposure controls	:	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

The properties listed below are for the solvent, the main component of this mixture.

Physical state	:	Liquid
Appearance	:	Liquid
Molecular mass	:	32.04 g/mol
Color	:	Colorless
Odor	:	Pungent
Odor threshold	:	No data available
pH	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Melting point	:	-98 °C (-144 °F)
Freezing point	:	No data available
Boiling point	:	64.7 °C (148.5 °F)
Flash point	:	9.7 °C (49.5 °F) - closed cup
Auto-ignition temperature	:	455 °C (851 °F) at 1,013 hPa (760 mmHg)
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapor pressure	:	130.3 hPa (97.7 mmHg) at 20 °C (68 °F); 169.27 hPa (126.96 mmHg) at 25 °C (77 °F)
Vapor pressure at 50 °C	:	546.6 hPa (410 mmHg) at 50 °C (122 °F)
Relative vapor density at 20 °C	:	1.11
Relative density	:	No data available
Specific gravity / density	:	0.791 g/ml at 25 °C (77 °F)
Solubility	:	Water: Completely miscible
Log Pow	:	-0.77
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	Product is not explosive.
Oxidizing properties	:	Non oxidizing material according to EC criteria.
Explosion limits	:	6 - 36 % (V)

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

vapors may form flammable mixture with air. Highly flammable liquid and vapour.

10.2. Chemical stability

See storage and expiration date on CoA.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Acid anhydrides. Acid chlorides. Oxidizing agent. Alkali Metal Amides. Reducing agents. Acids.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO2).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin. Inhalation:vapour: Toxic if inhaled.

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
LD50 oral rat	1187 - 2769 mg/kg
LD50 dermal rabbit	17100 mg/kg
LC50 inhalation rat (mg/l)	128.2 mg/l/4h ; 87.6 mg/l - 6 h
ATE CLP (oral)	100.000 mg/kg body weight
ATE CLP (dermal)	300.000 mg/kg body weight
ATE CLP (vapors)	3.000 mg/l/4h
ATE CLP (dust, mist)	128.200 mg/l/4h
LDLO, oral, human	143 mg/kg Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

100% METHANOL UNLABELED (67-56-1)	
LD50 oral rat	1187 - 2769 mg/kg
LD50 dermal rabbit	17100 mg/kg
LC50 inhalation rat (mg/l)	128.2 mg/l/4h ; 87.6 mg/l - 6 h
ATE CLP (oral)	100.000 mg/kg body weight
ATE CLP (dermal)	300.000 mg/kg body weight
ATE CLP (vapors)	3.000 mg/l/4h
ATE CLP (dust, mist)	128.200 mg/l/4h
LDLO, oral, human	143 mg/kg Remarks: Lungs, Thorax, or Respiration: Dyspnea. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Skin corrosion/irritation : Skin. rabbit. Result: No skin irritation

Serious eye damage/irritation : Eyes. rabbit. Result: No eye irritation

Respiratory or skin sensitization : Maximisation Test . Guinea pig. Did not cause sensitization. (OECD 406 method)

Germ cell mutagenicity : AMES test : S. tymphimurium. Result: negative. fibroblast. Result: Negative. Mutation in mammalian somatic cells. Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) - Mouse - male and female Result: negative. Mouse - male and female. Result: Negative

Carcinogenicity : Not classified

Reproductive toxicity : Damage to fetus not classifiable. Fertility classification not possible from current data.

Specific target organ toxicity – single exposure : Causes damage to organs through prolonged or repeated exposure

Causes damage to organs

Specific target organ toxicity – repeated exposure : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

No data available

Aspiration hazard : No aspiration toxicity classification.

Potential Adverse human health effects and symptoms : This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Effects due to Ingestion may include: Headache. Dizziness. Drowsiness. metabolic acidosis. Coma. May be fatal if swallowed and enters airways. If swallowed there is a risk of blindness. Effects on humans. stomach.

Symptoms/effects after inhalation : Toxic if inhaled.

Symptoms/effects after skin contact : Toxic in contact with skin. Causes skin irritation.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Toxic if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
LC50 fish 1	15400 mg/l mortality LC50 - Lepomis machrochirus (Bluegill) - 96 h
EC50 Daphnia 1	> 10000 mg/l Daphnia magna (Water flea) - 48 h
EC50 Daphnia 2	22000 mg/l Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 96 h
NOEC (acute)	7900 mg/l Oryzias latipes - 200 h

100% METHANOL UNLABELED (67-56-1)	
LC50 fish 1	15400 mg/l mortality LC50 - Lepomis machrochirus (Bluegill) - 96 h
EC50 Daphnia 1	> 10000 mg/l Daphnia magna (Water flea) - 48 h
EC50 Daphnia 2	22000 mg/l Growth inhibition EC50 - Scenedesmus capricornutum (fresh water algae) - 96 h
NOEC (acute)	7900 mg/l Oryzias latipes - 200 h

12.2. Persistence and degradability

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
Biochemical oxygen demand (BOD)	600 - 1200 mg/g
Chemical oxygen demand (COD)	1420 mg/g
ThOD	1500 mg/g
Biodegradation	72 % - rapidly biodegradable aerobic - Exposure time 5 d

100% METHANOL UNLABELED (67-56-1)	
Biochemical oxygen demand (BOD)	600 - 1200 mg/g
Chemical oxygen demand (COD)	1420 mg/g
ThOD	1500 mg/g
Biodegradation	72 % - rapidly biodegradable aerobic - Exposure time 5 d

12.3. Bioaccumulative potential

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
BCF fish 1	5 mg/l Cyprinus carpio (Carp) - 72 d at 20 °C
Bioconcentration factor (BCF REACH)	1
Log Pow	-0.77

100% METHANOL UNLABELED (67-56-1)	
BCF fish 1	5 mg/l Cyprinus carpio (Carp) - 72 d at 20 °C
Bioconcentration factor (BCF REACH)	1
Log Pow	-0.77

12.4. Mobility in soil

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
Ecology - soil	Not degradable in the soil.

100% METHANOL UNLABELED (67-56-1)	
Ecology - soil	Not degradable in the soil.

12.5. Results of PBT and vPvB assessment

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL
PBT: not relevant – no registration required

100% METHANOL UNLABELED (67-56-1)
PBT: not relevant – no registration required

12.6. Other adverse effects

Other adverse effects : Avoid release to the environment.

Other information : Stability in water: at 19 °C - (83 - 91%) - 72 h. Remarks: Hydrolyses on contact with water. Hydrolyses readily.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.

Product/Packaging disposal recommendations : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Ecology - waste materials : Dispose of as unused product.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No.(DOT) : 1230

DOT NA no. UN1230

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Methanol

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Hazard labels (DOT) : 3 - Flammable liquid
6.1 - Poison



DOT Symbols : + - Fixes (cannot be altered) proper shipping name, hazard class, and packing group,I - Proper shipping name appropriate for international and domestic transportation

Packing group (DOT) : II - Medium Danger

DOT Special Provisions (49 CFR 172.102) : IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized.
T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3)
TP2 - a. The maximum degree of filling must not exceed the degree of filling determined by the following: (image) Where: tr is the maximum mean bulk temperature during transport, tf is the temperature in degrees celsius of the liquid during filling, and a is the mean coefficient of cubical expansion of the liquid between the mean temperature of the liquid during filling (tf) and the maximum mean bulk temperature during transportation (tr) both in degrees celsius. b. For liquids transported under ambient conditions may be calculated using the formula: (image) Where: d15 and d50 are the densities (in units of mass per unit volume) of the liquid at 15 C (59 F) and 50 C (122 F), respectively.

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT RQ : 5000 lbs

Marine pollutant : No

14.3. Additional information

Emergency Response Guide (ERG) Number : 131

Other information : No supplementary information available.

Overland transport

Packing group (ADR) : II

Class (ADR) : 3 - Flammable liquid

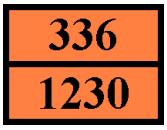
Hazard identification number (Kemler No.) : 336

Classification code (ADR) : FT1

Hazard labels (ADR) : 3 - Flammable liquids
6.1 - Toxic substances



Orange plates :



Tunnel restriction code (ADR)	:	D/E
Limited quantities (ADR)		1l
Excepted quantities (ADR)	:	E2

Transport by sea

DOT Vessel Stowage Location	:	B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other	:	40 - Stow ‘‘clear of living quarters’’
MFAG-No	:	131

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
Civil Aeronautics Law	:	Flammable liquids

14.4. Environmental hazards

Other information : No supplementary information available.

14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Subject to reporting requirements of United States SARA Section 313

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED - (2355-31-9)	
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 313 - Emission Reporting	Not subject to reporting requirements of the United States SARA Section 313.

100% METHANOL UNLABELED (67-56-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	5000 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	Not subject to reporting requirements of the United States SARA Section 302.
SARA Section 311/312 Hazard Classes	Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard
SARA Section 313 - Emission Reporting	Subject to reporting requirements of United States SARA Section 313

15.2. International regulations

CANADA

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL
Listed on the Canadian DSL (Domestic Substances List)

100% METHANOL UNLABELED (67-56-1)
Listed on the Canadian DSL (Domestic Substances List)

15.2.1. National regulations

No additional information available

15.3. US State regulations

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED (MIX OF ISOMERS) 50 UG/ML IN METHANOL()	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED - (2355-31-9)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	No	No	No	

100% METHANOL UNLABELED (67-56-1)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	Yes	No	No	

N-METHYLPERFLUOROOCTANESULFONAMIDOACETIC ACID UNLABELED - (2355-31-9)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List

100% METHANOL UNLABELED (67-56-1)
State or local regulations
U.S. - Delaware - Pollutant Discharge Requirements - Reportable Quantities U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances

SECTION 16: Other information

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of R-, H- and EUH-phrases:

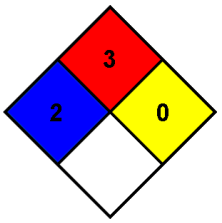
Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Liq. 2	Flammable liquids Category 2
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 1	Specific target organ toxicity (single exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H225	Highly flammable liquid and vapour
H301	Toxic if swallowed

H311	Toxic in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H335	May cause respiratory irritation
H370	Causes damage to organs
R11	Highly flammable
R36/37/38	Irritating to eyes, respiratory system and skin
R36/38	Irritating to eyes and skin
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed
F	Highly flammable
T	Toxic
Xi	Irritant

NFPA health hazard : 2 - Materials that, under emergency conditions, can cause temporary incapacitation or residual injury.

NFPA fire hazard : 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur

Flammability : 3 Serious Hazard

Physical : 0 Minimal Hazard

CIL Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

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HPC Standards Inc

Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH)
Classifications according to Regulation (EC) No 1272/2008.
Printdate July 20, 2023

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product name:

Perfluoro(2-ethoxyethane)sulfonic acid

1.1. Catalog No.:

685770

1.2. Relevant identified uses of the substance or mixture

Identified: Laboratory chemical
uses: R&D

1.3. Uses advised against:

HPC Standards GmbH
Am Wieseneck 7

04451 Cunnersdorf
Deutschland

Tel. +49 34291 3372-36
Fax. +49 34291 3372-39
contact@hpc-standards.com

1.4. Emergency telephone number

HPC Standards Tel. +49 34291 3372-36
This number is only available during office hours.

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008
Skin irritation (Category 2), H315
Eye irritation (Category 2), H319
Skin sensitisation (Category 1), H317
Classification according to EU Directives 67/548/EEC or 1999/45/EC
Xi Irritant R36/38, R43

2.2. Label elements

2.2.1. Pictogram



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2.2.2.

Signal word Warning
Hazard statement(s)
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
Precautionary statement(s)
P280 Wear protective gloves.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Supplemental Hazard Statements
none
2.3 Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1.1. Formula

C4HF9O4S

3.1.2. Molecular Weight (g/mol)

316.10

3.1.3. CAS- No.

113507-82-7

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4. FIRST AID MEASURES

4.1 Description of first aid measures
General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.
If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
4.3 Indication of any immediate medical attention and special treatment needed
no data available

5. FIRE- FIGHTING MEASURES

5.1 Extinguishing media
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
5.2 Special hazards arising from the substance or mixture
Carbon oxides
5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.
5.4 Further information
no data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.
For personal protection see section 8.
6.2 Environmental precautions
Do not let product enter drains.
6.3 Methods and materials for containment and cleaning up
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.
6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

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Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
For precautions see section 2.2.
7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Recommended storage temperature:
7.3 Specific end use(s)
A part from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters
Components with workplace control parameters
8.2 Exposure controls
Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment
Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.
The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties
a) Appearance Form: solid
b) Odour no data available
c) Odour Threshold no data available
d) pH no data available
e) Melting point/freezing
point
no data available
f) Initial boiling point and
boiling range
no data available
g) Flash point no data available
h) Evapouration rate no data available
i) Flammability (solid, gas) no data available
j) Upper/lower

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flammability or
explosive limits
no data available
k) Vapour pressure no data available
l) Vapour density no data available
m) Relative density no data available
n) Water solubility no data available
o) Partition coefficient: noctanol/
water
log Pow: no data available
p) Auto-ignition
temperature
no data available
q) Decomposition
temperature
no data available
r) Viscosity no data available
s) Explosive properties no data available
t) Oxidizing properties no data available
9.2 Other safety information
no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
no data available
10.2 Chemical stability
Stable under recommended storage conditions.
10.3 Possibility of hazardous reactions
no data available
10.4 Conditions to avoid
no data available
10.5 Incompatible materials
Oxidizing agents, Reducing agents, Water
10.6 Hazardous decomposition products
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects
Acute toxicity
no data available
Skin corrosion/irritation
no data available
Serious eye damage/eye irritation
no data available
Respiratory or skin sensitisation
Germ cell mutagenicity
no data available
Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
Reproductive toxicity
no data available
Specific target organ toxicity - single exposure
no data available
Specific target organ toxicity - repeated exposure

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no data available
Aspiration hazard
no data available
Additional Information
RTECS: Not available
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Skin sensitisation

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available
12.2 Persistence and degradability
no data available
12.3 Bioaccumulative potential
no data available
12.4 Mobility in soil
no data available
12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: - IMDG: - IATA: -
14.2 UN proper shipping name
ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA: Not dangerous goods
14.3 Transport hazard class(es)
ADR/RID: - IMDG: - IATA: -
14.4 Packaging group
ADR/RID: - IMDG: - IATA: -
14.5 Environmental hazards
ADR/RID: no IMDG Marine pollutant: no IATA: no
14.6 Special precautions for user
no data available

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15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
no data available
15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

16. OTHER INFORMATION

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any
guarantee of the properties of the product. For lab use only!

SAFETY DATA SHEET

Version 6.2
Revision Date 09/18/2019
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorodecanoic acid

Product Number : 177741
Brand : Aldrich
CAS-No. : 335-76-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301
Carcinogenicity (Category 2), H351
Reproductive toxicity (Category 1B), H360
Effects on or via lactation, H362

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

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Hazard statement(s)

H301	Toxic if swallowed.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H362	May cause harm to breast-fed children.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe dust or mist.
P263	Avoid contact during pregnancy/ while nursing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms	:	Nonadecafluorodecanoic acid Nonadecafluorocapric acid Perfluorodecanoic acid Perfluorocapric acid
Formula	:	$C_{10}HF_{19}O_2$
Molecular weight	:	514.08 g/mol
CAS-No.	:	335-76-2
EC-No.	:	206-400-3

Component	Classification	Concentration
Nonadecafluorodecanoic acid		
	Acute Tox. 3; Carc. 2; Repr. 1B; Lact. ; H301, H351, H360, H362	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen fluoride

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Keep in a dry place.
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min

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Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: powder Colour: white
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 77 - 81 °C (171 - 178 °F) - lit.
f)	Initial boiling point and boiling range	218 °C 424 °F at 987 hPa - lit.
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available

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k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Bases, Strong oxidizing agents, Reducing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 57 mg/kg
Remarks: Behavioral:Food intake (animal).
Dermal: No data available
No data available

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Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Rat
DNA damage

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: HD9900000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

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12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solids, organic, n.o.s. (Nonadecafluorodecanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG

UN number: 2811 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Nonadecafluorodecanoic acid)

IATA

UN number: 2811 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, organic, n.o.s. (Nonadecafluorodecanoic acid)

SECTION 15: Regulatory information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

Nonadecafluorodecanoic acid	CAS-No. 335-76-2	Revision Date

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SECTION 16: Other information

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.2 Revision Date: 09/18/2019 Print Date: 06/19/2021

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SAFETY DATA SHEET

Version 6.7
Revision Date 09/28/2020
Print Date 06/19/2021

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Perfluorohexanoic acid

Product Number : 43809
Brand : Sigma-Aldrich
CAS-No. : 307-24-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H314 Causes severe skin burns and eye damage.

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Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula	:	C6HF11O2
Molecular weight	:	314.06 g/mol
CAS-No.	:	307-24-4
EC-No.	:	206-196-6

Component	Classification	Concentration
Undecafluorohexanoic acid		
	Skin Corr. 1B; Eye Dam. 1; H314, H318	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aider needs to protect himself. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

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If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen fluoride
Not combustible.
Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information
Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections
For disposal see section 13.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Tightly closed.

Recommended storage temperature 2 - 8 °C

Store under argon.
Storage class (TRGS 510): 8A: Combustible, corrosive hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection
required

Body Protection
protective clothing

Respiratory protection
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid
b)	Odor	No data available
c)	Odor Threshold	No data available

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d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 12 - 14 °C (54 - 57 °F)
f)	Initial boiling point and boiling range	157 °C 315 °F at 989.2 hPa
g)	Flash point	()No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapor pressure	No data available
l)	Vapor density	No data available
m)	Relative density	1.757 g/cm3 at 20 °C (68 °F)
n)	Water solubility	insoluble
o)	Partition coefficient: n-octanol/water	No data available
p)	Autoignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen fluoride

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Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
No data available
Inhalation: No data available
Dermal: No data available
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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SECTION 12: Ecological information

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and loc No mixing with other waste. Handle uncleaned containers like the product See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

DOT (US)
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Undecafluorohexanoic acid)
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

IMDG
UN number: 3265 Class: 8 Packing group: II EMS-No: F-A, S-B
Proper shipping name: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Undecafluorohexanoic acid)

IATA
UN number: 3265 Class: 8 Packing group: II
Proper shipping name: Corrosive liquid, acidic, organic, n.o.s. (Undecafluorohexanoic acid)

SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

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SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.

Version: 6.7 Revision Date: 09/28/2020 Print Date: 06/19/2021

The life science business of Merck KGaA, Darmstadt, Germany
operates as MilliporeSigma in the US and Canada

AccuStandard, Inc.
125 Market St., New Haven, CT 06513 USA
Tel: 203-786-5290 Fax: 203-786-5287

SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

1.1 - Product Identifiers

Catalog Name: PFOS-012S

Description: Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate in Methanol

1.2 - Relevant Identified Uses of the Substance or Mixture

Laboratory Chemical Reference Material

1.3 - Supplier Details

Company: AccuStandard, Inc.
125 Market St.
New Haven, CT 06513 USA

Telephone Number: 203-786-5290

Fax: 203-786-5287

Email: edocs@accustandard.com

1.4 - Emergency Telephone Number

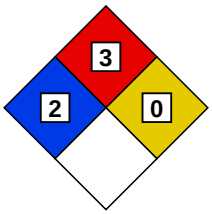
Emergency Phone #: AccuStandard, Inc.
1-203-502-7070 (USA)
+001-203-502-7070 (International)

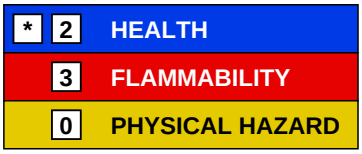
24 hours / 7 days a week

SECTION 2 - HAZARDS IDENTIFICATION

2.1 - GHS Label Elements







Signal Word: Danger

Hazard Codes:

H225 - Highly Flammable (Flammable liquids, category 2)

H301 - Toxic if swallowed. (Acute toxicity, oral, category 3)

H311 - Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

H315 - Irritating to skin. (Skin corrosion/irritation, category 2)

H320 - Irritating to eyes. (Eye damage/irritation, category 2B)

H332 - Harmful if inhaled. (Acute toxicity, inhalation, category 4)

H336 - Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

H360 - California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

H370 - Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

Precautionary Codes:

SECTION 2 - HAZARDS IDENTIFICATION *- continued*

2.1 - GHS Label Elements *- continued*

P202 - This product should only by used by persons trained in the safe handling of hazardous chemicals.

P233 - Store in a tightly closed container. (P404)

P262 - Do not get in eyes, on skin or clothing.

P264 - Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available.

P280 - Protective gloves must be worn to prevent skin contact.

P284 - Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

P331 - Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

P338 - Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers.

P360 - Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

2.2 - Other Hazards

2.2.1 - Symptom of Exposure Health/Environment

Highly Flammable (Flammable liquids, category 2)

Causes damage to organs. (Specific target organ toxicity, single exposure, category 1)

After ingestion or inhalation, initial symptoms may be only that of mild intoxication, but may become severe after 12 or 18 hours.

POISON: May be fatal or cause blindness if swallowed.

Overexposure may cause dizziness, nausea, muscle weakness, narcosis and respiratory failure.

2.2.2 - Potential Health Effects

Irritating to eyes. (Eye damage/irritation, category 2B)

Irritating to skin. (Skin corrosion/irritation, category 2)

Toxic if absorbed through skin. (Acute toxicity, dermal, category 3)

Irritating to mucous membrane and upper respiratory system.

Harmful if inhaled. (Acute toxicity, inhalation, category 4)

Toxic if swallowed. (Acute toxicity, oral, category 3)

2.2.3 - Routes of Entry

Inhalation, ingestion or skin contact.

2.2.4 - Carcinogenicity

California Proposition 65 Warning: This product contains a component (or components) that may cause birth defects or other reproductive harm in a quantity greater than or equal to 0.1%.

SECTION 3 - COMPOSITION / ANALYTES DATA

Description: Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate in Methanol

SECTION 3 - COMPOSITION / ANALYTES DATA *- continued*

Analyte	CAS #	% Concentration	ACGIH -TLV (mg/m³) TWA	ACGIH -TLV (mg/m³) STEL	ACGIH -TLV (mg/m³) Skin	OSHA -PEL (mg/m³) TWA	OSHA -PEL (mg/m³) STEL	OSHA -PEL (mg/m³) Skin
Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate	N/A	0.010						
Methanol	67-56-1	99.990				260		

SECTION 4 - FIRST AID MEASURES

4.1 - First Aid Procedures - General

Get medical assistance for all cases of overexposure.

4.2 - Eye Contact

Eye contact: Immediately flush with plenty of water. After initial flushing, remove and contact lenses and continue flushing for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. (P338)

4.3 - Skin Contact

Skin contact: Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse. (P360)

4.4 - Inhalation

Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.5 - Ingestion

Ingestion: Do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. (P331)

SECTION 5 - FIRE FIGHTING MEASURES

5.1 - Flammable Properties

Dangerous fire and explosive hazard.

Containers can build up pressure if exposed to heat.

Vapors can travel to a source of ignition and flash back.

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

5.2 - Extinguishing Media

Use alcohol foam, carbon dioxide, dry chemical, or water spray when fighting fires involving this material.

5.3 - Protection of Firefighters

As in any fire, wear self-contained breathing apparatus pressure demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

6.1 - Spill Response

Wear suitable protective equipment listed under Exposure Controls / Personal Protection. Eliminate any ignition sources until the area is determined to be free from explosion or fire hazards. Contain the release and eliminate its source, if this can be done without risk. Dispose as hazardous waste. Comply with Federal, State and local regulations.

SECTION 7 - HANDLING AND STORAGE

Store in a tightly closed container. (P404)

Store in a cool area away from ignition sources and oxidizers.

Avoid breathing vapors or mists.

Use with adequate ventilation.

Do not get in eyes, on skin or clothing. (P262)

Avoid prolonged or repeated exposure.

This product should only by used by persons trained in the safe handling of hazardous chemicals. (P202)

SECTION 8 - EXPOSURE CONTROLS

8.1 - Engineering Controls/PPE

Wash thoroughly after handling. Do not take internally. Eye wash and safety equipment should be readily available. (P264)

8.2 - General Hygene Considerations

Respiratory Protection: If workplace exposure limit(s) of product or any component is exceeded (see TLV/PEL), or a risk assessment shows air-purifying respirators are appropriate, use of a NIOSH/MSHA approved air supplied respirator is advised. Use a full-face respirator with multi-purpose combination (US) or type ABEK (EN14387) respirator cartridges in absence of proper environmental control. Always use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Engineering and/or administrative controls should be implemented to reduce exposure.

Material should be handled or transferred in an approved fume hood or with adequate ventilation.

Protective gloves must be worn to prevent skin contact. (P280)

(Chloroprene, natural rubber, nitrile, or equivalent)

Use eye protection tested and approved under the appropriate government standards such as NIOSH (US) or EN 166 (EU).

All recommendations are advisory only and must be evaluated by an industrial hygienist and/or safety officer familiar with the specific situation of anticipated use, such as concentration and amount of the substance in the workplace. Any recommendation should not be construed as offering an approval for any specific use of the product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear liquid

Odor: N/A

Odor Threshold: N/A

pH: N/A

Melting Point: -93.9 °C

Boiling Point: 65 °C

Flash Point: 52 °F (11 °C) (tcc)

Evaporation Rate (Butyl Acetate=1): 5.9

Flammability Class: N/A

Lower Flammability Level: 6.7

Upper Flammability Level: 36.5

Vapor Pressure: 97 mmHg (20 °C)

Vapor Density (Air = 1): 1.1 g/L

Specific Gravity: 0.791 g/cm3

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES *- continued*

Solubility in Water: Very soluble

Partition Coefficient: log Pow: -0.77

Autoignition Temperature: 385 °C

Decomposition Temperature: N/A

Viscosity: N/A

VOC Content: N/A

Percent Volatile: 99.9+

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Materials to Avoid: Acids
Oxidizers

Hazardous Decomposition: Oxides of carbon; Formaldehyde

Hazardous Polymerization: Will not occur

Condition to Avoid: Heat; Contact with ignition sources

SECTION 11 - TOXICOLOGICAL INFORMATION

Human Health Toxicity

See section 2 for specific toxicological information for the ingredients of this product.

LD50 (Oral): Human - 143 mg/kg; Rat - 1500 mg/kg

LD50 (Dermal) : Rabbit - >2000 mg/kg

LC50 (Inhalation): Rat - >20 mg/L

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

No other information related to the toxicological properties of this product is available at this time.

SECTION 12 - ECOLOGICAL INFORMATION

Environmental Toxicity

By complying with sections 6 and 7 there should be no release to the environment.

LC50 (Fish): >1000 mg/L 96H

EC50 (Aquatic Invertebrate): >1000 mg/L 48H

BCF: 1.0

Hydrolyzes readily on contact with water. Readily biodegradable.

No other information related to the ecological properties of this product is available at this time.

SECTION 13 - DISPOSAL CONSIDERATIONS

Recycle or incinerate at any EPA approved facility or dispose in compliance with Federal, State and local regulations. Empty containers must be triple-rinsed prior to disposal.

SECTION 14 - TRANSPORT INFORMATION

Transportation Information (DOT/IATA)

SECTION 14 - TRANSPORT INFORMATION *- continued*

UN Number: UN1230

Class: 3

Packing Group: II

Proper Shipping Name: Methanol

Poison by Inhalation: No

Marine Pollutant: No

SECTION 15 - REGULATORY INFORMATION

WARNING: This product contains chemicals known to the state of California to cause birth defects or other reproductive harm.

This product is subject to SARA section 313 reporting requirements.

Not all components are listed on the TSCA Inventory.

For laboratory, research and development use only. Not for manufacturing or commercial purposes.

In addition to federal and state regulations, local regulations may apply. Check with your local regulatory authorities.

SECTION 16 - OTHER INFORMATION

This document has been designed to meet the requirements of OSHA, ANSI, GHS and CHIPs regulations. Chemicals are classified using the Globally Harmonized System for Classification and Labeling of Chemicals and CLP Regulation (EC) No. 1272/2008.

The statements contained herein are offered for informational purposes only and are based on technical data that we believe to be accurate. The manufacturer will not assume any liability for the accuracy and completeness of this information. Final determination of the suitability of the material is the responsibility of the user. Although certain hazards are described herein, the user should not presume that these are the only hazards that exist. Since conditions and manner of use are outside of the manufacturers control, we make

NO WARRANTY OF MERCHANTABILITY, EXPRESSED OR IMPLIED, AND ASSUME NO LIABILITY RESULTING FROM ITS USE.

Legend : N/A = Not Available ND = Not Determined NR = Not Regulated

Alteration of any information contained herein without written permission from the manufacturer is strictly prohibited.

HMIS/NFPA HAZARD INDEX

0 - Minimal
1 - Slight
2 - Moderate
3 - Serious
4 - Severe

* - Additional Hazard

GHS HAZARD INDEX

Category 1 - Most Severe
Category 5 - Least Severe

**** End of Document ****

Matrix Scientific

PO BOX 25067
COLUMBIA, SC 29224-5067
Telephone: 803-788-9494 Fax: 803-788-9419

SAFETY DATA SHEET

Transportation Emergency: 3E Co. (5025) 800-451-8346

1. Product Identification

Name Undecafluoro-2-methyl-3-oxahexanoic acid

Catalog Number	018340
CAS Registry Number	[13252-13-6]
Company	Matrix Scientific
Physical Address	131 Pontiac Business Center Drive Elgin, SC 29045 USA
Telephone/Fax	(803)788-9494/(803)788-9419

2. Hazard Identification

Hazardous Ingredients Undecafluoro-2-methyl-3-oxahexanoic acid

GHS label elements, including precautionary statements

Pictogram



Signal word DANGER

Hazard statement(s)

H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H317	H317 May cause an allergic skin reaction
H318	Causes serious eye damage
H319	H319 Causes serious eye irritation

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P501	Dispose of contents/container to … [… in accordance with

local/regional/national/international regulation (to be specified)].

3. Composition, Information or Ingredients

Name Undecafluoro-2-methyl-3-oxahexanoic acid

4. First Aid Measures

Eye Contact: Check for and remove any contact lenses. Immediately flush eyes with clean, running water for at least 15 minutes while keeping eyes open. Cool water may be used. Seek medical attention.

Skin Contact: After contact with skin, wash with generous quantities of running water. Gently and thoroughly wash affected area with running water and non-abrasive soap. Cool water may be used. Cover the affected area with emollient. Seek medical attention. Wash any contaminated clothing prior to reusing.

Inhalation: Remove the victim from the source of exposure to fresh, uncontaminated air. If victim's breathing is difficult, administer oxygen. Seek medical attention.

Ingestion: Do NOT induce vomiting. Give water to victim to drink. Seek medical attention.

5. Fire-Fighting Measures

Extinguishing media: Carbon dioxide, dry chemical powder, alcohol or polymer foam.

Special fire fighting procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Unusual fire and explosion hazards/ decomposition of product: Emits toxic fumes under fire conditions.

6. Accidental Release Measures

Steps to be taken if material is spilled or otherwise released into the environment - Wear Appropriate respirator, impervious boots and heavy rubber (or otherwise impervious) gloves. Scoop up solid material or absorb liquid material and place into appropriate container. Ventilate area and wash affected spill area after pickup is complete. Wash skin immediately with plenty of water. Place solid or absorbed material into containers and close for disposal.

7. Handling and Storage

Avoid prolonged exposure.
Use caution when handling.
Exposure to any chemical should be limited.
Do not breath dust or vapor.
Have safety shower and eye wash available.

Do not get in eyes, on skin or on clothing.
Keep container tightly closed.
Store in a cool, dry, well-ventilated place.
Ensure adequate ventilation during use.
Use only in a chemical fume hood.
To the best of our knowledge, the health hazards of this product have not been fully investigated.
This product is provided solely for the purpose of research and development.

8. Exposure Controls and Personal Protection

Wear Protective safety goggles.
Wear chemical-resistant gloves.
Wear protective clothing and chemical resistant boots.
Ensure ventilation during use.
After contact with skin, wash immediately.

9. Physical and Chemical Properties

Appearance: liquid
Molecular Formula: C6HF11O3
Molecular Weight: 330.06
Boiling point (C): 186-188°
Density (g/ml): 1.85

10. Stability and Reactivity

Incompatibilities: Strong oxidizing agents
Strong acids and bases

Hazard Decomposition Products

Carbon	carbon monoxide
	carbon dioxide
Fluorine	hydrogen fluoride

11. Toxicological Information

Acute effects:
Irritant
May be harmful by ingestion and inhalation.
Material is irritating to mucous membranes and upper respiratory tract.
To the best of our knowledge, the toxicological properties of this product have not been fully investigated or determined.

12. Ecological Information

Mobility: Data not known
Persistence and degradability: No data available

Cumulative potential: No data available
Other adverse effects: No data available

13. Disposal Considerations

Absent other actions demanded by federal or local regulations - Dissolve or mix the material with a combustible solvent and burn in a requlated, chemical incinerator equipped with after burner and scrubber.
Observe all federal, state and local laws.

14. Transport Information

Shipping Name Corrosive liquid, acidic, organic, n.o.s.
Class / Sub-Class 8
UN Number UN3265
Packing Group II
Inhalation Hazard Zone

15. Regulatory Information

Adhere to all Federal, State and local regulations.

16. Other Information

The information contained herein is accurate to the best of our knowledge, but is not meant to be complete and is included only as a guide. The end user is responsible for any damage resulting from handling or from contact with this product.

SAFETY DATA SHEET

Version 4.11
Revision Date 10/29/2015
Print Date 03/03/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Tetrahydrofuran

Product Number : 401757
Brand : Sigma-Aldrich
Index-No. : 603-025-00-0

CAS-No. : 109-99-9

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Carcinogenicity (Category 2), H351
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and

	understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

May form explosive peroxides.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Synonyms	:	THF
Formula	:	C_4H_8O
Molecular weight	:	72.11 g/mol
CAS-No.	:	109-99-9
EC-No.	:	203-726-8
Index-No.	:	603-025-00-0
Registration number	:	01-2119444314-46-XXXX

Hazardous components

Component	Classification	Concentration
Tetrahydrofuran		
	Flam. Liq. 2; Acute Tox. 4; Eye Irrit. 2A; Carc. 2; STOT SE 3; H225, H302, H319, H335, H351	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Dry residue is explosive. Store under inert gas. Test for peroxide formation periodically and before distillation.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Tetrahydrofuran	109-99-9	TWA	50.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		STEL	100.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation Kidney damage Confirmed animal carcinogen with unknown relevance to humans Danger of cutaneous absorption		
		TWA	200.000000 ppm 590.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		ST	250.000000 ppm 735.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		TWA	200.000000 ppm 590.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Tetrahydrofuran	109-99-9	Tetrahydrofuran	2.0000 mg/l	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			

Derived No Effect Level (DNEL)

Application Area	Exposure routes	Health effect	Value
Workers	Skin contact	Long-term systemic effects	25mg/kg BW/d
Consumers	Skin contact	Long-term systemic effects	15mg/kg BW/d
Workers	Inhalation	Long-term local effects	150 mg/m3
Workers	Inhalation	Long-term systemic effects	150 mg/m3
Consumers	Inhalation	Long-term systemic effects	62 mg/m3
Consumers	Inhalation	Acute local effects	150 mg/m3
Consumers	Inhalation	Acute systemic effects	150 mg/m3

Predicted No Effect Concentration (PNEC)

Compartment	Value
Soil	2.13 mg/kg
Marine water	0.432 mg/l
Fresh water	4.32 mg/l
Marine sediment	2.33 mg/kg
Fresh water sediment	23.3 mg/kg
Onsite sewage treatment plant	4.6 mg/l

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 18 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	ether-like
c)	Odour Threshold	No data available
d)	pH	ca.7
e)	Melting point/freezing	Melting point/range: -108.44 °C (-163.19 °F) at 1,013.25 hPa (760.00

	point	mmHg)
f)	Initial boiling point and boiling range	65.0 - 67.0 °C (149.0 - 152.6 °F) at 1,013.25 hPa (760.00 mmHg)
g)	Flash point	-17.0 °C (1.4 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 11.8 %(V) Lower explosion limit: 1.8 %(V)
k)	Vapour pressure	170 hPa (128 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	ca.2.5 at 25 °C (77 °F) - (Air = 1.0)
m)	Relative density	0.89 g/cm3
n)	Water solubility	soluble
o)	Partition coefficient: n-octanol/water	log Pow: 0.46
p)	Auto-ignition temperature	215 °C (419 °F) at 1,013 hPa (760 mmHg)
q)	Decomposition temperature	No data available
r)	Viscosity	0.518 mm2/s at 25 °C (77 °F) - 0.403 mm2/s at 50 °C (122 °F) -
s)	Explosive properties	Not explosive, In use may form flammable/explosive vapour-air mixture.
t)	Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other safety information

Relative vapour density	ca.2.5 at 25 °C (77 °F) - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.
Test for peroxide formation before distillation or evaporation. Test for peroxide formation or discard after 1 year.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Acids

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,650 mg/kg

LC50 Inhalation - Rat - 6 h - 14.7 mg/l
Remarks: Material may be irritating to mucous membranes and upper respiratory tract.

LD50 Dermal - Rat - > 2,000 mg/kg

No data available

Skin corrosion/irritation
Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Risk of serious damage to eyes.
(Draize Test)

Respiratory or skin sensitisation
Based on available data, the classification criteria are not met.

Germ cell mutagenicity
In vivo tests did not show mutagenic effects

Ames test
S. typhimurium
Result: negative

Carcinogenicity

Suspected human carcinogens

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No toxicity to reproduction

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness. - Nervous system
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
No aspiration toxicity classification

Additional Information
RTECS: LU5950000

Central nervous system depression, Cough, chest pain, Difficulty in breathing, Exposure to high airborne concentrations can cause anesthetic effects.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 2,160 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 382 mg/l - 24 h
Toxicity to algae	Growth inhibition IC50 - Algae - 3,700 mg/l - 192 h

12.2 Persistence and degradability

Biodegradability

(OECD Test Guideline 301)

Remarks: According to the results of tests of biodegradability this product is not readily biodegradable.

12.3 Bioaccumulative potential

No bioaccumulation is to be expected (log Pow <= 4).

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN number: 2056 Class: 3 Packing group: II

Proper shipping name: Tetrahydrofuran

Reportable Quantity (RQ): 1000 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 2056 Class: 3 Packing group: II EMS-No: F-E, S-D

Proper shipping name: TETRAHYDROFURAN

IATA

UN number: 2056 Class: 3 Packing group: II

Proper shipping name: Tetrahydrofuran

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Tetrahydrofuran	109-99-9	1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
STOT SE	Specific target organ toxicity - single exposure

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.11 Revision Date: 10/29/2015 Print Date: 03/03/2016

SAFETY DATA SHEET

Issuing Date 03-Nov-2015 **Revision Date** 21-Jul-2015 **Revision Number** 1

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Number **601**
Product Name **Total Petroleum Hydrocarbons (TPH) in Water #2**
Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Laboratory use only
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier ERA a Waters Company
Supplier Address 16341 Table Mountain Parkway, Golden, CO 80403 USA
Non-Emergency Telephone Number +1-303-431-8454
Supplier Email sdsinfo@waters.com

Emergency telephone number

Company Emergency Phone Number In case of EMERGENCY call CHEMTREC Day or Night
Within USA and Canada: 800-424-9300
International Call Collect: +1-703-527-3887

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements
Causes severe skin burns and eye damage



Appearance Clear, colorless **Physical state** Liquid->Liquid **Odor** Odorless

Precautionary Statements - Prevention
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling
Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response
Immediately call a POISON CENTER or doctor/physician
Specific treatment (see supplemental first aid instructions on this label)

Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician
Skin
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Ingestion
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable
Unknown Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity
Other information

No information available
Interactions with Other Chemicals
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Note: only the components contributing to the product's GHS hazard classification are listed in this section.

Chemical Name	CAS-No	Percent
Hydrochloric Acid	7647-01-0	0.09

4. FIRST AID MEASURES

First aid measures

General Advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get medical attention immediately if symptoms occur.
Ingestion	Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects Burning sensation.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical

The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

Uniform Fire Code Corrosive: Other--Liquid

Hazardous Combustion Products

Carbon oxides.

Explosion Data

Sensitivity to Mechanical Impact No.

Sensitivity to Static Discharge No.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers. Soak up with inert absorbent material.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Incompatible Products Acids. Bases. Oxidizing agent.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrochloric Acid 7647-01-0	Ceiling: 2 ppm	(vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m³ Ceiling: 5 ppm Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.
Skin and body protection Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.
Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
Hygiene Measures Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. For environmental protection, remove and wash all contaminated protective equipment before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical state Liquid->Liquid
Appearance Clear, colorless
Color No information available
Odor Odorless
Odor Threshold No information available

Property	Values	Remarks Method
pH	<=2	None known
Melting / freezing point	no data available	None known
Boiling point / boiling range	no data available	None known
Flash Point	no data available	None known
Evaporation Rate	no data available	None known
Flammability (solid, gas)	no data available	None known
Flammability Limit in Air		None known
Upper flammability limit	no data available	
Lower flammability limit	no data available	
Vapor pressure	no data available	None known
Vapor density	no data available	None known
Specific Gravity	1	None known
Water Solubility	Soluble in water	None known
Solubility in other solvents	no data available	None known
Partition coefficient: n-octanol/water	no data available	None known
Autoignition temperature	no data available	None known
Decomposition temperature	no data available	None known
Kinematic viscosity	no data available	None known
Dynamic viscosity	no data available	None known

Explosive properties no data available
Oxidizing properties no data available

Other Information

Softening Point no data available
Particle Size no data available
Particle Size Distribution

10. STABILITY AND REACTIVITY

Reactivity

no data available.

Chemical stability
Stable under recommended storage conditions.
Possibility of Hazardous Reactions
None under normal processing.
Hazardous Polymerization
Hazardous polymerization does not occur.
Conditions to avoid
Exposure to air or moisture over prolonged periods.
Incompatible materials
Acids. Bases. Oxidizing agent.
Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information .

Inhalation Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact Specific test data for the substance or mixture is not available. May cause irritation. Prolonged contact may cause redness and irritation.

Ingestion Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Hydrochloric Acid 7647-01-0	238 - 277 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 1.68 mg/L (Rat) 1 h

Information on toxicological effects

Symptoms Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrochloric Acid 7647-01-0		Group 1 Group 3		X

Reproductive toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic toxicity No known effect based on information supplied. Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.
Target Organ Effects Respiratory system. Eyes. Skin. Gastrointestinal tract (GI).
Aspiration Hazard No information available.

Numerical measures of toxicity Product Information
The following values are calculated based on chapter 3.1 of the GHS document
Not applicable

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic life.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Hydrochloric Acid 7647-01-0		96h LC50: = 282 mg/L (Gambusia affinis)		

Persistence and Degradability
No information available.
Bioaccumulation
No information available

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).
Contaminated Packaging Dispose of contents/containers in accordance with local regulations.
US EPA Waste Number D002

California Hazardous Waste Codes 791

14. TRANSPORT INFORMATION

DOT Not regulated
Proper Shipping Name NON REGULATED
Hazard Class N/A

TDG Not regulated

MEX Not regulated

ICAO Not regulated

IATA Not regulated
Proper Shipping Name NON REGULATED
Special Provisions None

IMDG Not regulated
Special Provisions None
Marine Pollutant Not applicable

RID Not regulated
Special Provisions None

ADR Not regulated
Special Provisions None

ADN Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL.
ENCS	Contact supplier for inventory compliance status
KECL	Contact supplier for inventory compliance status
PICCS	Contact supplier for inventory compliance status
AICS	Contact supplier for inventory compliance status

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS-No	Percent	SARA 313 - Threshold Values %
Hydrochloric Acid - 7647-01-0	7647-01-0	0.09	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Hydrochloric Acid 7647-01-0	5000 lb			X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level

pertaining to releases of this material

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Hydrochloric Acid 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

.

International Regulations

Component	Carcinogen Status	Exposure Limits
Hydrochloric Acid 7647-01-0 (0.09)		Mexico: Ceiling 5 ppm Mexico: Ceiling 7 mg/m^3

Canada

WHMIS Hazard Class

Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards** 3	**Flammability** 0	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazards** 3	**Flammability** 0	**Physical Hazard** 0	**Personal Protection** X

Prepared By

Product Stewardship
23 British American Blvd.
Latham, NY 12110
1-800-572-6501

Issuing Date 03-Nov-2015

Revision Date 21-Jul-2015

Revision Note No information available

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

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End of Safety Data Sheet

ATTACHMENT F

JOBSITE SAFETY INSPECTION CHECKLIST

Jobsite Safety Inspection Checklist

Date: _____ **Inspected By:** _____

Location: _____ **Project #:** _____

Check one of the following: **A:** Acceptable **NA**: Not Applicable **D**: Deficiency

	A	NA	D	Remark
1. CHASP available onsite for inspection?				
2. Health & Safety Compliance agreement (in CHASP) appropriately signed by Langan employees and contractors?				
3. Hospital route map with directions posted on site?				
4. Emergency Notification List posted on site?				
5. First Aid kit available and properly stocked?				
6. Personnel trained in CPR/First Aid on site?				
7. MSDSs readily available, and all workers knowledgeable about the specific chemicals and compounds to which they may be exposed?				
8 Appropriate PPE being worn by Langan employees and contractors?				
9. Project site safe practices ("Standing Orders") posted?				
10. Project staff have 40-hr./8-hr./Supervisor HAZWOPER training?				
11. Project staff medically cleared to work in hazardous waste sites and fit-tested to wear respirators, if needed?				
12. Respiratory protection readily available?				
13. Health & Safety Incident Report forms available?				
14. Air monitoring instruments calibrated daily and results recorded on the Daily Instrument Calibration check sheet?				
15. Air monitoring readings recorded on the air monitoring data sheet/field log book?				
16. Subcontract workers have received 40-hr./8-hr./Spvsr. HAZWOPER training, as appropriate?				
17. Subcontract workers medically cleared to work on site, and fit-tested for respirator wear?				
18. Subcontract workers have respirators readily available?				
19. Mark outs of underground utilities done prior to initiating any subsurface activities?				
20. Decontamination procedures being followed as outlined in CHASP?				
21. Are tools in good condition and properly used?				
22. Drilling performed in areas free from underground objects including utilities?				

23. Adequate size/type fire extinguisher supplied?				
24. Equipment at least 20 feet from overhead powerlines?				
25. Evidence that drilling operator is responsible for the safety of his rig.				
26. Trench sides shored, layer back, or boxed?				
27. Underground utilities located and authorities contacted before digging?				
28. Ladders in trench (25-foot spacing)?				
29. Excavated material placed more than 2 feet away from excavation edge?				
30. Public protected from exposure to open excavation?				
31. People entering the excavation regarding it as a permit-required confined space and following appropriate procedures?				
32. Confined space entry permit is completed and posted?				
33. All persons knowledgeable about the conditions and characteristics of the confined space?				
34. All persons engaged in confined space operations have been trained in safe entry and rescue (non-entry)?				
35. Full body harnesses, lifelines, and hoisting apparatus available for rescue needs?				
36. Attendant and/or supervisor certified in basic first aid and CPR?				
37. Confined space atmosphere checked before entry and continuously while the work is going on?				
38. Results of confined space atmosphere testing recorded?				
39. Evidence of coordination with off-site rescue services to perform entry rescue, if needed?				
40. Are extension cords rated for this work being used and are they properly maintained?				
41. Are GFCIs provided and being used?				

Unsafe Acts: _____

_____

_____

_____

Notes: _____

_____

_____

_____

ATTACHMENT G

JOB SAFETY ANALYSIS FORM

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA TITLE: **JSA NUMBER:**	**DATE CREATED:** **CREATED BY**: **REVISION DATE:** **REVISED BY:**
Langan employees must review and revise the Job Safety Analysis (JSA) as needed to address the any site specific hazards not identified. Employees must provide their signatures on the last page of the JSA indicating they have review the JSA and are aware the potential hazards associated with this work and will follow the provided preventive or corrective measures.	

PERSONAL PROTECTIVE EQUIPMENT REQUIRED: (PPE): ■ Required ☒ As Needed		
☐ Steel-toed boots	☐ Nitrile gloves	☐ Dermal Protection (Specify)
☐ Long-sleeved shirt	☐ Leather/ Cut-resistant gloves	☐ High visibility vest/clothing
☐ Safety glasses	☐ Face Shield	☐ Hard hat
ADDITIONAL PERSONAL PROTECTIVE EQUIPMENT NEEDED (Provide specific type(s) or descriptions)		
☐ Air Monitoring:	☐ Respirators:	☐ Other:
☐ Dermal Protection:	☐ Cartridges:	☐ Other:

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE OR CORRECTIVE ACTION
1.	1. 2.	1a. 1b. 2a. 2b.
2.	1.	1
Additional items identified in the field.		
Additional Items.		

If additional items are identified during daily work activities, please notify all relevant personnel about the change and document on this JSA.

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: COVID-19 Awareness – Site Work **JSA Number: JSA046-00**	
A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.	

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Boots	☐ Long Sleeves	☐ Safety Vest (Class 2)	☐ Hard Hat	☐ Hearing Protection
☐ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Alcohol-based hand sanitizer, disinfectant wipes/spray				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. All Activities	1. Transmittal/exposure of COVID-19	1. Ask yourself and your managers – is this work essential? Can this be done remotely? 2. Stay home if sick or showing symptoms of COVID-19 (e.g. fever, cough, etc.). 3. Carry nitrile gloves, alcohol-based hand sanitizer, face coverings and disinfectant wipes/spray during field work. 4. Check federal, state, and/or local travel restrictions **prior** to travel. Many states, counties, and cities are passing strict "shelter-in-place" or business restrictions in response to COVID-19. 5. Immediately notify Beverly Williams or Rory Johnston (Supervisor if employee chooses) if you display symptoms of COVID-19. Symptoms include fever (over 100.4 F), cough, and shortness of breath. 6. Notify Beverly Williams or Rory Johnston, Supervisor and Coronavirus Task Force if you had close contact with an individual who tested positive or displayed symptoms of COVID-19. 7. Do not touch your face, to the extent possible. 8. Wear face coverings when around other worker to minimize spread of COVID-19. (May be required in certain states or locations.)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		9. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. Avoid gatherings of more than 10 people. Limit, to the extent possible, contact with public items/objects. 10. Clean your hands frequently with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, sneezing, or using the rest room. 11. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry. 12. Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. 13. Clean and disinfect frequently touched surfaces daily, for example, cell phones, computer equipment, headsets, tables, doorknobs, light switches, countertops, handles, desks, toilets, faucets, and sinks.
2. Travel to Jobsite	1. Transmittal/exposure of COVID-19 between passengers 2. Transmittal/exposure of COVID-19 from previous occupants (rental and fleet vehicles) 3. Transmittal/exposure of COVID-19 while refueling	1. Limit the number of occupants to each vehicle to 2 people. Employees should sit as far away from each other as possible. 2. Disinfect high "hand-traffic" areas of the vehicle: Door handles, steering wheel, turn signal and control rods, dashboard controls, seatbelts, armrests, etc. To the extent possible, do not use recycled air for heat/AC and travel with the windows open. 3. Use hand sanitizer before and after pumping gas and only return to the inside of the vehicle after refueling is complete. 4. Wear nitrile gloves if available or disinfect the key pad, pump handle, and fuel grade button prior to use. 5. Recommend face coverings are worn to minimize spread of COVID-19.
3. Conduct Tailgate Safety Meeting & Complete H&S Paperwork	1. Transmittal/exposure of COVID-19 between meeting participants	1. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. 2. Recommend face coverings are worn when around other workers to minimize spread of COVID-19, 3. Hold meetings outside and keep in mind wind direction. To the extent possible, remain cross-wind from other people. 4. Designate a single person to maintain sign-in sheets/permits throughout the day to limit the passing of pens/clipboards between people. 5. Each person should complete their own JSA, even if they are completing similar tasks as others in order to limit the passing of paper/pens/clipboards between people. 6. Include COVID-19 topics and prevention measures in safety meetings.
4. Conduct Site Work	1. Transmittal/exposure of COVID-19 between site workers and public.	1. Practice social distancing maintaining 6 feet of distance between yourself and others. 2. Recommend face coverings are worn when around other workers to minimize spread of COVID-19, 3. To the extent possible, do not interact with the public. If it is necessary, politely explain you are practicing social distance and request they stay at least 6 feet away and they do not attempt to pass objects to you. 4. Wear nitrile gloves during site work underneath the appropriate gloves for your task. Utilize appropriate decontamination procedures, securely bag all waste (including nitrile gloves) generated during site work and dispose of.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Do not share tools. Each person should be equipped with the tools to complete their task or tasks should be divided to remove the need to share tools. If tools must be shared, surfaces should be disinfected. 6. Clean and disinfect surfaces of rental tools and equipment upon receipt. To the extent possible rent equipment from Langan's internal equipment reservation center, where cleaning/disinfecting procedures can be verified.
5. Use of Construction Trailers	1. Transmittal/exposure of COVID-19 between site workers and others.	1. Avoid use of shared trailers, if possible. Minimize trailer use to essential personnel. 2. Practice social distancing; maintaining 6 feet of distance between yourself and others in trailer. 3. Clean and disinfect areas including desks, phones, chairs and other common areas, before and after use.
6. Purchasing Food from a Restaurant	1. Transmittal/exposure of COVID-19 from other customers, staff, surfaces.	1. To the extent possible, bring your own food. 2. If you must visit a restaurant, call ahead for take-out or "contactless delivery". Do not dine in. When picking up food, follow guidelines for Job Step #8: Purchasing Supplies at Retail/Shipping Centers. 3. Wash hands before and after eating.
7. Smoking Cigarettes	1. Transmittal/exposure of COVID-19 by touching mouth with hands	1. Cigarette smokers maybe at greater risk of complications arising from COVID-19. Nicotine patches/lozenges/gum, smoking cessation programs, and prescription medications may aid in "kicking the habit" if you decide to quit. 2. Wash hands thoroughly before and after smoking. 3. Discard cigarette butts properly. Do not light cigarettes from others and do not give cigarettes to others.
8. Hotel Stay	1. Transmittal/exposure of COVID-19 from previous occupants, hotel staff, common areas.	1. Verify the hotel chain/brand has modified cleaning procedures to reflect risk of COVID-19. Most hotel companies have issued statements on their websites and in email blasts reflecting these new procedures. 2. Use the front door, and not peripheral entrances. Front doors of hotels are generally automatic. 3. Request ground floor room to avoid elevator use and a room that has not be utilized in 48-72 hours. 4. If elevator use is required, do not directly touch elevator buttons with your hands. Do not ride elevators with other people, to the extent possible. 5. Bring disinfecting wipes or sanitizing spray. Upon arrival, disinfect high "hand-traffic" areas of the hotel room: Door handles, light switches, shower/sink faucet handles, TV remote, curtain/blind handles. Clean these surfaces daily. 6. Place the "Do Not Disturb" Sign on your door to prevent people (housekeeping) from entering your room. 7. Avoid common spaces and hotel sponsored events where crowds will be present. 8. Confirm hotel cleaning procedures have been modified to address COVID-19. Confirm no COVID-19 cases have occurred in hotel
9. Purchasing Supplies at Retail/Shipping Centers	1. Transmittal/exposure of COVID-19 from other customers, staff, surfaces.	1. Plan your travel to limit the need to visit retail/shipping centers. 2. Practice social distancing, maintaining at least 6 feet of distance between yourself and others. If the store is too crowded/small, consider visiting another store or returning at a different time. 3. Avoid high "hand-traffic" items/areas like door handles (i.e. use your shoulder, hip/butt, or open with a disposable napkin/paper towel), credit cards terminals (i.e. use Apple/Android pay if available), shopping carts/baskets (i.e. bring your own shopping

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		bags), counter tops (i.e. ask clerk if you can hold the items while they are scanned) and bulk/buffet items (i.e. just avoid them). 4. Disinfect your hands before and after visiting a retail/shipping center.

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Environmental Sampling**
JSA Number: **JSA021-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☐ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☒ Insect/Animal Repellent	☒ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
1. Drive to sample location	1. Rough/Off Road terrain	1. Pay attention to road conditions such as road erosion, unprotected embankments, and soft road conditions.
2. Sample Collection (Walking)	1. Slip/Trips/Falls 2. Back strains 3. Wildlife (Insects, Stray animals, rodents) 4. Poisonous vegetation	1. Minimize distance to sample area/ Plan route and check surface prior to carrying heavy equipment/ Locate safest access point/ Follow good housekeeping procedures/ Mark significant below grade hazards (holes, trenches) with spray paint or cones/ Wear foot protection with ankle support and gripping soles. 2. Use proper lifting techniques/ Use wheeled transport/ Obtain assistance where and when needed/ Consider load weight when evaluating what is safe and unsafe to carry. 3. Be aware of surroundings for the presence of wildlife. Do not approach stray animals. Carry and use animal repellant when needed/ Use bug spray when needed. 4. Keep skin covered/ Identify and avoid poisonous vegetation/ Clean areas after contact with suspected vegetation.
3. Sample Collection (Water)	1. Drowning Hazards 2. Chemical burns (when adding acid preservative to sample) 3. Back Strains 4. Ergonomic issues 5. Slip/Trips/Falls	1. Use buddy system/ Wear flotation vest if water is deeper than 2 feet or swift moving/ Select working area with stable footing. Do not attempt to cross or stand in swift moving water. 2. Wear proper PPE (Nitrile gloves, Tyvek Sleeves) 3. Use proper lifting techniques/ Use wheeled transport/ Obtain assistance where and when needed/ Consider load weight when evaluating what is safe or unsafe to carry. 4. When possible avoid bending over for long periods of time/ Use a small stool for sitting or knee pad for kneeling.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Minimize distance to sample area/ Plan route and check surface prior to carrying heavy equipment/ Locate safest access point/ Follow good housekeeping procedures/ Mark significant below grade hazards (holes, trenches) with spray paint or cones/ Wear foot protection with ankle support and gripping soles/ Avoid standing water or slippery terrain.
4. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas were overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Subsurface Investigation**
JSA Number: **JSA030-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Dielectric Overshoes, Sun Block				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Transport equipment to work area	2. Back/strain 3. Slip/Trip/Falls 4. Traffic 5. Cuts/abrasions/contusions from equipment 6. Accidents due to vehicle operations	1. Use proper lifting techniques/Use wheeled transport 2. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes) 5. Observe posted speed limits/ Wear seat belts at all times
6. Traffic	1. Hit by moving vehicle	1. Use traffic cones and signage/ Use High visibility traffic vests and clothing/ Caution tape when working near active roadways.
7. Field Work (drilling, resistivity testing, and inspection)	1. Biological Hazards: insects, rats, snakes, poisonous plants, and other animals 2. Heat stress/injuries 3. Cold Stress/injuries 4. High Energy Transmission Lines 5. Underground Utilities 6. Electrical (soil resistivity testing)	1. Inspect work area to identify biological hazards. Wear light colored long sleeve shirt and long pants/ Use insect repellant as necessary/ Beware of tall grass, bushes, woods and other areas where ticks may live/ Avoid leaving garbage on site to prevent attracting animals/ Identify and avoid contact with poisonous plants/Beware of rats, snakes, or stray animals. 2. Wear proper clothing (light colored)/ drink plenty of water/ take regular breaks/use sun block 3. Wear proper clothing/ dress in layers/ take regular breaks. 4. Avoid direct contact with high energy transmission lines/ position equipment at least 15 feet or as required by PSE&G from the transmission lines/ wear proper PPE (dielectric overshoes 15 kV minimum rating).

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		5. Call one-call service before performing intrusive field work/ Review utility mark-outs and available utility drawings (with respect to proposed work locations)/ Follow Underground Utility Guidelines 6. See AGI Sting R1 operating manual for specific concerns during operating instrument
8. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 5. Traffic 6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 7. High Noise levels 8. Overhead hazards 9. Heat Stress/ Cold Stress 10. Eye Injuries	7. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 8. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 9. Wear Langan approved safety shoes 10. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 11. Wear high visibility clothing & vest / Use cones or signs to designate work area 12. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 13. Wear proper hearing protection 14. Wear hard hat / Avoid areas were overhead hazards exist. 15. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 16. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Field Sampling**
JSA Number: **JSA022-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☐ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
9. Unpack/Transport equipment to work area.	7. Back Strains 8. Slip/Trips/Falls 9. Cuts/Abrasions from equipment 10. Contusions from dropped equipment	6. Use proper lifting techniques/Use wheeled transport 7. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 8. Wear proper PPE (leather gloves, long sleeves). 9. Wear proper PPE (Langan approved safety shoes).
10. Initial Site Arrival-Site Assessment	5. Traffic	5. Situational awareness (be alert of your surroundings). Secure area from through traffic.
11. Surface Water Sampling	6. Contaminated media. Skin/eye contact with biological agents and/or chemicals.	6. Wear appropriate PPE (Safety glasses, appropriate gloves). Review (M)SDS for all chemicals being.
12. Sampling from bridges	1. Struck by vehicles	1. Wear appropriate PPE (Safety Vest). Use buddy system and orange safety cones.
13. Icing of Samples/ Transporting coolers/equipment from work area.	11. Back Strains 12. Slips/Trips/Falls 13. Cuts/Abrasions from equipment 14. Pinch/Crushing Hazards.	17. Drain coolers of water. Use proper lifting techniques. Use wheeled transport. 18. Have unobstructed path from work area. Aware of surroundings. 19. Wear proper PPE (Leather gloves, long sleeves) 20. Wear proper PPE (Leather gloves, long sleeves)
14. Site Departure	1. Contaminated PPE/Vehicle	1. Contaminated PPE should be disposed of on-site. Remove boots and soiled clothing for secure storage in trunk. Wash hands promptly.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
15. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 4. Back injuries 15. Traffic 16. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat Stress/ Cold Stress 20. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 21. Wear high visibility clothing & vest / Use cones or signs to designate work area 22. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 23. Wear hearing protection 24. Wear hard hat / Avoid areas were overhead hazards exist. 25. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 26. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: Equipment Transportation and Set-up **JSA Number:** JSA012-01 **A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.**	 **S – *Stop,* what has changed?** **T – *Think* about the task** **E – *Evaluate* potential hazards** **P – *Plan* safe approach** **S - *Start* task / *Stop* & regroup**

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☐ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
16. Transport equipment to work area	11. Back Strain 12. Slips/ Trips/ Falls 13. Traffic 14. Cuts/abrasions from equipment 15. Contusions from dropped equipment	1. Use proper lifting techniuqes / Use wheeled transport 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
17. Moving equipment to its planned location	6. Pinch Hazard 7. Slips/ Trips/ Falls	1. Wear proper PPE (leather gloves) 2. Be aware of potential trip hazards / Practice good housekeeping procedures / Mark significant below-grade hazards (i.e. holes, trenches) with safety cones or spray paint
18. Equipment Set-up	7. Pinch Hazard 8. Cuts/abrasions to knuckles/hands 9. Back Strain	1. Wear proper PPE (leather gloves) 2. Wear proper PPE (leather gloves) 3. Use proper lifting techniques / Use wheeled transport
19. All activities	21. Slips/ Trips/ Falls 22. Hand injuries, cuts or lacerations during manual handling of materials 23. Foot injuries 24. Back injuries 25. Traffic 26. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.)	27. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 28. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 29. Wear Langan approved safety shoes

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
4. All activities (cont'd)	27. High Noise levels 28. Overhead hazards 29. Heat Stress/ Cold Stress 30. Eye Injuries	30. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 31. Wear high visibility clothing & vest / Use cones or signs to designate work area 32. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 33. Wear hearing protection 34. Wear hard hat / Avoid areas were overhead hazards exist. 35. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 36. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: 55-gallon Drum **Sampling** **JSA Number:** **JSA043-01**	
A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.	S – ***Stop,*** *what has changed?* T – ***Think*** *about the task* E – ***Evaluate*** *potential hazards* P – ***Plan*** *safe approach* S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: All Drums are required to be labeled. Langan employees do not open or move undocumented drums or unlabeled drums without proper project manager authorization.				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
20. Unpack/Transport equipment to work area.	16. Back Strains 17. Slip/Trips/Falls 18. Cuts/Abrasions from equipment 4. Contusions from dropped equipment	10. Use proper lifting techniques/Use wheeled transport 11. Minimize distance to work area/Unobstructed path to work area/follow good housekeeping procedures. Mark slip/trip/fall hazards with orange safety cones. 12. Wear proper PPE (leather gloves, long sleeves). 4. Wear proper PPE (Langan approved safety shoes).
21. Open Drums	1. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid. 2. Pressure from drums.	1. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches. 2. Open drum slowly to relieve pressure. Wear proper PPE: face shield and goggles; correct gloves; and over garments.
22. Collecting Soil/Fluid Sample	8. Irritation to eye from vapor, soil dust, or splashing 9. Irritation to exposed skin	6. Wear proper eye protection including safety glasses/ face shield/googles and when necessary, splash guard. If dust or vapor phase is present, wear appropriate safety breathing gear (1/2 mask or full face mask with correct filter) 7. Wear proper skin protection including nitrile gloves.
23. Closing Drums	1. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid.	7. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
24.Moving Drums	2. Hand Injuries, cuts or lacerations when untightening drum locking bolt, removing drum lid strap, or removing lid. 3. Back Strains	2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves. Use non-metallic mallet and non-sparking tools/wrenches. 3. Use proper lifting techniques/Use wheeled transport
25. All activities	31. Slips/ Trips/ Falls 32. Hand injuries, cuts or lacerations during manual handling of materials 33. Foot injuries 34. Back injuries 35. Traffic 36. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 37. High Noise levels 38. Overhead hazards 39. Heat Stress/ Cold Stress 40. Eye Injuries	37. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 38. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 39. Wear Langan approved safety shoes 40. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 41. Wear high visibility clothing & vest / Use cones or signs to designate work area 42. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 43. Wear hearing protection 44. Wear hard hat / Avoid areas were overhead hazards exist. 45. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 46. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Excavation Oversight
JSA Number: JSA041-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
26. Transport equipment to work area	19. Back Strain 20. Slips/Trips/Falls 21. Traffic 22. Cuts/abrasions/contusions from equipment	13. Use proper lifting techniques / Use wheeled transport 14. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 15. Wear proper PPE (high visibility vest or clothing) 16. Wear proper PPE (leather gloves, long sleeves, safety shoes)
27.Earth Moving Equipment	10. Equipment running over employee	8. Ensure you have direct line of sight with operator of equipment; don't walk behind equipment; maintain a safe distance away from equipment. 9. Wear proper PPE (high vis vest/clothing)
28.Excavation	10. Excavation collapse 11. Confined space 12. Soil	8. Use proper shoring/benching/sloping techniques; Ladder is properly situated in excavation; no water in excavation; competent person has inspected excavation prior to allow employees to enter. 9. Langan employees are not authorized to enter a confined space; 10. Soil and equipment is kept atleast 2 feet from edge of excavation
29.Excavated soil	1. Hazardous substances	1. Use proper equipment to monitor excavated soil for contaminates; ensure levels do not exceed PEL's for contaminates; Wear proper PPE
30. All activities	41. Slips/ Trips/ Falls 42. Hand injuries, cuts or lacerations during manual handling of materials 43. Foot injuries 44. Back injuries 45. Traffic 46. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.)	47. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 48. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 49. Wear proper PPE (Langan approved safety shoes)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	47. High Noise levels 48. Overhead hazards 49. Heat Stress/ Cold Stress 50. Eye Injuries	50. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 51. Wear high visibility clothing & vest / Use cones or signs to designate work area 52. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 53. Wear hearing protection 54. Wear hard hat / Avoid areas were overhead hazards exist. 55. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 56. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: General Construction Activities
JSA Number: JSA010-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
31. Transport equipment to work area	23. Back Strain 24. Slips/ Trips/ Falls 25. Traffic 26. Cuts/abrasions from equipment 27. Contusions from dropped equipment	6. Use proper lifting techniques / Use wheeled transport 7. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 8. Wear proper PPE (high visibility vest or clothing) 9. Wear proper PPE (leather gloves, long sleeves) 10. Wear proper PPE (safety shoes)
32. Installation of piping from vapor wells to skid connections and from discharge pipping to effluent stack	11. Pinch fingers when connecting pipes 12. Slips/ Trips/ Falls 13. Machinery Hazards	3. Wear proper PPE (leather gloves) 4. Be aware of potential trip hazards / Practice good housekeeping procedures / Mark significant below-grade hazards (i.e. holes, trenches) with safety cones or spray paint 5. Wear proper PPE (safety vest) / Maintain safe distance from operating machinery
33. Remediation equipment installation	13. Back strain when lifting heavy equipment 14. Slips/ Trips/ Falls 15. Traffic	5. Use proper lifting techniques / Use wheeled transport / Minimize distance to vehicle 6. Be aware of potential trip hazards / Practice good housekeeping procedures / Mark significant below-grade hazards (i.e. holes, trenches) with safety cones or spray pain 7. Wear proper PPE (safety vest)
34. All activities	51. Slips/ Trips/ Falls 52. Hand injuries, cuts or lacerations during manual handling of materials 53. Foot injuries 54. Back injuries 55. Traffic	57. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 58. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 59. Wear Langan approved safety shoes

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
4. All activities (cont'd)	56. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 57. High Noise levels 58. Overhead hazards 59. Heat Stress/ Cold Stress 60. Eye Injuries	60. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 61. Wear high visibility clothing & vest / Use cones or signs to designate work area 62. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 63. Wear hearing protection 64. Wear hard hat / Avoid areas were overhead hazards exist. 65. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 66. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Site Inspection**
JSA Number: **JSA024-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☒ Rubber Boots
☒ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
35.Jobsite Pre-briefing	28.None	17. Review JSA, SOP's, and discuss hazards that may be present and control measures for present hazards while on-site.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
2. Working near railroads	1. Passing Trains. 2. Slip/Trips/Falls.	1. Wear reflective vest/ Stay away from tracks/ Do not cross tracks within 10 ft. of train car or when there is a train within view/listen for train horn. 2. Be aware of tripping hazards/ Follow good housekeeping procedures/ Mark significant hazards with spray paint or cones.
3. Walking around site	4. Uneven terrain 5. Wildlife: Stray animals, mice/rats, vectors (i.e. mosquitoes, bees, etc.) 6. Weather: Heat/cold stress 7. Slip/Trips/Falls 8. Foot injuries 9. Eye injuries	4. Pay attention to surrounding area (puddles, wet, frozen, uneven areas); Mark with cones or spray paint. 5. Use bug spray/ Avoid stray animals/Use repellant when needed. 6. Dress for the correct weather situation/ Use sunscreen or protective clothing in sunlight, layers in cold weather/ Drink plenty of fluids/ Take breaks when needed. 4. Be aware of tripping hazards/ Follow good housekeeping procedures/ Mark significant hazards with spray paint or cones. 5. Wear proper PPE (Langan approved safety shoes)/ Change wet socks during cold weather. 6. Wear proper PPE (safety glasses/goggles).
4. Working near road	1. Passing vehicles 2. Slip/Trips/Falls	1. Wear reflective vest/ Stay away from roadway/ Use buddy system/ Place signage or cones when needed. 2. Be aware of tripping hazards/ Follow good housekeeping procedures/ Mark significant hazards with spray paint or cones.
5. All activities	61. Slips/ Trips/ Falls 62. Hand injuries, cuts or lacerations during manual handling of materials 63. Foot injuries 64. Back injuries 65. Traffic 66. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 67. High Noise levels 68. Overhead hazards 69. Heat Stress/ Cold Stress 70. Eye Injuries	67. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 68. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 69. Wear Langan approved safety shoes 70. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 71. Wear high visibility clothing & vest / Use cones or signs to designate work area 72. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 73. Wear hearing protection 74. Wear hard hat / Avoid areas were overhead hazards exist. 75. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 76. Wear safety glasses
Additional items.		

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Building Construction Oversight**
JSA Number: **JSA006-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
36. Transport equipment to work area	29. Back Strain 30. Slips/ Trips/ Falls 31. Traffic 32. Cuts/abrasions from equipment 33. Contusions from dropped equipment	11. Use proper lifting techniques / Use wheeled transport 12. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 13. Wear proper PPE (high visibility vest or clothing) 14. Wear proper PPE (leather gloves, long sleeves) 15. Wear proper PPE (safety shoes)
37. Drilling/anchor boilt installation	14. Hazards associated with drilling, flying objects, heavy equipment, ground level hazards and dust 15. Slips/ Trips/ Falls 16. Hazards associated with concrete work	6. Maintain a safe distance from drilling operation / Wear proper PPE (hard hat, safety glasses, safety shoes, safety vest) 7. Be aware of potential trip hazards / Follow good housekeeping procedures / Mark significant below-grade hazards (i.e. holes, trenches) with safety cones or spray paint / Wear the proper PPE (safety shoes) 8. Maintain a safe distance from pouring operation
38. Steel building erection	16. Overhead hazards, falling objects 17. Pinching/crushing hazards	8. Wear proper PPE (hard had, safety glasses, safety vest) / Be aware of overhead hazards and maintain a safe distance of at least 10 ft. 9. All personnel should make others aware of moving objects or their intent to move objects / Avoid areas where pinching and crushing hazards are possible
39. All activities	71. Slips/ Trips/ Falls 72. Hand injuries, cuts or lacerations during manual handling of materials 73. Foot injuries 74. Back injuries 75. Traffic	77. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 78. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 79. Wear Langan approved safety shoes

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
4. All activities (cont'd)	76. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 77. High Noise levels 78. Overhead hazards 79. Heat Stress/ Cold Stress 80. Eye Injuries	80. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 81. Wear high visibility clothing & vest / Use cones or signs to designate work area 82. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 83. Wear hearing protection 84. Wear hard hat / Avoid areas were overhead hazards exist. 85. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 86. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Direct-Push Soil Borings
JSA Number: JSA004-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Half-face respirator, dust cartridges, PID (if applicable)				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
40. Move equipment to work site	34. Back strain when lifting equipment 35. Slips/ Trips/ Falls while moving equipment 36. Traffic (if applicable) 37. Pinched fingers or running over toes during geoprobe set-up 38. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	18. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 19. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 20. Wear high visibility safety vests or clothing / Exercise caution 21. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 22. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
41. Calibration of monitoring equipment	17. Skin or eye contact with calibration chemicals 18. Pinch fingers in monitoring equipment	10. Wear proper PPE (safety glasses/ goggles) 11. Wear proper PPE (leather gloves)
42. Set-up geoprobe rig	18. Geoprobe rig movement	11. All field personnel should stay clear of the geoprobe rig while moving / Use a spotter when backing up the geoprobe
43. Advance geoprobe rods below ground surface to desired depth	10. Underground utilities 11. High noise levels	7. Clean all subsurface soil borings to a minimum of 5 feet below grade 8. Wear proper PPE (hearing protection)
44. Remove and open acetate liner	81. Pinched fingers while removing macrocore	1. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 2. Wear proper PPE (cut-resistant or leather gloves)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
5. Remove and open acetate liner (cont'd)	82. Cuts/lacerations when cutting acetate liner open 83. Exposure to hazardous vapors 84. Skin contact with contaminated soil	3. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Health and Safety Plan 4. Wear proper PPE (nitrile gloves)
45. Sample Collections a) Monitor parameters b) Prepare sample containers and labels	1. Contact with potentially contaminated soil 2. Lacerations from broken sample bottles 3. Back strain while transporting full coolers 4. Internal exposure to contaminants and metals through inhalation of dust 5. Slips/ Trips/ Falls	1. Use monitoring devices / Wear proper PPE (safety glasses, nitrile gloves) 2. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage 9. Use proper lifting techniques / Do not lift heavy loads without assistance 10. Avoid creating dust / If necessary, wear a half mask respirator with applicable dust cartridge / Inspect respirator for damage and cleanliness prior to use / Clean respirator after each use and store in a clean, secure location 11. Be alert / Follow good housekeeping procedures
46. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Cuts/lacerations from acetate liner 2. Pinched fingers/hand while opening/closing drum 3. Skin contact with contaminated soil 4. Soil debris in eyes	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (nitrile gloves) 4. Wear proper PPE (safety glasses)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
8. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	1. Back, arm or shoulder strain from moving drums	87. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance
	2. Pinch fingers/hand in drum cart when moving drums	88. Wear proper PPE (cut-resistant or leather gloves)
	3. Pinch fingers/hand when operating lift-gate on vehicle	89. Wear proper PPE (cut-resistant or leather gloves)
	4. Contact with potentially contaminated groundwater when moving improperly sealed drums	90. Wear proper PPE (nitrile gloves underneath work gloves)
	5. Slips when moving drums	91. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions
	6. Drop drum on feet/toes	92. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum
9. All activities	1. Slips/ Trips/ Falls	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards
	2. Hand injuries, cuts or lacerations during manual handling of materials	2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves
	3. Foot injuries	3. Wear Langan approved safety shoes
	4. Back injuries	4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible
	5. Traffic	5. Wear high visibility clothing & vest / Use cones or signs to designate work area
	6. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.)	6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed
	7. High Noise levels	7. Wear hearing protection
	8. Overhead hazards	8. Wear hard hat / Avoid areas were overhead hazards exist.
	9. Heat Stress/ Cold Stress	9. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress
9. All activities (cont'd)	10. Eye Injuries	10. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date

Prepared by:		
Reviewed by:		

LANGAN	Job Safety Analysis (JSA) Health and Safety
JSA Title: Geophysical Investigation **JSA Number:** JSA023-01 **A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.**	 **S – Stop,** *what has changed?* **T** – ***Think*** *about the task* **E – *Evaluate*** *potential hazards* **P – *Plan*** *safe approach* **S - *Start*** *task / **Stop** & regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☐ Other:				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
47. Transport equipment to work area	39. Back/strain 40. Slip/Trip/Falls 41. Traffic 42. Cuts/abrasions/contusions from equipment	23. Use proper lifting techniques/Use wheeled transport 24. Minimize distance to work area/unobstructed path to work area/follow good housekeeping procedures 25. Wear proper PPE (high visibility vest or clothing) 26. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes)
48. Supervision of subcontractor and all other activities	19. Slip/Trips/Falls 20. Hand injuries 21. Foot injuries 22. Back injuries/Strains 23. Traffic 24. Wildlife a. Wildlife b. Mice/rats c. Vectors (i.e. mosquitoes, bees, etc.) 7. Heat/Cold Stress	12. Be aware of potential trip hazards/follow good housekeeping procedures/mark significant below-grade hazards (i.e. holes, trenches, wires, ropes) with safety cones or spray paint. 13. Wear proper PPE (leather gloves)/watch wear you place your hands/inspect material or equipment for jagged, rough or slippery surfaces/ watch for pinch points/ wipe off slippery, wet, or dirty items prior to handling. 14. Wear proper PPE (Langan approved safety shoes)/ Be aware of uneven terrain) 15. Use proper lifting techniques/ Buddy system when lifting/ use wheeled transport. 16. Wear proper PPE (high-visibility shirts and vests)/ use cones if appropriate/ notify equipment operators of work area. 17. Be aware of surroundings at all times for the presence of wildlife. a. Do not approach stray animals b. Carry animal repellant/ use if situation arises. c. Use bug spray when needed. 7. Wear proper attire for weather conditions (sunscreen, protective clothing in

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		sunlight or layer clothing in cold weather)/ drink plenty of fluids/ take regular breaks.
49. All activities	85. Slips/ Trips/ Falls 86. Hand injuries, cuts or lacerations during manual handling of materials 87. Foot injuries 88. Back injuries 89. Traffic 90. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 91. High Noise levels 92. Overhead hazards 93. Heat Stress/ Cold Stress 94. Eye Injuries	93. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 94. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 95. Wear Langan approved safety shoes 96. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 97. Wear high visibility clothing & vest / Use cones or signs to designate work area 98. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 99. Wear proper hearing protection 100. Wear hard hat / Avoid areas were overhead hazards exist. 101. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 102. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: Groundwater Sampling
JSA Number: JSA008-01

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☒ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
50. Transport equipment to work area	1. Back Strain 2. Slips/ Trips/ Falls 3. Traffic 4. Cuts/abrasions from equipment 5. Contusions from dropped equipment	1. Use proper lifting techniques / Use wheeled transport 2. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 3. Wear proper PPE (high visibility vest or clothing) 4. Wear proper PPE (leather gloves, long sleeves) 5. Wear proper PPE (safety shoes)
51. Remove well cover	25. Scrape knuckles/hand 26. Strain wrist/bruise palm 27. Pinch fingers or hand	9. Wear proper PPE (leather gloves) 10. Using a hammer, tap the end of the wrench to loosen grip of bolts 11. Wear proper PPE (leather gloves)
52. Remove well cap and lock	19. Well can pops from pressure 20. Exposure to hazardous substances through inhalation or dermal exposure 21. Scrape knuckles/hand 22. Strain write/bruise palm	10. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses) 11. Use direct air monitoring/reading instrument (i.e. PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 12. Wear proper PPE (leather gloves) 13. Using hammer, tap the end of the wrench to loosen grip
53. Measure head-space vapor levels	1. Exposure to hazardous substances through inhalation	1. Do not place face over well when collecting measurement
54. Remove dedicated tubing (if necessary)	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Tubing swings around after removal	1. Wear proper PPE (nitrile gloves, Tyvek sleeves) 2. Wear proper PPE (safety glasses)
55. Set-up plastic sheeting for work site around the well	1. Lacerations when cutting plastic sheeting	1. Use scissors to cut plastic sheeting / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
56. Measure depth to water	1. Exposure to hazardous substances through inhalation or dermal exposure 2. Pinch fingers or hand in water level instrument	1. Wear proper PPE (nitrile gloves) 2. Wear proper PPE (leather gloves)
57. Calibrate monitoring equipment	1. Skin or eye contact with calibration chemicals 2. Pinch fingers or hand in monitoring equipment	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (leather gloves) / Avoid pinch points
58. Install sampling pump in well	1. Hand injuries during installation of pump 2. Lacerations when cutting tubing 3. Back strain during installation of pump 4. Physical hazards associated with manual lifting of heavy equipment 5. Back strain from starting generator 6. Burns from hot exhaust from generator 7. Electrical shock from improper use of generator and pump 8. Contaminated water spray from loose connections	1. Wear proper PPE (leather gloves, nitrile gloves) 2. Use safety tubing cutter 3. Use proper lifting techniques 4. Use proper lifting techniques / Use wheeled transport for heavy equipment 5. Use arm when starting generator / Do not over-strain if generator does not start 6. Do not touch generator near exhaust / Use proper handle to carry / Allow generator to cool down before moving 7. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord 8. Check all tubing connections to ensure they are tight and secure

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
10. Purge water	1. Contact with potentially contaminated groundwater 2. Back strain from lifting buckets of water 3. Tripping potential on sample discharge lines and pump electric line	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Use proper lifting techniques / Use wheeled transport 3. Organize discharge of electric line to keep out of way as much as possible / Mark potential tripping hazards with caution tape or safety cones
11. Sample water collection	1. Contact with potentially contaminated groundwater through dermal exposure 2. Contact with and burns from acid used for sample preservation 3. Tripping potential on sample discharge lines and pump electric line 4. Lacerations from broken sample bottles 5. Back strain when transporting coolers full of collected samples 6. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves) 2. Wear proper PPE (safety glasses, nitrile gloves) / Ensure sample bottle lids are secure before use and after sample collection 3. Organize line to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones 4. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 5. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle 6. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
12. Remove pump and pack up equipment	1. Back strain when removing pump or lifting heavy equipment	1. Use proper lifting technique / Use wheeled transport for heavy equipment
13. Replace well cap and lock	1. Scrape fingers/hand 2. Strain wrist/bruise palm	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the well cap to tighten grip
14. Replace well cover	1. Scrape knuckles/hand 2. Strain write/bruise palm 3. Pinch fingers or hand	1. Wear proper PPE (leather gloves) 2. Using hammer, tap the end of the wrench to tighten the grip of the bolts 3. Wear proper PPE (leather gloves)
15. Transport drums to disposal staging location	1. Back, arm or shoulder strain from moving drums 2. Pinch hazard 3. Contact with potentially contaminated groundwater when moving improperly sealed drums 4. Slips/ Trips/ Falls when moving drum 5. Drop drum on feet/toes	1. Use drum cart for moving drums / Use proper lifting techniques / Obtain assistance, if needed 2. Wear proper PPE (leather gloves) 3. Wear proper PPE (nitrile gloves under leather gloves) / Properly seal drum to prevent leak 4. Ensure route to move drum to storage space is dry and free from obstructions 5. Wear proper PPE (safety shoes)
16. Place used PPE in designated disposal drum	1. Pressure build-up inside drum 2. Pinch hazard	1. Remove cap from bung hole in drum to relieve pressure 2. Wear proper PPE (leather gloves)
17. Decontaminate equipment	1. Splashing water/soap from decontamination 2. Contact with potentially contaminated groundwater through dermal exposure 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
18. All activities	95. Slips/ Trips/ Falls 96. Hand injuries, cuts or lacerations during manual handling of materials 97. Foot injuries 98. Back injuries 99. Traffic 100. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.)	103. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 104. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 105. Wear Langan approved safety shoes

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
	101. High Noise levels 102. Overhead hazards 103. Heat Stress/ Cold Stress 104. Eye Injuries	106. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 107. Wear high visibility clothing & vest / Use cones or signs to designate work area 108. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 109. Wear hearing protection 110. Wear hard hat / Avoid areas were overhead hazards exist. 111. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 112. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	**Sign Name**	**Date**
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Well Installation**
JSA Number: **JSA019-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



PERSONAL PROTECTIVE EQUIPMENT REQUIRED:				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☐ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: PID, Tyvek sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
59. Move equipment to work site	43. Back strain when lifting equipment 44. Slips/ Trips/ Falls while moving equipment 45. Traffic (if applicable) 46. Pinched fingers or running over toes during geoprobe set-up 47. Overturn drilling rig while transporting to loading dock on flat-bed tow truck	27. Use proper lifting technique (use legs for bending and lifting and not the back)/ Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle 28. Use proper lifting technique (use legs for bending and lifting and not the back) / Use wheeled transport for heavy equipment / Get assistance when handling loads greater than 50 lbs. / Minimize distance to vehicle / Have unobstructed path to vehicle or collection point / Do not lift/walk with boxes that are heavy/difficult to lift 29. Wear high visibility safety vests or clothing / Exercise caution 30. Wear proper PPE (cut-resistant gloves) / Stay alert, be aware of geoprobe rig at all times 31. Drill rig should be parked in center of flat-bed tow truck / Emergency brake shall be used at all times during transport on the flat-bed truck/ All unnecessary personnel should stay away from the flat-bed truck during moving activities
60. Calibration of monitoring equipment	28. Skin or eye contact with calibration chemicals 29. Pinch fingers in monitoring equipment	18. Wear proper PPE (safety glasses/ goggles) 19. Wear proper PPE (leather gloves)
20. Set-up geoprobe rig	23. Geoprobe rig movement	12. All field personnel should stay clear of the geoprobe rig while moving / Use a spotter when backing up the geoprobe
21. Advance geoprobe rods below ground surface to desired depth	12. Underground utilities 13. High noise levels	12. Clean all subsurface soil borings to a minimum of 5 feet below grade 13. Wear proper PPE (hearing protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
22. Remove and open acetate liner 5. Remove and open acetate liner (cont'd)	105. Pinched fingers while removing macrocore 106. Cuts/lacerations when cutting acetate liner open 107. Exposure to hazardous vapors 108. Skin contact with contaminated soil	5. Wear proper PPE (nitrile gloves, cut-resistant or leather gloves 6. Wear proper PPE (cut-resistant or leather gloves) 7. Do not place face over acetate liner when opening / Monitor hazardous vapors in air with PID / Upgrade PPE as necessary based on levels contained in the Health and Safety Plan 8. Wear proper PPE (nitrile gloves)
6. Remove excess soil from acetate liner and place in 55-gallon drum (IF NOT PERFORMED BY LANGAN, REMOVE!)	5. Cuts/lacerations from acetate liner 6. Pinched fingers/hand while opening/closing drum 7. Skin contact with contaminated soil 8. Soil debris in eyes	5. Wear proper PPE (cut-resistant or leather gloves) 6. Wear proper PPE (cut-resistant or leather gloves) 7. Wear proper PPE (nitrile gloves) 8. Wear proper PPE (safety glasses)
7. Attach hollow-stem augers to the geoprobe rig; Advance augers and attach additional augers until desired depth is reached	1. Strain wrist/bruise palm 2. Pinched fingers 3. Back Strain 4. Clothing entanglement 5. Carbon monoxide poisoning 6. Bruise toes/foot 7. High noise levels 8. Skin contact with contaminated soil	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Use proper lifting techniques 4. Wear proper work attire(no loose clothing/strings) 5. Properly ventilate work area 6. Wear proper PPE (safety shoes) 7. Wear proper PPE (hearing protection) 8. Wear proper PPE (Tyvek sleeves, nitrile gloves)
8. Install monitoring well	1. Pinched fingers 2. Lacerations/abrasions 3. Back Strain	1. Wear proper PPE (cut-resistant or leather gloves) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Use proper lifting techniques
9. Tremie-grout annulus space above bentonite seal	1. Back strain 2. Pinched fingers	1. Use proper lifting techniques 2. Wear proper PPE (cut-resistant or leather gloves)
10. Install flush-mount monitoring well pad	1. Splashed concrete 2. Pinched fingers 3. Cuts/lacerations	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (cut-resistant or leather gloves) 3. Wear proper PPE (cut-resistant or leather gloves)
11. Decontaminate equipment	1. Splashing water/soap 2. Contact with potentially contaminated groundwater/soil through dermal exposure 3. Electrical shock from broken electric cords	1. Wear proper PPE (safety glasses) 2. Wear proper PPE (safety glasses, dermal protection) 3. Properly plug in pump to generator / Do not allow the pump or generator to contact water / Check for breaks in the cord
12. Transport drums to central staging location (IF NOT PERFORMED BY LANGAN, REMOVE!)	7. Back, arm or shoulder strain from moving drums 8. Pinch fingers/hand in drum cart when moving drums 9. Pinch fingers/hand when operating lift-gate on vehicle 10. Contact with potentially contaminated groundwater when moving improperly sealed drums 11. Slips when moving drums 12. Drop drum on feet/toes	113. Use drum cart for moving drums / Use proper lifting techniques / Do not lift heavy loads without assistance 114. Wear proper PPE (cut-resistant or leather gloves) 115. Wear proper PPE (cut-resistant or leather gloves) 116. Wear proper PPE (nitrile gloves underneath work gloves) 117. Follow good housekeeping procedures / Ensure route to move drum and storage space is free from obstructions 118. Wear proper PPE (safety shoes) / Work in a safe manner to prevent dropped drum

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
13. All activities 13. All activities (cont'd)	11. Slips/ Trips/ Falls 12. Hand injuries, cuts or lacerations during manual handling of materials 13. Foot injuries 14. Back injuries 15. Traffic 16. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 17. High Noise levels 18. Overhead hazards 19. Heat Stress/ Cold Stress 20. Eye Injuries	11. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 12. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 13. Wear Langan approved safety shoes 14. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 15. Wear high visibility clothing & vest / Use cones or signs to designate work area 16. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 17. Wear hearing protection 18. Wear hard hat / Avoid areas were overhead hazards exist. 19. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 20. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

LANGAN

Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Monitoring Well Development**
JSA Number: **JSA026-01**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – *Stop,* what has changed?
T – *Think* about the task
E – *Evaluate* potential hazards
P – *Plan* safe approach
S - *Start* task / *Stop* & regroup

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☐ Hearing Protection
☒ Safety Glasses	☐ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☐ PVC Gloves
☒ Leather Gloves	☒ Cut Resist. Gloves	☐ Fall Protection	☐ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☐ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek Sleeves				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
61. Transport equipment to work area	48. Back Strains 49. Slips/Trips/Falls 50. Traffic 51. Cuts/Abrasions/Contusions from equipment	32. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 33. Minimize distance from work area/ unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 34. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 35. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
62. Measure depth of water	30. Exposure to hazardous substances 31. Pinched fingers	23. Wear proper PPE (Nitrile gloves, Safety glasses/Face shield). 24. Wear proper PPE (cut-resistant gloves).
63. Install Tremie pipe in the monitoring well and connect to water source.	24. Hand injuries during installation (pinched fingers/hands). 25. Back strain from holding Tremie pipe. 26. High pressure water spray.	13. Wear proper PPE (Nitrile gloves/cut-resistant gloves). 14. Use proper lifting techniques/ Use two personnel when lowering pump greater than 80 feet. 15. Ensure all hose connections are tight and secure/ Use proper PPE (face shield and safety glasses).
64. Install pump in to well a. Connect pump to sample tubing. b. Lower pump to desired depth in well. c. Connect sample tubing to flow cell d. Connect pump to power source	14. Hand injuries during pump installation and sample tubing cutting. 15. Back strain 16. Electric shock 17. Exhaust gases from generator 18. Burns from hot equipment	14. Wear proper PPE when installing pump and cutting sample tubing (Nitrile and cut-resistant gloves)/ Use tubing cutter. 15. Proper lifting techniques/ Two personnel when installing pump at depths greater than 80 feet/ Use buddy when lifting heavy loads (pump, generator)/Use wheeled transport. 16. Ensure equipment is (LO/TO: locked out/tagged out) prior to preforming any electrical connections/ Inspect wires for frays or cuts/Ensure generator is properly grounded prior to starting.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
(generator) e. Turn on power source (generator)		17. Position generator so that exhaust is flowing away from work area. 18. Do not touch exhaust or any hot part of generator/ Allow equipment time to cool down prior to carrying/ Use proper PPE (long sleeves, leather gloves)
65. Develop monitoring well a. Jet water into well using Tremie pipe b. Turn pump on and adjust to desired flow rate. c. Surge pump up and down well to remove sediment from screen d. Containerize all purge water from well.	109. Hand injuries 110. Face injuries 111. Contaminated spray from water	119. Wear proper PPE (cut-resistant gloves and nitrile gloves). 120. Wear proper PPE (face shield and safety glasses)/do not stand over well opening. 121. Wear proper PPE (Face shield and safety goggles)/Tyvek over garments/ Ensure all connections are secure and tight/ Tubing outlet is contained in an overflow container.
66. Drum staging area.	1. Back, Arm, and shoulder strain. 2. Pinch points 3. Cross contamination 4. Slip/Trips/Falls	1. Use proper lifting techniques/ Use drum carts when moving drums/ use buddy system for moving of drums if needed/Move drums shortest distance needed. 2. Keep fingers and feet away from pinch points/ Use proper PPE (cut-resistant gloves, Langan approved safety shoes) 3. Use proper PPE (Nitrile gloves, Tyvek sleeves) 4. Ensure pathway is clear prior to moving equipment/ Mark all hazards/ Use additional person as a spotter if needed.
67. Equipment pack-up	1. Back Strains 2. Slips/Trips/Falls 3. Traffic 4. Cuts/Abrasions/Contusions from equipment.	1. Use proper lifting techniques/ Use wheeled transport/ use buddy system when lifting equipment. 2. Minimize distance from work area/ Unobstructed path to collection points and vehicle/ Follow good housekeeping procedures. 3. Wear high-visibility vest or clothing/Exercise caution/ Use traffic cones or signage if needed. 122. Wear proper PPE (leather gloves, long sleeves, Langan approved safety shoes).
68. All activities	1. Slips/ Trips/ Falls 2. Hand injuries, cuts or lacerations during manual handling of materials 3. Foot injuries 112. Back injuries 113. Traffic 114. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 115. High Noise levels 116. Overhead hazards 117. Heat Stress/ Cold Stress 118. Eye Injuries	1. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 2. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 3. Wear Langan approved safety shoes 4. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 5. Wear high visibility clothing & vest / Use cones or signs to designate work area 6. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 7. Wear hearing protection 8. Wear hard hat / Avoid areas were overhead hazards exist. 9. Wear proper attire for weather conditions (sunscreen or protective clothing

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
		in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 10. Wear safety glasses.
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

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Job Safety Analysis (JSA)
Health and Safety

JSA Title: **Groundwater/Product Purging/Sampling with Bailer**
JSA Number: **JSA053**

A Job Safety Analysis (JSA) must identify all job steps required to complete the task, the potential hazards employees could be exposed to while performing the job step and the preventative/corrective actions required to reduce/mitigate the identified potential hazards. Employees must certify that they have either prepared the JSA or have reviewed the JSA and are aware of the potential hazards associated with this task and will follow the provided preventive/corrective actions. Prior to the start of any work "TAKE 5" and conduct a Last Minute Risk Assessment.



S – ***Stop,*** *what has changed?*
T – ***Think*** *about the task*
E – ***Evaluate*** *potential hazards*
P – ***Plan*** *safe approach*
S - ***Start*** *task /* ***Stop*** *& regroup*

PERSONAL PROTECTIVE EQUIPMENT (Required or to be worn as needed):				
☒ Safety Shoes	☒ Long Sleeves	☒ Safety Vest (Class 2)	☒ Hard Hat	☒ Hearing Protection
☒ Safety Glasses	☒ Safety Goggles	☒ Face Shield	☒ Nitrile Gloves	☒ PVC Gloves
☒ Leather Gloves	☐ Cut Resist. Gloves	☐ Fall Protection	☒ Fire Resistant Clothing	☐ Rubber Boots
☐ Insect/Animal Repellent	☐ Ivy Blocker/Cleaner	☒ Traffic Cones/Signs	☐ Life Vest/Jacket	
☒ Other: Tyvek sleeves, Dermal Protection, PID, absorbent pads				

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
69. Transport equipment to work area	6. Back Strain 7. Slips/ Trips/ Falls 8. Traffic 9. Cuts/abrasions from equipment 10. Contusions from dropped equipment	6. Use proper lifting techniques / Use wheeled transport 7. Minimize distance to work area / Have unobstructed path to work area / Follow good housekeeping procedures 8. Wear proper PPE (high visibility vest or clothing) 9. Wear proper PPE (leather gloves, long sleeves) 10. Wear proper PPE (safety shoes)
70. Remove well cover	32. Scrape knuckles/hand 33. Strain wrist/bruise plan 34. Pinch fingers or hand	12. Wear proper PPE (leather gloves) 13. Using a hammer, tap the end of the wrench to loosen grip of bolts 14. Wear proper PPE (leather gloves)
71. Remove well cap and lock	27. Well can pops from pressure 28. Exposure to hazardous substances through inhalation or dermal exposure 29. Scrape knuckles/hand 30. Pinch points 31. Strain write/bruise palm	14. Remove cap slowly to relieve pressure / Do not place face over well when opening / Wear proper PPE (safety glasses, face shield, hand protection) 15. Use direct air monitoring/reading instrument (i.e. PID) / Be familiar with and follow actions prescribed in the HASP / Wear proper PPE (nitrile gloves) 16. Wear proper PPE (leather gloves) 17. Using hammer, tap the end of the wrench to loosen grip
72. Measure head-space vapor levels	2. Exposure to hazardous substances through inhalation	2. Do not place face over well when collecting measurement
73. Set-up plastic sheeting/absorbent pads	2. Lacerations when cutting plastic sheeting/absorbent pads	2. Use scissors to cut plastic sheeting/absorbent pads / Cut motions should always be away from body and body parts

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
for work site around the well		
74. Lower Bailer sleeve into well	7. Repetitive motion injury (pulled arm/back muscles) 8. Dehydration	7. Take breaks while lowering bailer into well/ Use a mechanical device to lower bailer into well/ Rotate employees (take turns conducting the manual labor portion) 8. Take breaks and drink water.

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
7. Purge/Sample water/product collection	1. Contact with potentially contaminated groundwater or product through dermal exposure 2. Contact with and burns from acid used for sample preservation 9. Tripping potential on sampling lanyard 10. Lacerations from broken sample bottles 11. Back strain when transporting coolers full of collected samples 12. Slips/ Trips/ Falls	1. Wear proper PPE (safety glasses, nitrile gloves, safety shield, Tyvek) 2. Ensure sample bottle lids are secure before use and after sample collection 3. Organize lanyard to keep out of the way as much as possible / Mark potential tripping hazards with caution tape or safety cones 9. Do not over-tighten bottle caps / Handle bottles safely to prevent breakage / Wrap glass bottles in bubble wrap, if possible 10. Use proper lifting techniques / Use wheeled transport / Seek assistance if coolers weight exceeds 50lbs. / Minimize distance to vehicle 11. Have unobstructed path to vehicle or collection point / Follow good housekeeping procedures / Do not lift/walk with coolers that are too heavy/difficult to lift
8. Retrieval of bailer	9. Repetitive motion injury (pulled arm/back muscles) 10. Dehydration	9. Take breaks while retrieving bailer out of the well/ Use a mechanical device to raise bailer out of well/ Rotate employees (take turns conducting the manual labor portion) 10. Take breaks and drink water.
9. Pack-up equipment	2. Back strain when removing or lifting heavy equipment	2. Use proper lifting technique / Use wheeled transport for heavy equipment
10. Replace well cap and lock	3. Scrape fingers/hand 4. Strain wrist/bruise palm	3. Wear proper PPE (leather gloves) 4. Using hammer, tap the end of the well cap to tighten grip
11. Replace well cover	4. Scrape knuckles/hand 5. Strain write/bruise palm 6. Pinch fingers or hand	4. Wear proper PPE (leather gloves) 5. Using hammer, tap the end of the wrench to tighten the grip of the bolts 6. Wear proper PPE (leather gloves)
12. Place used PPE in designated disposal drum	3. Pressure build-up inside drum 4. Pinch hazard	3. Remove cap from bung hole in drum to relieve pressure 4. Wear proper PPE (leather gloves) 5. Product drums may require additional spill protection/electrical grounding, check local regulations
13. Decontaminate equipment	4. Splashing water/soap from decontamination 5. Contact with potentially contaminated groundwater through dermal exposure	4. Wear proper PPE (safety glasses) 5. Wear proper PPE (safety glasses, dermal protection)

JOB STEPS	POTENTIAL HAZARDS	PREVENTATIVE / CORRECTIVE ACTION
14. All activities	119. Slips/ Trips/ Falls 120. Hand injuries, cuts or lacerations during manual handling of materials 121. Foot injuries 122. Back injuries 123. Traffic 124. Wildlife: Stray dogs, Mice/rats, Vectors (i.e. mosquitoes, bees, etc.) 125. High Noise levels 126. Overhead hazards 127. Heat Stress/ Cold Stress 128. Eye Injuries	123. Be aware of potential trip hazards / Follow good housekeeping procedures/ Mark significant hazards 124. Inspect for jagged/sharp edges, and rough or slippery surfaces / Keep fingers away from pinch points / Wipe off greasy, wet, slippery or dirty objects before handling / Wear leather/ cut-resistant gloves 125. Wear Langan approved safety shoes 126. Use proper lifting techniques / Consider load location, task repetition, and load weigh when evaluating what is safe or unsafe to lift / Obtain assistance when possible 127. Wear high visibility clothing & vest / Use cones or signs to designate work area 128. Be aware of surroundings at all times, including the presence of wildlife/ Do not approach stray dogs / Carry/use dog/animal repellant / Use bug spray when needed 129. Wear hearing protection 130. Wear hard hat / Avoid areas were overhead hazards exist. 131. Wear proper attire for weather conditions (sunscreen or protective clothing in sunlight, layers for cold weather) / Drink plenty of fluids to avoid dehydration / Takes breaks as necessary to avoid heat/cold stress 132. Wear safety glasses
Additional items.		
Additional Items identified while in the field. (Delete row if not needed.)		

Print Name	Sign Name	Date
Prepared by:		
Reviewed by:		

ATTACHMENT H

TAILGATE SAFETY BRIEFING FORM

LANGAN TAILGATE SAFETY BRIEFING

Date:_____ Time: _____

Leader:_____ Location:_____

Work Task:

_____

_____

SAFETY TOPICS (*provide some detail of discussion points*)

Chemical Exposure Hazards and Control:_____

_____

Physical Hazards and Control: _____

Air Monitoring: _____

PPE: _____

_____

Communications:_____

Safe Work Practices: _____

_____

Emergency Response: _____

Hospital/Medical Center Location: _____

Phone Nos.: _____

Other: _____

FOR FOLLOW-UP (the issues, responsibilities, due dates, etc.**)**

_____

_____

_____

ATTENDEES

PRINT NAME	COMPANY	SIGNATURE

ATTACHMENT I

THE CITY OF NEW YORKEXECUTIVE ORDER NO. 74

Langan employees and their direct hire contractors will comply with all provisions of the New York City Executive Order No. 74 as signed by the Mayor on July 31, 2021. Specifically, effective August 2, 2021

- Will don face masks while on-site at all times; and
- Provide proof upon demand of full vaccination status.

A copy of the New York City Executive Order No. 74 is provided on the following pages.

APPENDIX F
Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN

for

261 WALTON AVENUE
Bronx, New York
NYSDEC BCP Site No. C203135

Prepared for:

Tuck-It-Away Associates – Deegan, LLC
555 Madison Avenue
New York, NY 10022

Prepared by:

Langan Engineering, Environmental, Surveying,
Landscape Architecture and Geology, D.P.C.
360 West 31st Street, 8th Floor
New York, New York 10001

August 7, 2024
Langan Project No. 17061701

LANGAN

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1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION

This Quality Assurance Project Plan (QAPP) was prepared on behalf of Tuck-It-Away Associates, Deegan, LLC (the "Volunteer") for 261 Walton Avenue located in the Mott Haven neighborhood of the Bronx, New York ("the site"). The Volunteer entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on July 21, 2020 and Brownfield Cleanup Program (BCP) Site No. C203135 was assigned to the site. This QAPP supports the Remedial Action Work Plan (RAWP), which provides additional site information and data collected previously by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan).

This QAPP specifies analytical methods to be used to ensure that data collected during site management are precise, accurate, representative, comparable, complete, and meet the sensitivity requirements of the project.

1.2 PROJECT OBJECTIVES

The remedial action objectives (RAO) of this RAWP are to achieve a Track 1 cleanup under the New York State Brownfield Cleanup Program which includes the following:

<u>Groundwater</u>

RAOs for Public Health Protection:

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater

RAOs for Environmental Protection

- Remove the source of groundwater contamination if the site is determined to be the source of groundwater impacts

<u>Soil</u>

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 groundwater contamination

Soil Vapor

RAOs for Public Health Protection:

- Mitigate the risk of impacts to public health resulting from existing, or the potential for, soil vapor intrusion into building(s) at the site based on the RI data.

1.3 SCOPE OF WORK

The scope of work is described in detail in the RAWP. The RAWP scope consists of a Track 1 cleanup to Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) which includes the following:

- Development and implementation of a Construction Health and Safety Plan (CHASP) and Community Air Monitoring Program (CAMP) for the protection of on-site workers, community/residents, and the environment during remediation and construction activities.
- Removal and management of the building slabs and asphalt and gravel surface cover as construction and demolition (C&D) debris by the contractor in accordance with Part 360 and 361 regulations. Review and certification of C&D transport and disposal methodologies is not a requirement of the Remedial Engineer (RE). The RE is responsible for documenting that C&D debris is not comingled with contaminated site soil and fill.
- Implementation of preliminary waste characterization, as required, to facilitate off-site disposal of excavated material.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Decommissioning of monitoring wells.
- Construction of a support of excavation (SOE) system to facilitate excavation of soil/fill that exceeds the UU SCOs.
- Dewatering and treatment, as necessary, to facilitate SOE installation and to accommodate the removal of soil that exceeds UU SCOs, and discharge of dewatering fluids in accordance with a New York City Department of Environmental Protection (NYCDEP) sewer discharge permit.
- Excavation, stockpiling, and off-site transport of soil exceeding UU SCOs as defined by 6 NYCRR Part 375-6.8.
- Removal, decommissioning, and off-site disposal of any encountered underground storage tanks (USTs) and/or associated appurtenances (e.g., fill lines, vent line, and electrical conduit) in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC underground storage tank (UST) closure requirements.

- Screening for indications of contamination (by visual means, odor, and monitoring with a photoionization detector [PID]) of excavated soil/fill during intrusive site work.
- Appropriate off-site disposal of non-native fill and soil from the site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
- Collection and analysis of confirmation soil samples to confirm UU SCOs are achieved.
- Backfilling of remediated areas to development grade with documented soil meeting UU SCOs, virgin stone, or recycled concrete aggregate (RCA) from a 6 NYCRR Part 360 NYSDEC-registered facility and in compliance with Part 360.

A contingency split Track 1/Track 4 cleanup will be completed if residual soil does not meet UU SCOs in portions of the site. Remedial activities will be performed in accordance with this RAWP, and the Department-issued Decision Document. Deviations from the RAWP and/or Decision Document will be promptly reported to the NYSDEC for approval and fully explained in the FER.

1.3.1 SUMMARY OF PROPOSED FIELD SAMPLING ACTIVITIES

Implementation of the Remedial Action will include excavation of targeted fill and soil; backfilling as necessary with clean, imported material meeting the soil quality requirements in Part 375-6.8(a) UU SCOs, RCA or virgin crushed stone; removal of any encountered USTs; dewatering and treatment of groundwater; and collection of confirmation/documentation samples. A dust, odor, and organic vapor control and monitoring plan will be implemented during ground intrusive activities. In the event the soil and groundwater remedial objectives are not achieved, institutional controls (IC), in the form of a site management plan (SMP) and an environmental easement (EE), will be implemented in the long term to restrict the site to restricted residential future use.

Confirmation/documentation soil samples collected from the base of the excavation will be screened for environmental impacts with a PID equipped with a 10.6 electron volt (eV) bulb and for visual and olfactory evidence of a chemical or petroleum impacts (e.g., staining and/or odors). The soil samples will be placed in laboratory-supplied containers and will be sealed, labeled, and placed in an ice-chilled cooler (to maintain a temperature of about 4°C) for delivery to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory. Non-disposable equipment and sampling apparatus will be decontaminated between locations with Alconox® and water.

1.4 DATA QUALITY OBJECTIVES AND PROCESS

Data Quality Objectives (DQOs) are qualitative and quantitative statements to help ensure that data of known and appropriate quality are obtained during the project. The overall objective is to investigate and characterize the nature and extent of environmental impacts on the site associated with areas of concern (AOC) through soil, groundwater, and soil vapor sampling. DQOs for sampling activities are determined by evaluating five factors:

- Data needs and uses: The types of data required and how the data will be used after it is obtained.
- Parameters of Interest: The types of chemical or physical parameters required for the intended use.
- Level of Concern: Levels of constituents, which may require remedial actions or further investigations.
- Required Analytical Level: The level of data quality, data precision, and quality assurance/quality control (QA/QC) documentation required for chemical analysis.
- Required Detection Limits: The detection limits necessary based on the above information.

The quality assurance and quality control objectives for all measurement data include:

- **Precision** – an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Field sampling precision will be determined by analyzing coded duplicate samples and analytical precision will be determined by analyzing internal QC duplicates and matrix spike duplicates.

- **Accuracy** – a measure of the degree of agreement of a measured value with the true or expected value of the quantity of concern. Sampling accuracy will be determined through the assessment of the analytical results of field blanks and trip blanks for each sample set. Analytical accuracy will be assessed by examining the percent recoveries of surrogate compounds that are added to each sample (organic analyses only), internal standards, laboratory method blanks, instrument calibration, and the percent recoveries of matrix spike compounds added to selected samples and laboratory blanks.

- **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 will be determined by assessing a number of investigation procedures, including chain of custody, decontamination, and analysis of field blanks and trip blanks.

- **Completeness** – the percentage of measurements made which are judged to be valid. Completeness will be assessed through data validation. The QC objective for completeness is generation of valid data for at least 90 percent of the analyses requested.

- **Comparability** – expresses the degree of confidence with which one data set can be compared to another. The comparability of all data collected for this project will be ensured using several procedures, including standard methods for sampling and analysis, instrument calibrations, using standard reporting units and reporting formats, and data validation.

- **Sensitivity** - the ability of the instrument or method to detect target analytes at the levels of interest. The project manager will select, with input from the laboratory and QA personnel, sampling and analytical procedures that achieve the required levels of detection.

TABLE 1
Analytical Methods / Quality Assurance Summary Table

SOIL

	Quantity (1)	Analysis (2, 3, 4)
Soil Samples	10 31	Total and TCLP metals TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, and TAL metals (including all 6 NYCRR Part 375 compounds), PFAS, and 1,4-Dioxane
Duplicate Soil Samples	2 (one per 20 soil samples)	
Soil Matrix Spike	2 (one per 20 soil samples)	

GROUNDWATER

	Quantity (5)	Analysis (2, 3, 4, 6)
Groundwater Samples	0	TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, TAL metals (including all 6 NYCRR Part 375 compounds), PFAS, and 1,4-Dioxane
Duplicate Groundwater Samples	0 (one per 20 groundwater samples)	
Groundwater Matrix Spike	0 (one per 20 groundwater samples)	

SOIL VAPOR

	Quantity	Analysis (2)
Soil Vapor / Ambient Air Samples	0	TO-15 VOCs
Duplicate Soil Vapor Samples	0 (one per 20 soil vapor samples)	

FIELD AND TRIP BLANKS

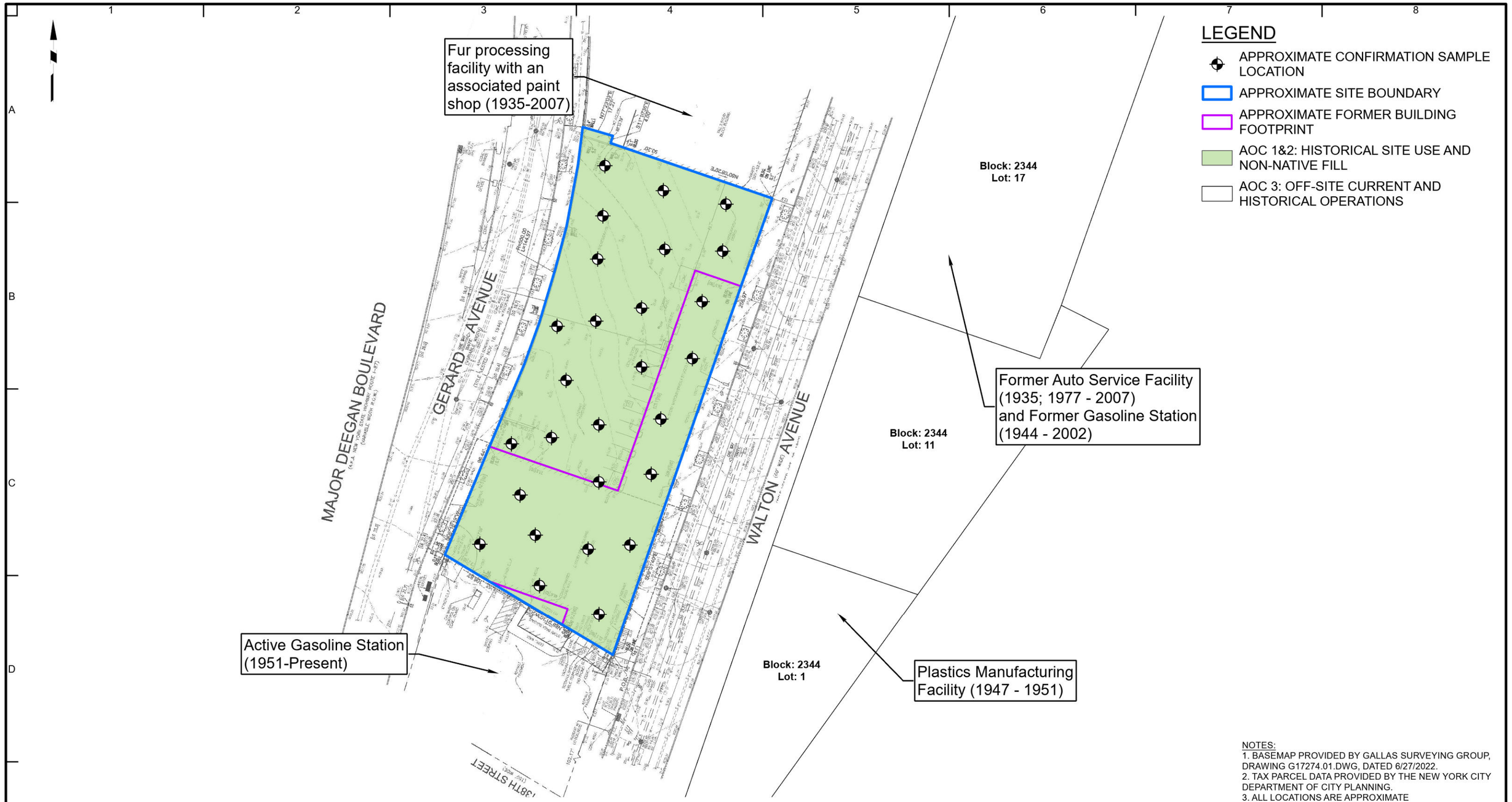
	Quantity	Analysis (2)
Soil Field Blanks	2 (one per 20 soil samples) or 1 per day when sampling for 1,4-dioxane and/or PFAS	TCL VOCs, TCL SVOCs, pesticides, PCBs, herbicides, and TAL metals (including all 6 NYCRR Part 375 compounds)
Groundwater Field Blanks	0 (one per 20 groundwater samples) or 1 per day when sampling for 1,4-dioxane and/or PFAS	
Trip Blanks	One per shipment of soil and groundwater samples for VOC analysis	TCL VOCs

Notes
1) Groundwater and soil-vapor sample collection is not anticipated.
2) For details regarding sample containerization, volume requirements, preservation, and holding times for water, soil, and soil vapor samples, refer to tables 4.1, 4.2, and 4.3, respectively.
3) For analytical methods and reporting limits, see Table 7.1.
4) For detailed information on matrix spike and matrix spike duplicate analysis for groundwater and soil samples, see tables 3.1 and 3.2, respectively.

5) Additional samples may be collected based on encountered field conditions.

PFAS = per- and poly-fluoroalkyl substances (PFAS)
VOCs = volatile organic compounds
SVOCs = semivolatile organic compounds
PCBs = polychlorinated biphenyls
TCL = target compound list
TAL = target analyte list
NA = not applicable
6 NYCRR = Title 6 of the New York Codes, Rules and Regulations

Figure 1: Areas of Concern and Proposed Sample Location Plan



NOTES:
1. BASEMAP PROVIDED BY GALLAS SURVEYING GROUP, DRAWING G17274.01.DWG, DATED 6/27/2022.
2. TAX PARCEL DATA PROVIDED BY THE NEW YORK CITY DEPARTMENT OF CITY PLANNING.
3. ALL LOCATIONS ARE APPROXIMATE
4. AOC = AREA OF CONCERN

WARNING: It is a violation of the NYS Education Law Article 145 for any person, unless acting under the direction of a licensed professional engineer, land surveyor or geologist, to alter this item in any way.

50 0 50
SCALE IN FEET

LANGAN
Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
21 Penn Plaza, 360 West 31st Street, 8th Floor
New York, NY 10001
T: 212.479.5400 F: 212.479.5444 www.langan.com

Project
261 WALTON AVENUE
BLOCK No. 2344, LOT No. 60
BRONX NEW YORK

Figure Title
AREAS OF CONCERN AND PROPOSED SAMPLE LOCATION PLAN

Project No. 170601702	Figure No. 1
Date 8/11/2023	
Scale 1"=50'	
Drawn By MG	

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Path: \\langan.com\data\NY\data7\170601701\Project Data\ArcGIS\APRX\170601701\170601701.aprx Date: 8/11/2023 User: mgeorgalas Time: 12:21 PM

2.0 PROJECT ORGANIZATION

The RAWP will be overseen by Langan on behalf of the Volunteer. Langan will perform the sample collection as described in the RAWP and subcontract an ELAP-certified laboratory. Langan will also perform the data analysis, evaluation, and reporting tasks.

The analytical services will be performed by Alpha Analytical Laboratories, Inc. of Mansfield, MA, NYSDOH ELAP certification number 11148. Data validation services will be performed by Joe Conboy; resume attached (Attachment A).

Key contacts for this project are as follows:

Personnel	Investigation Role	Contact Information
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Joe Conboy Langan	Program Data Validator	Phone – 609-282-8099 Email – jconboy@langan.com
To Be Determined	Field Personnel	To Be Determined

3.0 QUALITY ASSURANCE OBJECTIVES FOR COLLECTION OF DATA

3.1 INTRODUCTION

The quality assurance and quality control objectives for all data include precision, accuracy, representativeness, completeness, comparability, and sensitivity. These objectives are defined in following subsections. They are formulated to meet the requirements of the USEPA SW-846. The laboratory will aim to achieve low reporting limits for all analytical methods. The analytical methods and their Contract Required Quantification 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 2 and 3.

TABLE 2
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 l**	**LCS (d) % Recovery**	**Surrogate Compounds**	**Surrogate % Recovery**
VOCs (e)	8260	1,1-Dichloroethane	61-145	-	NA	Toluene-d8	88-110
		Trichloroethene	71-120	-	NA	Bromofluorobenzene	86-115
		Benzene	76-127	-	NA	1,2-Dichloroethane-d4	76-114
		Toluene	76-125	-	NA		
		Chlorobenzene	75-130	-	NA		
SVOCs (f)	8270	Phenol	12-110	-	NA	Nitrobenzene-d5	35-114
		2-Chlorophenol	27-123	-	NA	2-Fluorobiphenyl	43-116
		1,4-Dichlorobenzene	36-97	-	NA	Terphenyl-d14	33-141
		N-Nitroso-di-n-propylamine	41-116	-	NA	Phenol-d5	10-110
		1,2,4-Trichlorobenzene	39-98	-	NA	2-Fluorophenol	21-110
		4-Chloro-3-methylphenol	23-97	-	NA	2,4,6-Tribromophenol	10-123
		Acenaphthene	46-118	-	NA	2-Chlorophenol-d4	33-110 (g)
		4-Nitrophenol	10-80	-	NA	1,2-Dichlorobenzene-d4	16-110 (g)
		2,4-Dinitrotoluene	24-96	-	NA		
		Pentachlorophenol	9-103	-	NA		
		Pyrene	26-127	-	NA		
Inorganics (i)	6010,7470/7471,7841,9010, OIA-1677	Inorganic Analyte	75-125 (j)	- (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) TCL VOCs plus library search
(f) TCL SVOCs plus library search
(g) Limits are advisory only
(i) Target Analyte List Inorganics (metals)
(j)Matrix spike only
(k) Laboratory duplicate RPD
NA - Not Applicable

TABLE 3
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)	8260	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)	8270	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		
Inorganics (i)	6010, 7470/7471, 7841, 9010	Inorganic Analyte	75-125 (j)	20 (k)	80-120	NA	NA
PCBs (h)	8082	PCBs (Aroclor 1260)	50-128	50	NA	Tetrachlorometaxylene	24-154
						Decachlorobiphenyl	25-159

(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) TCL VOCs plus library search
(f) TCL SVOCs plus library search
(g) Limits are advisory only
(h) PCBs
(i) Target Analyte List Inorganics (metals and cyanide)
(j) Matrix spike only
(k) Laboratory duplicate RPD
NA - Not Applicable

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 2 and 3.

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. Decontamination of sampling devices and digging equipment will be performed between samples as outlined in the Field Sampling Plan. Analysis of field blanks, trip blanks, and method blanks will also be performed to monitor for potential sample contamination from field and laboratory procedures.

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 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 users of either the data or the conclusions drawn from them will be able to judge the comparability of the data and conclusions.

3.7 SENSITIVITY

Sensitivity is the ability of the instrument or method to detect target analytes at the levels of interest. The project manager will select, with input from the laboratory and QA personnel, sampling and analytical procedures that achieve the required levels of detection and QC acceptance limits that meet established performance criteria. Concurrently, the project manager will select the level of data assessment to ensure that only data meeting the project data quality objectives are used in decision-making.

Field equipment will be used that can achieve the required levels of detection for analytical measurements in the field. In addition, the field sampling staff will collect and submit full volumes of samples as required by the laboratory for analysis, whenever possible. Full volume aliquots will help ensure achievement of the required limits of detection and allow for reanalysis if necessary. The concentration of the lowest level check standard in a multi-point calibration curve will represent the reporting limit.

Analytical methods and quality assurance parameters associated with the sampling program are presented in Table 1. The frequency of associated equipment blanks and duplicate samples will be based on the recommendations listed in DER-10 and as described in Table 1. One equipment blank per day per matrix will be collected for Per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane.

Site-specific matrix spike (MS) and matrix spike duplicates (MSD) samples will be prepared and analyzed by the analytical laboratory by spiking an aliquot of submitted sample volume with analytes of interest. Additional sample volume is not required by the laboratory for this purpose. An MS/MSD analysis will be analyzed at a rate of 1 out of every 20 samples, or one per analytical batch. MS/MSD samples are only required for soil and groundwater samples.

4.0 SAMPLING PROGRAM

4.1 INTRODUCTION

Soil and groundwater sampling will be conducted in accordance with the established NYSDEC protocols contained in DER-10/ Technical Guidance for Site Investigation and Remediation (May 2010). Air sampling will be conducted in accordance with the established NYSDOH protocols contained in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). The following sections describe procedures to be followed for specific tasks.

4.2 SAMPLE NOMENCLATURE

The sample nomenclature system was devised such that the following objectives can be attained (see Attachment B):

- Sorting of data by matrix;
- Sorting of data by depth;
- Maintenance of consistency (filed, laboratory, and database sample numbers);
- Accommodation of all project-specific requirements; and
- Accommodation of laboratory sample number length constraints (maximum 20 characters).

4.3 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 labeled and the appropriate preservatives will be added. The types of containers are shown in Tables 4 and 5.

Samples shall be preserved according to the preservation techniques given in Tables 4 and 5. 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 in Ziploc® bags (or equivalent), and delivered to the laboratory within 48 hours of collection. Chain-of-custody procedures are described in Section 5.

4.4 SAMPLE HOLDING TIMES

The sample holding times for organic and inorganic parameters are given in Tables 4 and 5 and must be in accordance with the USEPA requirements for each method. The USEPA technical holding times must be strictly adhered to by the laboratory. Any holding time exceedances must be reported to Langan.

4.5 FIELD QC SAMPLES

To assess cross-contamination and effectiveness of equipment decontamination, 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 vials 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 Part 375 volatiles analysis. The trip blank will be analyzed for volatile organic compounds to assess any contamination from sampling and transport, and internal laboratory procedures.

b. **Equipment Blanks** - Equipment blanks will be collected for quality assurance purposes at a rate of one per 20 investigative samples per matrix (soil and groundwater only). Equipment blanks will be obtained by pouring laboratory-demonstrated analyte-free water on or through a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided sample container for analysis. Equipment blank samples will be analyzed for the complete list of analytes on the day of sampling.

c. **PFAS Equipment Blanks** – A PFAS equipment blank will be prepared each day that PFAS sampling occurs. PFAS equipment blanks will be obtained by pouring laboratory-demonstrated analyte-free water on or throughout a decontaminated sampling device following use and implementation of decontamination protocols. The water will be collected off of the sampling device into a laboratory-provided HDPE sample container for analysis. The PFAS equipment blank will be analyzed for PFAS via USEPA Method 1633.

The duplicates will include:

a. **Coded Field Duplicate** - To determine the representativeness of the sampling methods, coded field duplicates will be collected at a minimum frequency of one per 20 field samples for each matrix (soil, groundwater, and soil vapor). 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 20 field samples (soil and groundwater). 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 2 and 3.

4.6 DECONTAMINATION PROCEDURES

4.6.1 Decontamination General Sample Collection

Decontamination procedures will be used for non-dedicated sampling equipment. Decontamination of field personnel is discussed in the site-specific CHASP appended to the RAWP. Field sampling equipment that is to be reused will be decontaminated in the field in accordance with the following procedures:

1. Laboratory-grade glassware detergent and tap water scrub to remove visual contamination
2. Generous tap water rinse
3. Distilled/de-ionized water rinse

4.6.2 Decontamination for PFAS Sample Collection

In addition to general decontamination procedures outlined above, sampling equipment will be thoroughly decontaminated before mobilization and between sample locations. Field sampling equipment, including water level indicators and other non-dedicated equipment, requires cleaning between uses. Powderless nitrile (non-latex) gloves will be donned during the handling of sampling equipment and sample containers. The Safety Data Sheets of detergents used in decontamination procedures will be reviewed to ensure fluoro-surfactants and 1,4-dioxane are not listed as ingredients. Laboratory-verified PFAS-free water will be used as the final rinse during decontamination of sampling equipment.

4.7 RESIDUALS MANAGEMENT

Debris (e.g., paper, plastic and disposable personal protective equipment [PPE]) will be collected in plastic garbage bags and disposed of as non-hazardous industrial waste. Debris is expected to be transported to a local municipal landfill for disposal. Drill cuttings will be placed back in the borehole from which it was sampled unless the soil is grossly-contaminated. If gross contamination is observed, soil will be collected and stored in Department of Transportation (DOT)-approved 55-gallon drums in a designated storage area at the site. Grossly-contaminated drill cuttings contained in drums will be stored in a designated storage area at the site and will be analyzed, characterized and disposed off-site in accordance with applicable federal and state regulations.

Residual fluids (such as purge water) will be collected and stored in DOT-approved (or equivalent) 55-gallon drums in a designated storage area at the site. The residual fluids will be analyzed, characterized and disposed off-site in accordance with applicable federal and state regulations. Residual fluids such as decontamination water may be discharged to the ground surface; however, if gross contamination is observed, the residual fluids will be collected, stored, and transported similar purge water or other residual fluids.

4.8 SPECIAL CONSIDERATIONS FOR PFAS AND EMERGENT CONTAMINANTS

Soil and groundwater samples collected for analysis of per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane will be collected in accordance with the specialized protocol outlined in this section and the *Sampling, Analysis, and Assessment of Per- and Polyfuoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs*, issued by the NYSDEC in April 2023. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-dioxane by EPA Method 8270 and for PFAS by EPA Method 1633 Modified in accordance with the procedure outlined in Attachment C.

Soil samples will be homogenized and placed into glass jars. Samples will be collected with unused sterile sampling scoops or spoons. After collection, all sample jars will be capped and securely tightened, and placed in iced coolers and maintained at 4°C ±2°C until they are transferred to the laboratory for analysis.

Groundwater sampling will be performed using low-flow sampling procedures following USEPA guidance ("Low Stress [low flow] Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells", January 19, 2017). Groundwater samples will be collected using a peristaltic pump fitted with dedicated, non-Teflon high-density polyethylene (HDPE) tubing and using low-flow purging techniques to minimize drawdown. A Horiba U-52 (or similar) will be used to monitor water quality parameters (pH, conductivity, temperature, dissolved oxygen, oxidation-reduction-potential (ORP), and turbidity. Groundwater samples will be collected after the parameters stabilized within about 10 percent of consecutive values, to the extent practical, and turbidity is below 10 nephelometric turbidity units (NTU).

Food and beverages will be prohibited near the sampling equipment. Additionally, no cosmetics, moisturizers, hand cream, sun screen or clothing materials containing Gore-Tex or Tyvek will be worn during sampling. Non-disposable components of the pump will be decontaminated with Alconox and water. Field personnel will wear nitrile gloves while collecting and handing soil and groundwater samples.

PFAS Sample Collection

Soil and groundwater samples collected for analysis of PFAS will be collected in accordance with the specialized protocol outlined in this section. Soil and groundwater samples collected from select sample locations will be analyzed for 1,4-dioxane by EPA Method 8270 SIM, and for PFAS by EPA Method 1633 Modified in accordance with the procedure outlined in Attachment C.

The following special considerations apply to the collection of groundwater samples for PFAS analysis to prevent cross-contamination:

- Field equipment will not contain Teflon®

- All sampling material will be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books will be used
- No plastic clipboards, binders, or spiral hard cover notebooks will be used
- No adhesives will be used
- No sharpies or permanent markers will be used; ball point pens are acceptable
- Aluminum foil will not be used
- PFAS samples will be kept in a separate cooler from other sampling containers
- Coolers will be filled only with regular ice

PFAS compound sampling protocol are provided in Attachment C.

TABLE 4
WATER SAMPLE CONTAINERIZATION, PRESERVATION, AND HOLDING TIMES

Analysis	Bottle Type	Preservation (a)	Holding Time (b)
VOCs	40 mL glass VOA vials w/ Teflon-lined cap	HCl pH<2, Cool to 4°C	14 days
SVOCs	1000 mL glass w/ Teflon-lined cap	Cool to 4°C	7 days*
PCBs	1000 mL glass w/ Teflon-lined cap	Cool to 4°C	7 days**
Metals	1000 mL plastic bottle	HNO_3 to pH < 2 Cool to 4°C	180 days, except mercury (28 days)
1,4-Dioxane	1000 mL glass w/ Teflon-lined cap	Cool to 4°C	7 days**
PFAS	250 mL HDPE bottles	Cool to 4°C	14 days

(a) All samples to be preserved in ice during collection and transport. Select samples preserved with hydrochloric acid (HCl) and nitric acid (HNO_3) as noted.

(b) Days from date of sample collection.

* Continuous liquid-liquid extraction is the required extraction for water samples for SVOCs. Continuous liquid-liquid extraction and concentration of water samples for SVOC analysis completed within 7 days from the date of sample collection. Extracts of water samples must be analyzed within 40 days of extraction.

** Procedures for extraction and concentration of water samples for PCBs must be completed within 7 days from the date of sample collection. Extracts of water samples must be analyzed within 40 days of extraction.

TABLE 5

SOIL SAMPLE
CONTAINERIZATION, PRESERVATION AND HOLDING TIMES

Analysis	Bottle Type	Preservation [(a)]	Holding Time [(b)]
VOCs	40 mL glass VOA vials or 5-g Encore samplers	Cool to 4°C, MeOH (VOA vials)	14 days*
SVOCs	Wide-mouth glass w/ Teflon lined cap	Cool to 4°C	14 days*
Metals	Wide-mouth plastic or glass	Cool to 4°C	180 days, except mercury (28 days)
PCBs	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14 days**
Herbicides	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14 days**
Cyanide, Total	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	14 days
Hexavalent Chromium	Wide-mouth glass w/ Teflon-lined cap	Cool to 4°C	30 Days
1,4-Dioxane	40 mL glass VOA vials or 5-g Encore samplers	Cool to 4°C MeOH (VOA vials)	14 days *
PFAS	8-oz HDPE bottles	Cool to 4°C	28 days

(a) All samples to be preserved in ice during collection and transport. Samples collected for VOC analysis in VOA vials are preserved with methanol (MeOH).

(b) Days from date of sample collection.

* Samples collected for VOC analysis using Encore samplers must be analyzed within 48 hours unless frozen. Samples frozen within 48 hours can be analyzed up to 14 days from the date of sample collection.

* Soxhlet or sonication procedures for extraction and concentration of soil/waste samples for SVOCs must be completed within 14 days from the date of sample collection. Extracts of soil samples must be analyzed within 40 days of extraction.

** Procedures for extraction and concentration of soil/waste samples for PCBs and herbicides must be completed within 14 days from the date of sample collection. Extracts of soil samples must be analyzed within 40 days of extraction.

TABLE 6
SOIL VAPOR, INDOOR AIR, AND AMBIENT AIR SAMPLES
CONTAINERIZATION PRESENTATION AND HOLDING TIMES

Analysis	Bottle Type	Preservation	Holding Time [(a)]
VOCs	Summa Canister	None	30 days

(a) Days from date of sample collection.

* Summa canisters will be batch-certified by the analytical laboratory.

5.0 SAMPLE SHIPMENT, 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 2. A sample is considered to be in a person's custody if the sample is:

- In his/her 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, restricted to authorized personnel.

5.2 PACKAGING

Air samples canisters can be stored and transported without additional packaging. Soil and groundwater sample containers will be placed in plastic coolers. Ice in Ziploc® bags (or equivalent) will be placed around sample containers. Cushioning material will be added around the sample containers if necessary. COCs and other paperwork will be placed in a Ziploc® bag (or equivalent) and placed inside the cooler. The cooler will be taped closed and custody seals will be affixed to one side of the cooler at a minimum. If the samples are being shipped by an express delivery company (e.g. FedEx) then laboratory address labels will be placed on top of the cooler

5.3 SHIPPING

Standard procedures to be followed for shipping environmental samples to the analytical laboratory are outlined below.

- All environmental samples will be transported to the laboratory by a laboratory-provided courier under the chain-of-custody protocols.

Prior notice will be provided to the laboratory regarding when to expect shipped samples. If the number, type or date of shipment changes due to site constraints or program changes, the laboratory will be informed.

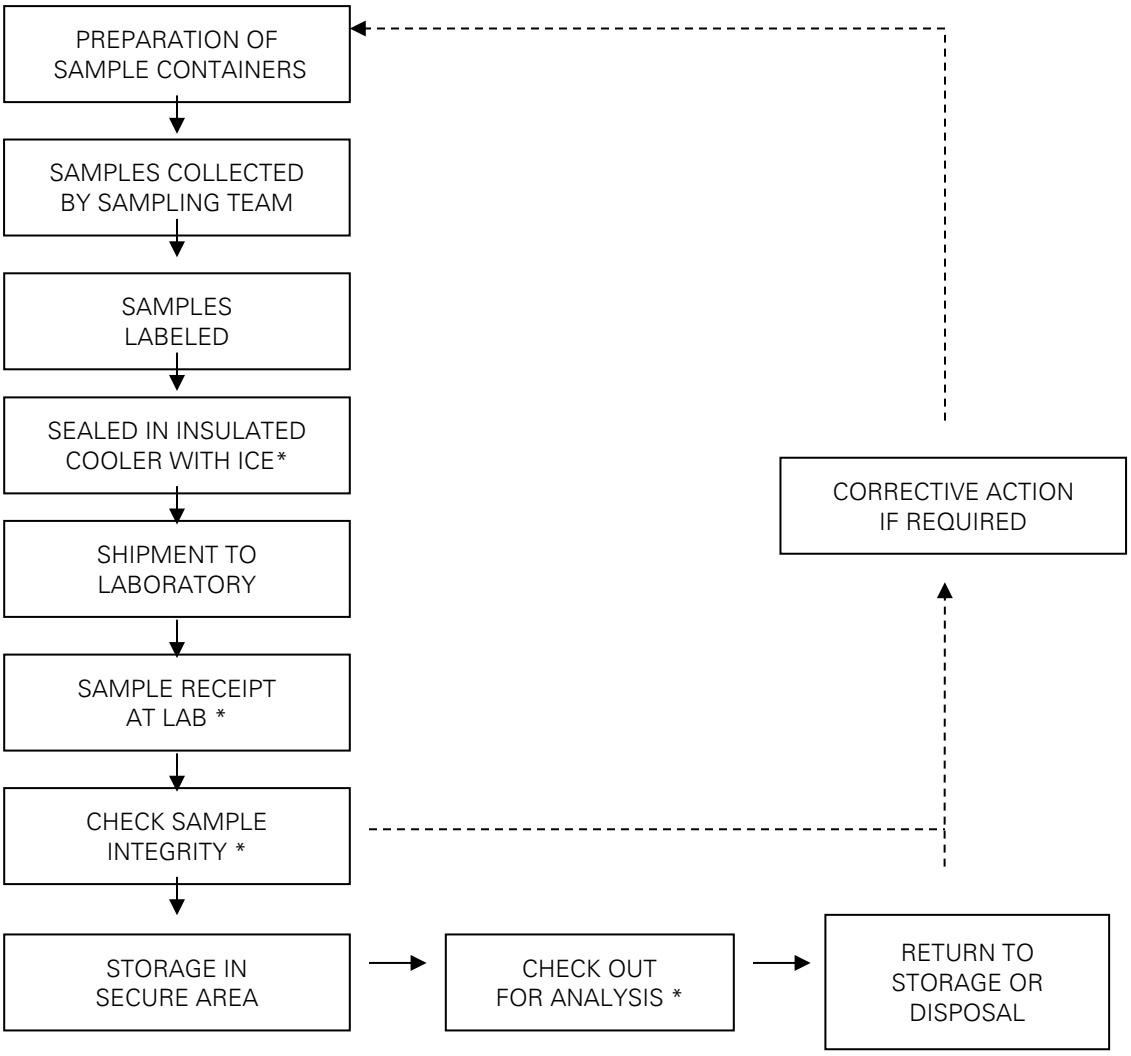
5.4 FIELD SAMPLE CUSTODY

A COC record (Figure 3 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.

Figure 2: Sample Custody



* REQUIRES SIGN-OFF ON CHAIN-OF-CUSTODY FORM

Figure 3: Sample Chain-of-Custody Form

ALPHA

NEW YORK CHAIN OF CUSTODY

Page of

Date Rec'd in Lab

ALPHA Job #

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Client Information
Client:
Address:
Phone:
Fax:
Email:

Project Information
Project Name:
Project Location:
Project #
(Use Project name as Project #) ☐
Project Manager:
ALPHAQuote #:

Turn-Around Time
Standard ☐ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ ASP-A ☐ ASP-B
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement
☐ NY TOGS ☐ NY Part 375
☐ AWQ Standards ☐ NY CP-51
☐ NY Restricted Use ☐ Other
☐ NY Unrestricted Use
☐ NYC Sewer Discharge

Billing Information
☐ Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
☐ NJ ☐ NY
☐ Other:

These samples have been previously analyzed by Alpha ☐
Other project specific requirements/comments:

Please specify Metals or TAL.

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS	Sample Filtration	Total Bottles
							☐ Done ☐ Lab to do	
							Preservation ☐ Lab to do	
							(Please Specify below)	
							Sample Specific Comments	

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

	Relinquished By:	Date/Time	Received By:	Date/Time
Container Type				
Preservative				

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

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 (notations identifying blind duplicate samples will be added to this copy of the COC, but not the others that will go to the laboratory) 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.

5.5 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°C 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.

6.0 CALIBRATION PROCEDURES

6.1 FIELD INSTRUMENTS

A PID will be used during the sampling activities to evaluate work zone action levels, collect pre- and post-sample readings for air samples, screen soil samples, and collect monitoring well headspace readings. Field calibration and/or field checking of the PID will be the responsibility of the field team leader and will be accomplished by following the procedures outlined in the operating manual for the instrument. At a minimum, field calibration and/or field equipment checking will be performed once daily, prior to use. Field calibration will be documented in the field notebook. Entries made into the logbook regarding the status of field equipment will include the following information:

- Date and time of calibration
- Type of equipment serviced and identification number (such as serial number)
- Reference standard used for calibration
- Calibration and/or maintenance procedure used
- Other pertinent information

A water quality meter (Horiba U-52 or similar) will be used during purging and sampling of groundwater to measure pH, specific conductance, temperature, dissolved oxygen, turbidity and oxidation-reduction-potential (ORP) every five minutes. Water-quality meters should be calibrated and the results documented before use each day using standardized field calibration procedures and calibration checks.

Equipment that fails calibration or becomes inoperable during use will be removed from service and segregated to prevent inadvertent utilization. The equipment will be properly tagged to indicate that it is out of calibration. Such equipment will be repaired and recalibrated to the manufacturer's specifications by qualified personnel. Equipment that cannot be repaired will be replaced.

Off-site calibration and maintenance of field instruments will be conducted as appropriate throughout the duration of project activities. All field instrumentation, sampling equipment and accessories will be maintained in accordance with the manufacturer's recommendations and specifications and established field equipment practice. Off-site calibration and maintenance will be performed by qualified personnel. A logbook will be kept to document that established calibration and maintenance procedures were followed. Documentation will include both scheduled and unscheduled maintenance.

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.

7.0 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 for the laboratory analysis of soil, water, and air samples and the quantitation limits presented in Table 7.

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
	VOCs			
1	Methylene chloride	8260C/5035	0.01	0.00165
2	1,1-Dichloroethane	8260C/5035	0.0015	0.00027
3	Chloroform	8260C/5035	0.0015	0.00037
4	Carbon tetrachloride	8260C/5035	0.001	0.000345
5	1,2-Dichloropropane	8260C/5035	0.0035	0.000228
6	Dibromochloromethane	8260C/5035	0.001	0.000176
7	1,1,2-Trichloroethane	8260C/5035	0.0015	0.000313
8	Tetrachloroethene	8260C/5035	0.001	0.000302
9	Chlorobenzene	8260C/5035	0.001	0.000348
10	Trichlorofluoromethane	8260C/5035	0.005	0.000417
11	1,2-Dichloroethane	8260C/5035	0.001	0.000246
12	1,1,1-Trichloroethane	8260C/5035	0.001	0.00035
13	Bromodichloromethane	8260C/5035	0.001	0.000308
14	trans-1,3-Dichloropropene	8260C/5035	0.001	0.000208
15	cis-1,3-Dichloropropene	8260C/5035	0.001	0.000231
16	1,3-Dichloropropene, Total	8260C/5035	0.001	0.000208
17	1,1-Dichloropropene	8260C/5035	0.005	0.000328
18	Bromoform	8260C/5035	0.004	0.000237
19	1,1,2,2-Tetrachloroethane	8260C/5035	0.001	0.000298
20	Benzene	8260C/5035	0.001	0.000193
21	Toluene	8260C/5035	0.0015	0.000195
22	Ethylbenzene	8260C/5035	0.001	0.00017
23	Chloromethane	8260C/5035	0.005	0.000436
24	Bromomethane	8260C/5035	0.002	0.000338
25	Vinyl chloride	8260C/5035	0.002	0.000315
26	Chloroethane	8260C/5035	0.002	0.000316
27	1,1-Dichloroethene	8260C/5035	0.001	0.000372
28	trans-1,2-Dichloroethene	8260C/5035	0.0015	0.000241
29	Trichloroethene	8260C/5035	0.001	0.000302

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
30	1,2-Dichlorobenzene	8260C/5035	0.005	0.000182
31	1,3-Dichlorobenzene	8260C/5035	0.005	0.000218
32	1,4-Dichlorobenzene	8260C/5035	0.005	0.000182
33	Methyl tert butyl ether	8260C/5035	0.002	0.000153
34	p/m-Xylene	8260C/5035	0.002	0.000351
35	o-Xylene	8260C/5035	0.002	0.000338
36	Xylene (Total)	8260C/5035	0.002	0.000338
37	cis-1,2-Dichloroethene	8260C/5035	0.001	0.000342
38	1,2-Dichloroethene (total)	8260C/5035	0.001	0.000241
39	Dibromomethane	8260C/5035	0.01	0.000239
40	Styrene	8260C/5035	0.002	0.000401
41	Dichlorodifluoromethane	8260C/5035	0.01	0.0005
42	Acetone	8260C/5035	0.01	0.00229
43	Carbon disulfide	8260C/5035	0.01	0.0011
44	2-Butanone	8260C/5035	0.01	0.00069
45	Vinyl acetate	8260C/5035	0.01	0.000153
46	4-Methyl-2-pentanone	8260C/5035	0.01	0.000244
47	1,2,3-Trichloropropane	8260C/5035	0.01	0.000177
48	2-Hexanone	8260C/5035	0.01	0.000666
49	Bromochloromethane	8260C/5035	0.005	0.000357
50	2,2-Dichloropropane	8260C/5035	0.005	0.00045
51	1,2-Dibromoethane	8260C/5035	0.004	0.000199
52	1,3-Dichloropropane	8260C/5035	0.005	0.000183
53	1,1,1,2-Tetrachloroethane	8260C/5035	0.001	0.000318
54	Bromobenzene	8260C/5035	0.005	0.000219
55	n-Butylbenzene	8260C/5035	0.001	0.000228
56	sec-Butylbenzene	8260C/5035	0.001	0.000217
57	tert-Butylbenzene	8260C/5035	0.005	0.000247
58	o-Chlorotoluene	8260C/5035	0.005	0.000221
59	p-Chlorotoluene	8260C/5035	0.005	0.000183
60	1,2-Dibromo-3-chloropropane	8260C/5035	0.005	0.000396
61	Hexachlorobutadiene	8260C/5035	0.005	0.000348
62	Isopropylbenzene	8260C/5035	0.001	0.000194
63	p-Isopropyltoluene	8260C/5035	0.001	0.000202
64	Naphthalene	8260C/5035	0.005	0.000138
65	Acrylonitrile	8260C/5035	0.01	0.000514
66	n-Propylbenzene	8260C/5035	0.001	0.000215

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
67	1,2,3-Trichlorobenzene	8260C/5035	0.005	0.000251
68	1,2,4-Trichlorobenzene	8260C/5035	0.005	0.000215
69	1,3,5-Trimethylbenzene	8260C/5035	0.005	0.000161
70	1,2,4-Trimethylbenzene	8260C/5035	0.005	0.000186
71	1,4-Dioxane	8260C/5035	0.04	0.0144
72	1,4-Diethylbenzene	8260C/5035	0.004	0.004
73	4-Ethyltoluene	8260C/5035	0.004	0.000234
74	1,2,4,5-Tetramethylbenzene	8260C/5035	0.004	0.000156
75	Ethyl ether	8260C/5035	0.005	0.00026
76	trans-1,4-Dichloro-2-butene	8260C/5035	0.005	0.000392
	SVOCs			
1	Acenaphthene	8270D	0.1332	0.0172494
2	1,2,4-Trichlorobenzene	8270D	0.1665	0.0190476
3	Hexachlorobenzene	8270D	0.0999	0.018648
4	Bis(2-chloroethyl)ether	8270D	0.14985	0.0225774
5	2-Chloronaphthalene	8270D	0.1665	0.0165168
6	1,2-Dichlorobenzene	8270D	0.1665	0.0299034
7	1,3-Dichlorobenzene	8270D	0.1665	0.028638
8	1,4-Dichlorobenzene	8270D	0.1665	0.0290709
9	3,3'-Dichlorobenzidine	8270D	0.1665	0.044289
10	2,4-Dinitrotoluene	8270D	0.1665	0.0333
11	2,6-Dinitrotoluene	8270D	0.1665	0.0285714
12	Fluoranthene	8270D	0.0999	0.0191142
13	4-Chlorophenyl phenyl ether	8270D	0.1665	0.0178155
14	4-Bromophenyl phenyl ether	8270D	0.1665	0.0254079
15	Bis(2-chloroisopropyl)ether	8270D	0.1998	0.0284382
16	Bis(2-chloroethoxy)methane	8270D	0.17982	0.0166833
17	Hexachlorobutadiene	8270D	0.1665	0.0243756
18	Hexachlorocyclopentadiene	8270D	0.47619	0.150849
19	Hexachloroethane	8270D	0.1332	0.0269397
20	Isophorone	8270D	0.14985	0.0216117
21	Naphthalene	8270D	0.1665	0.0202797
22	Nitrobenzene	8270D	0.14985	0.024642
23	NitrosoDiPhenylAmine(NDPA)/DPA	8270D	0.1332	0.0189477
24	n-Nitrosodi-n-propylamine	8270D	0.1665	0.0257076
25	Bis(2-Ethylhexyl)phthalate	8270D	0.1665	0.057609

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
26	Butyl benzyl phthalate	8270D	0.1665	0.041958
27	Di-n-butylphthalate	8270D	0.1665	0.0315684
28	Di-n-octylphthalate	8270D	0.1665	0.05661
29	Diethyl phthalate	8270D	0.1665	0.0154179
30	Dimethyl phthalate	8270D	0.1665	0.034965
31	Benzo(a)anthracene	8270D	0.0999	0.0187479
32	Benzo(a)pyrene	8270D	0.1332	0.040626
33	Benzo(b)fluoranthene	8270D	0.0999	0.0280386
34	Benzo(k)fluoranthene	8270D	0.0999	0.02664
35	Chrysene	8270D	0.0999	0.017316
36	Acenaphthylene	8270D	0.1332	0.0257076
37	Anthracene	8270D	0.0999	0.0324675
38	Benzo(ghi)perylene	8270D	0.1332	0.0195804
39	Fluorene	8270D	0.1665	0.0161838
40	Phenanthrene	8270D	0.0999	0.0202464
41	Dibenzo(a,h)anthracene	8270D	0.0999	0.0192474
42	Indeno(1,2,3-cd)Pyrene	8270D	0.1332	0.0232101
43	Pyrene	8270D	0.0999	0.0165501
44	Biphenyl	8270D	0.37962	0.038628
45	4-Chloroaniline	8270D	0.1665	0.030303
46	2-Nitroaniline	8270D	0.1665	0.0321012
47	3-Nitroaniline	8270D	0.1665	0.0314019
48	4-Nitroaniline	8270D	0.1665	0.068931
49	Dibenzofuran	8270D	0.1665	0.0157509
50	2-Methylnaphthalene	8270D	0.1998	0.0201132
51	Acetophenone	8270D	0.1665	0.0206127
52	2,4,6-Trichlorophenol	8270D	0.0999	0.0315684
53	P-Chloro-M-Cresol	8270D	0.1665	0.0248085
54	2-Chlorophenol	8270D	0.1665	0.0196803
55	2,4-Dichlorophenol	8270D	0.14985	0.0267732
56	2,4-Dimethylphenol	8270D	0.1665	0.054945
57	2-Nitrophenol	8270D	0.35964	0.062604
58	4-Nitrophenol	8270D	0.2331	0.067932
59	2,4-Dinitrophenol	8270D	0.7992	0.077589
60	4,6-Dinitro-o-cresol	8270D	0.4329	0.07992
61	Pentachlorophenol	8270D	0.1332	0.03663
62	Phenol	8270D	0.1665	0.0251415

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
63	2-Methylphenol	8270D	0.1665	0.0258075
64	3-Methylphenol/4-Methylphenol	8270D	0.23976	0.0260739
65	2,4,5-Trichlorophenol	8270D	0.1665	0.0319014
66	Benzoic Acid	8270D	0.53946	0.168498
67	Benzyl Alcohol	8270D	0.1665	0.050949
68	Carbazole	8270D	0.1665	0.0161838
	Pesticides			
1	Delta-BHC	8081B	0.007992	0.0015651
2	Lindane	8081B	0.00333	0.00148851
3	Alpha-BHC	8081B	0.00333	0.00094572
4	Beta-BHC	8081B	0.007992	0.0030303
5	Heptachlor	8081B	0.003996	0.00179154
6	Aldrin	8081B	0.007992	0.00281385
7	Heptachlor epoxide	8081B	0.014985	0.0044955
8	Endrin	8081B	0.00333	0.0013653
9	Endrin aldehyde	8081B	0.00999	0.0034965
10	Endrin ketone	8081B	0.007992	0.00205794
11	Dieldrin	8081B	0.004995	0.0024975
12	4,4'-DDE	8081B	0.007992	0.00184815
13	4,4'-DDD	8081B	0.007992	0.00285048
14	4,4'-DDT	8081B	0.014985	0.0064269
15	Endosulfan I	8081B	0.007992	0.00188811
16	Endosulfan II	8081B	0.007992	0.00267066
17	Endosulfan sulfate	8081B	0.00333	0.00152181
18	Methoxychlor	8081B	0.014985	0.004662
19	Toxaphene	8081B	0.14985	0.041958
20	cis-Chlordane	8081B	0.00999	0.00278388
21	trans-Chlordane	8081B	0.00999	0.00263736
22	Chlordane	8081B	0.064935	0.0264735
	Herbicides			
1	2,4,5-TP (Silvex)	8151A	0.1665	0.0044289
	PCBs			
1	Aroclor 1016	8082A	0.0335	0.0026465
2	Aroclor 1221	8082A	0.0335	0.0030887

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
3	Aroclor 1232	8082A	0.0335	0.0039262
4	Aroclor 1242	8082A	0.0335	0.0041004
5	Aroclor 1248	8082A	0.0335	0.0028274
6	Aroclor 1254	8082A	0.0335	0.0027537
7	Aroclor 1260	8082A	0.0335	0.0025527
8	Aroclor 1262	8082A	0.0335	0.0016616
9	Aroclor 1268	8082A	0.0335	0.0048575
10	PCBs, Total	8082A	0.0335	0.0016616
	Metals			
1	Aluminum, Total	6010C	4	1.08
2	Antimony, Total	6010C	2	0.152
3	Arsenic, Total	6010C	0.4	0.0832
4	Barium, Total	6010C	0.4	0.0696
5	Beryllium, Total	6010C	0.2	0.0132
6	Cadmium, Total	6010C	0.4	0.0392
7	Calcium, Total	6010C	4	1.4
8	Chromium, Total	6010C	0.4	0.0384
9	Cobalt, Total	6010C	0.8	0.0664
10	Copper, Total	6010C	0.4	0.1032
11	Iron, Total	6010C	2	0.3612
12	Lead, Total	6010C	2	0.1072
13	Magnesium, Total	6010C	4	0.616
14	Manganese, Total	6010C	0.4	0.0636
15	Mercury	7471B	0.08	0.016896
16	Nickel, Total	6010C	1	0.0968
17	Potassium, Total	6010C	100	5.76
18	Selenium, Total	6010C	0.8	0.1032
19	Silver, Total	6010C	0.4	0.1132
20	Sodium, Total	6010C	80	1.26
21	Thallium, Total	6010C	0.8	0.126
22	Vanadium, Total	6010C	0.4	0.0812
23	Zinc, Total	6010C	2	0.1172
	General Chemistry			
1	Cyanide	9010C	0.8	0.16
2	Hexavalent Chromium	7196A	1	0.166

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
3	Trivalent Chromium	7196	0.8	0.8
	PFAS	**Method**	**RL (µg/kg)**	**MDL (µg/kg)**
1	Perfluorobutanoic Acid (PFBA)	1633	0.8	0.0504
2	Perfluoropentanoic Acid (PFPeA)	1633	0.4	0.056
3	Perfluorobutanesulfonic Acid (PFBS)	1633	0.2	0.0432
4	Perfluorohexanoic Acid (PFHxA)	1633	0.2	0.0464
5	Perfluoroheptanoic Acid (PFHpA)	1633	0.2	0.0232
6	Perfluorohexanesulfonic Acid (PFHxS)	1633	0.2	0.0592
7	Perfluorooctanoic Acid (PFOA)	1633	0.2	0.052
8	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2-FTS)	1633	0.8	0.028
9	Perfluoroheptanesulfonic Acid (PFHpS)	1633	0.2	0.0368
10	Perfluorononanoic Acid (PFNA)	1633	0.2	0.0784
11	Perfluorooctanesulfonic Acid (PFOS)	1633	0.2	0.0792
12	Perfluorodecanoic Acid (PFDA)	1633	0.2	0.0752
13	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2-FTS)	1633	0.8	0.3872
14	N-Methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	1633	0.2	0.1
15	Perfluoroundecanoic Acid (PFUnA)	1633	0.2	0.0512
16	Perfluorodecanesulfonic Acid (PFDS)	1633	0.2	0.032
17	Perfluorooctanesulfonamide (FOSA)	1633	0.2	0.0432
18	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1633	0.2	0.0842
19	Perfluorododecanoic Acid (PFDoA)	1633	0.2	0.0408
20	Perfluorotridecanoic Acid (PFTrDA)	1633	0.2	0.0528
21	Perfluorotetradecanoic Acid (PFTA)	1633	0.2	0.1064
22	Perfluoropentanesulfonic Acid (PFPeS)	1633	0.2	0.0232
23	Perfluorononanesulfonic Acid (PFNS)	1633	0.2	0.0424
24	Perfluorododecanesulfonic Acid (PFDoDS)	1633	0.2	0.0384
25	Perfluorotetradecanoic Acid (PFTeDA)	1633	-	-
26	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1633	0.8	0.0984
27	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	1633	0.8	0.1464

TABLE 7
PROJECT QUANTITATION LIMITS - SOIL

			Estimated Quantitation Limits (Soil)	
	Compound	**Method**	**RL (mg/kg)**	**MDL(mg/kg)**
28	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	1633	0.4	0.0408
29	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	1633	0.4	0.0312
30	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1633	0.4	0.0952
31	4:2 Fluorotelomer Sulfonic Acid (4:2-FTS)	1633	0.8	0.0808
32	5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	1633	0.5	0.5048
33	N-methylperfluorooctane Sulfonamide (NMEFOSA)	1633	0.2	0.1
34	N-Ethylperfluorooctane Sulfonamide (NEtFOSA)	1633	0.2	0.112
35	N-Methylperfluorooctane Sulfonamidoethanol (MeFOSE)	1633	2	0.2504
36	N-Ethylperfluorooctane Sulfonamidoethanol (NEtFOSE)	1633	2	0.5104
37	9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (F-53B Major) (9Cl-PF3ONS)	1633	0.8	0.196
38	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (F-53B Minor) (11Cl-PF3OUdS)	1633	0.8	0.1672
39	Perfluoro(2-ethoxyethane) Sulfonic Acid (PFEESA)	1633	0.4	0.0952
40	3:3 Fluorotelomer Carboxylic Acid (3:3 FTCA)	1633	1	0.144

Notes:
1) RL = Reporting Limit
2) MDL = Method Detection Limit
3) RL and MDL values were supplied by Alpha Analytical Laboratories
4) RL and MDL values are estimated and may vary depending on instruments
5) mg/kg = milligram per kilogram
6) µg/kg = microgram per kilogram

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
	VOCs			
1	Methylene chloride	8260C	2.5	0.7
2	1,1-Dichloroethane	8260C	5	0.7
3	Chloroform	8260C	2.5	0.7
4	Carbon tetrachloride	8260C	5	0.134
5	1,2-Dichloropropane	8260C	5	0.133

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
6	Dibromochloromethane	8260C	5	0.149
7	1,1,2-Trichloroethane	8260C	5	0.5
8	Tetrachloroethene	8260C	5	0.181
9	Chlorobenzene	8260C	5	0.7
10	Trichlorofluoromethane	8260C	5	0.7
11	1,2-Dichloroethane	8260C	2.5	0.132
12	1,1,1-Trichloroethane	8260C	2.5	0.7
13	Bromodichloromethane	8260C	2	0.192
14	trans-1,3-Dichloropropene	8260C	2.5	0.164
15	cis-1,3-Dichloropropene	8260C	2.5	0.144
16	1,3-Dichloropropene, Total	8260C	2.5	0.144
17	1,1-Dichloropropene	8260C	2.5	0.7
18	Bromoform	8260C	2.5	0.65
19	1,1,2,2-Tetrachloroethane	8260C	2.5	0.144
20	Benzene	8260C	2.5	0.159
21	Toluene	8260C	2.5	0.7
22	Ethylbenzene	8260C	2.5	0.7
23	Chloromethane	8260C	2.5	0.7
24	Bromomethane	8260C	2.5	0.7
25	Vinyl chloride	8260C	2.5	0.0699
26	Chloroethane	8260C	2.5	0.7
27	1,1-Dichloroethene	8260C	2.5	0.142
28	trans-1,2-Dichloroethene	8260C	2.5	0.7
29	Trichloroethene	8260C	2.5	0.175
30	1,2-Dichlorobenzene	8260C	2.5	0.7
31	1,3-Dichlorobenzene	8260C	250	0.7
32	1,4-Dichlorobenzene	8260C	2	0.7
33	Methyl tert butyl ether	8260C	2	0.7
34	p/m-Xylene	8260C	2	0.7
35	o-Xylene	8260C	2.5	0.7
36	Xylene (Total)	8260C	2.5	0.7
37	cis-1,2-Dichloroethene	8260C	2.5	0.7
38	1,2-Dichloroethene (total)	8260C	2.5	0.7
39	Dibromomethane	8260C	5	1
40	1,2,3-Trichloropropane	8260C	2.5	0.7
41	Acrylonitrile	8260C	5	1.5
42	Styrene	8260C	2.5	0.7

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
43	Dichlorodifluoromethane	8260C	5	1
44	Acetone	8260C	5	1.46
45	Carbon disulfide	8260C	5	1
46	2-Butanone	8260C	5	1.94
47	Vinyl acetate	8260C	5	1
48	4-Methyl-2-pentanone	8260C	5	1
49	2-Hexanone	8260C	5	1
50	Bromochloromethane	8260C	2.5	0.7
51	2,2-Dichloropropane	8260C	2.5	0.7
52	1,2-Dibromoethane	8260C	2	0.65
53	1,3-Dichloropropane	8260C	2.5	0.7
54	1,1,1,2-Tetrachloroethane	8260C	2.5	0.7
55	Bromobenzene	8260C	2.5	0.7
56	n-Butylbenzene	8260C	2.5	0.7
57	sec-Butylbenzene	8260C	2.5	0.7
58	tert-Butylbenzene	8260C	2.5	0.7
59	o-Chlorotoluene	8260C	2.5	0.7
60	p-Chlorotoluene	8260C	2.5	0.7
61	1,2-Dibromo-3-chloropropane	8260C	2.5	0.7
62	Hexachlorobutadiene	8260C	2.5	0.7
63	Isopropylbenzene	8260C	2.5	0.7
64	p-Isopropyltoluene	8260C	2.5	0.7
65	Naphthalene	8260C	2.5	0.7
66	n-Propylbenzene	8260C	2.5	0.7
67	1,2,3-Trichlorobenzene	8260C	2.5	0.7
68	1,2,4-Trichlorobenzene	8260C	2.5	0.7
69	1,3,5-Trimethylbenzene	8260C	2.5	0.7
70	1,2,4-Trimethylbenzene	8260C	2.5	0.7
71	1,4-Dioxane	8270 SIM Isotope Dilution	0.15	0.075
72	1,4-Diethylbenzene	8260C	2	0.7
73	4-Ethyltoluene	8260C	2	0.7
74	1,2,4,5-Tetramethylbenzene	8260C	2	0.65
75	Ethyl ether	8260C	2.5	0.7
76	trans-1,4-Dichloro-2-butene	8260C	2.5	0.7
	SVOCs			

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
1	Acenaphthene	8270D	2	0.591
2	1,2,4-Trichlorobenzene	8270D	5	0.661
3	Hexachlorobenzene	8270D	2	0.579
4	Bis(2-chloroethyl)ether	8270D	2	0.669
5	2-Chloronaphthalene	8270D	2	0.64
6	1,2-Dichlorobenzene	8270D	2	0.732
7	1,3-Dichlorobenzene	8270D	2	0.732
8	1,4-Dichlorobenzene	8270D	2	0.708
9	3,3'-Dichlorobenzidine	8270D	5	1.39
10	2,4-Dinitrotoluene	8270D	5	0.845
11	2,6-Dinitrotoluene	8270D	5	1.12
12	Fluoranthene	8270D	2	0.568
13	4-Chlorophenyl phenyl ether	8270D	2	0.625
14	4-Bromophenyl phenyl ether	8270D	2	0.731
15	Bis(2-chloroisopropyl)ether	8270D	2	0.696
16	Bis(2-chloroethoxy)methane	8270D	5	0.626
17	Hexachlorobutadiene	8270D	2	0.658
18	Hexachlorocyclopentadiene	8270D	20	7.84
19	Hexachloroethane	8270D	2	0.682
20	Isophorone	8270D	5	0.601
21	Naphthalene	8270D	2	0.68
22	Nitrobenzene	8270D	2	0.753
23	NitrosoDiPhenylAmine(NDPA)/DPA	8270D	2	0.644
24	n-Nitrosodi-n-propylamine	8270D	5	0.7
25	Bis(2-Ethylhexyl)phthalate	8270D	3	0.91
26	Butyl benzyl phthalate	8270D	5	1.26
27	Di-n-butylphthalate	8270D	5	0.689
28	Di-n-octylphthalate	8270D	5	1.14
29	Diethyl phthalate	8270D	5	0.628
30	Dimethyl phthalate	8270D	5	0.65
31	Benzo(a)anthracene	8270D	2	0.61
32	Benzo(a)pyrene	8270D	2	0.539
33	Benzo(b)fluoranthene	8270D	2	0.635
34	Benzo(k)fluoranthene	8270D	2	0.597
35	Chrysene	8270D	2	0.543
36	Acenaphthylene	8270D	2	0.658
37	Anthracene	8270D	2	0.645

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
38	Benzo(ghi)perylene	8270D	2	0.611
39	Fluorene	8270D	2	0.619
40	Phenanthrene	8270D	2	0.613
41	Dibenzo(a,h)anthracene	8270D	2	0.548
42	Indeno(1,2,3-cd)Pyrene	8270D	2	0.707
43	Pyrene	8270D	2	0.569
44	Biphenyl	8270D	2	0.757
45	4-Chloroaniline	8270D	5	0.632
46	2-Nitroaniline	8270D	5	1.14
47	3-Nitroaniline	8270D	5	1.14
48	4-Nitroaniline	8270D	5	1.3
49	Dibenzofuran	8270D	2	0.656
50	2-Methylnaphthalene	8270D	2	0.72
51	Acetophenone	8270D	5	0.847
52	2,4,6-Trichlorophenol	8270D	5	0.681
53	P-Chloro-M-Cresol	8270D	2	0.617
54	2-Chlorophenol	8270D	2	0.631
55	2,4-Dichlorophenol	8270D	5	0.769
56	2,4-Dimethylphenol	8270D	5	1.64
57	2-Nitrophenol	8270D	10	1.52
58	4-Nitrophenol	8270D	10	1.77
59	2,4-Dinitrophenol	8270D	20	5.47
60	4,6-Dinitro-o-cresol	8270D	10	2.1
61	Pentachlorophenol	8270D	10	3.43
62	Phenol	8270D	5	1.89
63	2-Methylphenol	8270D	5	1.02
64	3-Methylphenol/4-Methylphenol	8270D	5	1.11
65	2,4,5-Trichlorophenol	8270D	5	0.715
66	Benzoic Acid	8270D	50	12.9
67	Benzyl Alcohol	8270D	2	0.725
68	Carbazole	8270D	2	0.627
69	1,4-Dioxane	8270 SIM Isotope Dilution	0.15	0.075
	Pesticides			
1	Delta-BHC	8081B	0.02	0.00467
2	Lindane	8081B	0.02	0.00434
3	Alpha-BHC	8081B	0.02	0.00439

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
4	Beta-BHC	8081B	0.02	0.0056
5	Heptachlor	8081B	0.02	0.0031
6	Aldrin	8081B	0.02	0.00216
7	Heptachlor epoxide	8081B	0.02	0.00415
8	Endrin	8081B	0.04	0.00429
9	Endrin aldehyde	8081B	0.04	0.0081
10	Endrin ketone	8081B	0.04	0.00477
11	Dieldrin	8081B	0.04	0.00429
12	4,4'-DDE	8081B	0.04	0.00381
13	4,4'-DDD	8081B	0.04	0.00464
14	4,4'-DDT	8081B	0.04	0.00432
15	Endosulfan I	8081B	0.02	0.00345
16	Endosulfan II	8081B	0.04	0.00519
17	Endosulfan sulfate	8081B	0.04	0.00481
18	Methoxychlor	8081B	0.2	0.00684
19	Toxaphene	8081B	0.2	0.063
20	cis-Chlordane	8081B	0.02	0.00666
21	trans-Chlordane	8081B	0.02	0.00627
22	Chlordane	8081B	0.2	0.0463
	Herbicides			
1	2,4,5-TP (Silvex)	8151A	2	0.539
	PCBs			
1	Aroclor 1016	8082A	0.083	0.05478
2	Aroclor 1221	8082A	0.083	0.05312
3	Aroclor 1232	8082A	0.083	0.03071
4	Aroclor 1242	8082A	0.083	0.05976
5	Aroclor 1248	8082A	0.083	0.05063
6	Aroclor 1254	8082A	0.083	0.03403
7	Aroclor 1260	8082A	0.083	0.03154
8	Aroclor 1262	8082A	0.083	0.02905
9	Aroclor 1268	8082A	0.083	0.03735
10	PCBs, Total	8082A	0.083	0.02905
	Metals			
1	Aluminum, Total	6010C	0.00001	0.00000327

TABLE 7
PROJECT QUANTITATION LIMITS - GROUNDWATER

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ug/L)**	**MDL(ug/L)**
2	Antimony, Total	6010C	0.000004	0.000000429
3	Arsenic, Total	6010C	0.0000005	0.000000165
4	Barium, Total	6010C	0.0000005	0.000000173
5	Beryllium, Total	6010C	0.0000005	0.000000107
6	Cadmium, Total	6010C	0.0000002	0.0000000599
7	Calcium, Total	6010C	0.0001	0.0000394
8	Chromium, Total	6010C	0.000001	0.000000178
9	Cobalt, Total	6010C	0.0000005	0.000000163
10	Copper, Total	6010C	0.000001	0.000000384
11	Iron, Total	6010C	0.00005	0.0000191
12	Lead, Total	6010C	0.000001	0.000000343
13	Magnesium, Total	6010C	0.00007	0.0000242
14	Manganese, Total	6010C	0.000001	0.00000044
15	Mercury	7040A	0.0000002	0.000000066
16	Nickel, Total	6010C	0.000002	0.000000556
17	Potassium, Total	6010C	0.0001	0.0000309
18	Selenium, Total	6010C	0.000005	0.00000173
19	Silver, Total	6010C	0.0000004	0.000000163
20	Sodium, Total	6010C	0.0001	0.0000293
21	Thallium, Total	6010C	0.0000005	0.000000143
22	Vanadium, Total	6010C	0.000005	0.00000157
23	Zinc, Total	6010C	0.00001	0.00000341
	General Chemistry			
1	Cyanide	9010C/9012A	0.00001	0.000003
2	Hexavalent Chromium	7196A	0.000005	0.0000018
3	Trivalent Chromium	7196	0.00001	0.00001

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ng/L)**	**MDL (ng/L)**
	PFAS	**Method**	**RL (ng/L)**	**MDL (ng/L)**
1	Perfluorobutanoic Acid (PFBA)	1633	6.4	1.024
2	Perfluoropentanoic Acid (PFPeA)	1633	3.2	0.856
3	Perfluorobutanesulfonic Acid (PFBS)	1633	1.6	0.536
4	Perfluorohexanoic Acid (PFHxA)	1633	1.6	0.472
5	Perfluoroheptanoic Acid (PFHpA)	1633	1.6	0.32
6	Perfluorohexanesulfonic Acid (PFHxS)	1633	1.6	0.0384

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ng/L)**	**MDL (ng/L)**
7	Perfluorooctanoic Acid (PFOA)	1633	1.6	0.696
8	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2-FTS)	1633	6.4	2.16
9	Perfluoroheptanesulfonic Acid (PFHpS)	1633	1.6	0.432
10	Perfluorononanoic Acid (PFNA)	1633	1.6	0.504
11	Perfluorooctanesulfonic Acid (PFOS)	1633	1.6	0.728
12	Perfluorodecanoic Acid (PFDA)	1633	1.6	0.648
13	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2-FTS)	1633	6.4	2.488
14	N-Methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	1633	1.6	0.872
15	Perfluoroundecanoic Acid (PFUnA)	1633	1.6	0.696
16	Perfluorodecanesulfonic Acid (PFDS)	1633	1.6	0.368
17	Perfluorooctanesulfonamide (FOSA)	1633	1.6	0.432
18	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1633	1.6	0.864
19	Perfluorododecanoic Acid (PFDoA)	1633	1.6	0.736
20	Perfluorotridecanoic Acid (PFTrDA)	1633	1.6	0.6
21	Perfluorotetradecanoic Acid (PFTA)	1633	1.6	0.424
22	Perfluoropentanesulfonic Acid (PFPeS)	1633	1.6	0.28
23	Perfluorononanesulfonic Acid (PFNS)	1633	1.6	0.496
24	Perfluorododecanesulfonic Acid (PFDoDS)	1633	1.6	0.608
25	Perfluorotetradecanoic Acid (PFTeDA)	1633	-	-
26	Hexafluoropropylene Oxide Dimer Acid (HFPO-DA)	1633	6.4	0.896
27	4,8-Dioxa-3H-Perfluorononanoic Acid (ADONA)	1633	6.4	1.008
28	Perfluoro-3-Methoxypropanoic Acid (PFMPA)	1633	3.2	0.456
29	Perfluoro-4-Methoxybutanoic Acid (PFMBA)	1633	3.2	0.424
30	Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	1633	3.2	1.888
31	4:2 Fluorotelomer Sulfonic Acid (4:2-FTS)	1633	6.4	1.672
32	5:3 Fluorotelomer carboxylic acid (5:3 FTCA)	1633	40	9.36
33	N-methylperfluorooctane Sulfonamide (NMeFOSA)	1633	1.6	0.696
34	N-Ethylperfluorooctane Sulfonamide (NEtFOSA)	1633	1.6	0.736
35	N-Methylperfluorooctane Sulfonamidoethanol (MeFOSE)	1633	16	3.76

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ng/L)**	**MDL (ng/L)**
36	N-Ethylperfluorooctane Sulfonamidoethanol (NEtFOSE)	1633	16	1.96
37	9-Chlorohexadecafluoro-3-Oxanonane-1-Sulfonic Acid (F-53B Major) (9Cl-PF3ONS)	1633	6.4	1.32
38	11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (F-53B Minor) (11Cl-PF3OUdS)	1633	6.4	1.32
39	Perfluoro(2-ethoxyethane) Sulfonic Acid (PFEESA)	1633	3.2	0.352
40	3:3 Fluorotelomer Carboxylic Acid (3:3 FTCA)	1633	8	2.64

Notes:
1) RL = Reporting Limit
2) MDL = Method Detection Limit
3) RL and MDL values were supplied by Alpha Analytical Laboratories
4) RL and MDL values are estimated and may vary depending on instruments
5) µg/L = micrograms per liter
6) ng/L = nanograms per liter

TABLE 7
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ppbV)**	**MDL (ppbV)**
	VOCs			
1	1,1,1-Trichloroethane	TO-15	0.2	0.057
2	1,1-Dichloroethene	TO-15	0.2	0.0566
3	1,2,3-Trimethylbenzene	TO-15	0.2	0.0751
4	1,2,4-Trichlorobenzene	TO-15	0.2	0.0611
5	1,2,4-Trimethylbenzene	TO-15	0.2	0.0694
6	1,2,4,5-Tetramethylbenzene	TO-15	0.2	0.0795
7	1,2-Dibromoethane	TO-15	0.2	0.0779
8	1,2-Dichlorobenzene	TO-15	0.2	0.0614
9	1,2-Dichloroethane	TO-15	0.2	0.0552
10	1,2-Dichloropropane	TO-15	0.2	0.0697
11	1,3,5-Trimethylbenzene	TO-15	0.2	0.0584
12	1,3-Butadiene	TO-15	0.2	0.0799
13	1,3-Dichlorobenzene	TO-15	0.2	0.0637
14	1,4-Dichlorobenzene	TO-15	0.2	0.0418
15	1,4-Dioxane	TO-15	0.2	0.078
16	2,2,4-Trimethylpentane	TO-15	0.2	0.0659
17	2-Butanone	TO-15	0.5	0.0522
18	2-Hexanone	TO-15	0.2	0.0604

TABLE 7
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ppbV)**	**MDL (ppbV)**
19	2-Methylthiophene	TO-15	0.2	0.0789
20	3-Methylthiophene	TO-15	0.2	0.0669
21	3-Chloropropene	TO-15	0.2	0.0812
22	2-Ethylthiophene	TO-15	0.2	0.0571
23	4-Ethyltoluene	TO-15	0.2	0.0776
24	Acetone	TO-15	1	0.269
25	Benzene	TO-15	0.2	0.0537
26	Benzyl chloride	TO-15	0.2	0.0645
27	Benzothiophene	TO-15	0.5	0.0468
28	Bromodichloromethane	TO-15	0.2	0.0656
29	Bromoform	TO-15	0.2	0.0523
30	Bromomethane	TO-15	0.2	0.0696
31	Carbon disulfide	TO-15	0.2	0.0345
32	Carbon tetrachloride	TO-15	0.2	0.0471
33	Chlorobenzene	TO-15	0.2	0.0789
34	Chloroethane	TO-15	0.2	0.0767
35	Chloroform	TO-15	0.2	0.0452
36	Chloromethane	TO-15	0.2	0.0958
37	cis-1,2-Dichloroethene	TO-15	0.2	0.0587
38	cis-1,3-Dichloropropene	TO-15	0.2	0.0745
39	Cyclohexane	TO-15	0.2	0.0656
40	Dibromochloromethane	TO-15	0.2	0.0747
41	Dichlorodifluoromethane	TO-15	0.2	0.0466
42	Ethyl Alcohol	TO-15	5	0.542
43	Ethyl Acetate	TO-15	0.5	0.131
44	Ethylbenzene	TO-15	0.2	0.0555
45	1,1,2-Trichloro-1,2,2-Trifluoroethane	TO-15	0.2	0.0511
46	1,2-Dichloro-1,1,2,2-tetrafluoroethane	TO-15	0.2	0.0419
47	Hexachlorobutadiene	TO-15	0.2	0.0732
48	iso-Propyl Alcohol	TO-15	0.5	0.114
49	Methylene chloride	TO-15	0.5	0.188
50	4-Methyl-2-pentanone	TO-15	0.5	0.0607
51	Methyl tert butyl ether	TO-15	0.2	0.0452
52	Methyl Methacrylate	TO-15	0.5	0.148
53	p/m-Xylene	TO-15	0.4	0.139
54	o-Xylene	TO-15	0.2	0.0631

TABLE 7
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ppbV)**	**MDL (ppbV)**
55	Xylene (Total)	TO-15	0.2	0.0631
56	Heptane	TO-15	0.2	0.0553
57	n-Heptane	TO-15	0.2	0.0553
58	n-Hexane	TO-15	0.2	0.0518
59	Propylene	TO-15	0.5	0.0929
60	Styrene	TO-15	0.2	0.0799
61	Tetrachloroethene	TO-15	0.2	0.0758
62	Thiophene	TO-15	0.2	0.0528
63	Tetrahydrofuran	TO-15	0.5	0.0622
64	Toluene	TO-15	0.2	0.0628
65	trans-1,2-Dichloroethene	TO-15	0.2	0.074
66	1,2-Dichloroethene (total)	TO-15	0.2	0.0587
67	trans-1,3-Dichloropropene	TO-15	0.2	0.0693
68	1,3-Dichloropropene, Total	TO-15	0.2	0.0693
69	Trichloroethene	TO-15	0.2	0.071
70	Trichlorofluoromethane	TO-15	0.2	0.0416
71	Vinyl acetate	TO-15	1	0.0567
72	Vinyl bromide	TO-15	0.2	0.0699
73	Vinyl chloride	TO-15	0.2	0.0533
74	Naphthalene	TO-15	0.2	0.0432
75	Total HC As Hexane	TO-15	10	0.0518
76	Total VOCs As Toluene	TO-15	10	0.0628
77	Propane	TO-15	0.5	0.114
78	Acrylonitrile	TO-15	0.5	0.079
79	Acrolein	TO-15	0.5	0.114
80	1,1,1,2-Tetrachloroethane	TO-15	0.2	0.0547
81	Isopropylbenzene	TO-15	0.2	0.043
82	1,2,3-Trichloropropane	TO-15	0.2	0.0767
83	Acetonitrile	TO-15	0.2	0.0761
84	Bromobenzene	TO-15	0.2	0.079
85	Chlorodifluoromethane	TO-15	0.2	0.0626
86	Dichlorofluoromethane	TO-15	0.2	0.0572
87	Dibromomethane	TO-15	0.2	0.0476
88	Pentane	TO-15	0.2	0.0475
89	Octane	TO-15	0.2	0.0421
90	Tertiary-Amyl Methyl Ether	TO-15	0.2	0.0795
91	o-Chlorotoluene	TO-15	0.2	0.0487

TABLE 7
PROJECT QUANTITATION LIMITS – AIR

			Estimated Quantitation Limits (Groundwater)	
	Compound	**Method**	**RL (ppbV)**	**MDL (ppbV)**
92	p-Chlorotoluene	TO-15	0.2	0.0764
93	2,2-Dichloropropane	TO-15	0.2	0.0581
94	1,1-Dichloropropene	TO-15	0.2	0.0715
95	Isopropyl Ether	TO-15	0.2	0.0656
96	Ethyl-Tert-Butyl-Ether	TO-15	0.2	0.0515
97	1,2,3-Trichlorobenzene	TO-15	0.2	0.0436
98	Ethyl ether	TO-15	0.2	0.0591
99	n-Butylbenzene	TO-15	0.2	0.0639
100	sec-Butylbenzene	TO-15	0.2	0.0731
101	tert-Butylbenzene	TO-15	0.2	0.0402
102	1,2-Dibromo-3-chloropropane	TO-15	0.2	0.0744
103	p-Isopropyltoluene	TO-15	0.2	0.0608
104	n-Propylbenzene	TO-15	0.2	0.0559
105	1,3-Dichloropropane	TO-15	0.2	0.0776
106	Methanol	TO-15	5	0.736
107	Acetaldehyde	TO-15	2.5	0.547
108	Butane	TO-15	0.2	0.0442
109	Nonane (C9)	TO-15	0.2	0.0644
110	Decane (C10)	TO-15	0.2	0.0484
111	Undecane	TO-15	0.2	0.0528
112	Indane	TO-15	0.2	0.0795
113	Indene	TO-15	0.2	0.0608
114	1-Methylnaphthalene	TO-15	1	0.286
115	Dodecane (C12)	TO-15	0.2	0.0564
116	Butyl Acetate	TO-15	0.5	0.114
117	tert-Butyl Alcohol	TO-15	0.5	0.0599
118	2-Methylnaphthalene	TO-15	1	0.0273

Notes:
1) RL = Reporting Limit
2) MDL = Method Detection Limit
3) RL and MDL values were supplied by Alpha Analytical Laboratories
4) RL and MDL values are estimated and may vary depending on instrument
5) ppbV = parts per billion volume

8.0 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

The Analytical Services Protocol (ASP) Category B data packages and an electronic data deliverable (EDD) will be provided by the laboratory after receipt of a complete sample delivery group. The Project Manager will immediately arrange for archiving the results and preparation of result tables. These tables will form the database for assessment of the site contamination condition.

Each EDD deliverable must be formatted using a Microsoft Windows operating system and the NYSDEC data deliverable format for EQuIS. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system (LIMS). If this cannot be accomplished, the consultant should be notified via letter of transmittal indicating that manual entry of data is required for a particular method of analysis. All EDDs must also undergo a QC check by the laboratory before delivery. The original data, tabulations, and electronic media are stored in a secure and retrievable fashion.

The Project Manager will maintain close contact with the QA reviewer to ensure all non-conformance issues are acted upon prior to data manipulation and assessment routines. Once the QA review is completed, the Project Manager may direct others to initiate and finalize the analytical data assessment.

8.3 DATA VALIDATION

Data validation will be performed in accordance with the USEPA Region 2 SOPs for data validation and USEPA's National Functional Guidelines for Organic and Inorganic Data Review. Tier 1 data validation (the equivalent of USEPA's Stage 2A validation) will be performed to evaluate data quality. Tier 1 data validation is based on completeness and compliance checks of sample-related QC results including:

- Holding times;
- Sample preservation;
- Blank results (method, trip, and field blanks);
- Surrogate recovery compounds and extracted internal standards (as applicable);
- LCS and LCSD recoveries and RPDs;
- MS and MSD recoveries and RPDs;
- Laboratory duplicate RPDs; and
- Field duplicate RPDs

A DUSR will be prepared by the data validator and reviewed by the QAM before issuance. The DUSR will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain-of-custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

Based on the results of data validation, the validated analytical results reported by the laboratory will be assigned one of the following usability flags:

- "U" - Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank;
- "UJ" - Not detected. Quantitation limit may be inaccurate or imprecise;
- "J" - Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method
- "R" – Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample; and
- No Flag - Result accepted without qualification.

9.0 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 were designated, the laboratory will contact the Langan 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 detect "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 EQUIPMENT BLANKS

Trip blanks and equipment 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 evaluate the effectiveness of field decontamination procedures.

10.0 QUALITY ASSURANCE PERFORMANCE AUDITS AND SYSTEM AUDITS

10.1 INTRODUCTION

Quality assurance audits may be performed by the project quality assurance group under the direction and approval of the QAO. These audits will be implemented to evaluate the capability and performance of project and subcontractor personnel, items, activities, and documentation of the measurement system(s). Functioning as an independent body and reporting directly to corporate quality assurance management, the QAO may plan, schedule, and approve system and performance audits based upon procedures customized to the project requirements. At times, the QAO may request additional personnel with specific expertise from company and/or project groups to assist in conducting performance audits. However, these personnel will not have responsibility for the project work associated with the performance audit.

10.2 SYSTEM AUDITS

System audits may be performed by the QAO or designated auditors, and encompass a qualitative evaluation of measurement system components to ascertain their appropriate selection and application. In addition, field and laboratory quality control procedures and associated documentation may be system audited. These audits may be performed once during the performance of the project. However, if conditions adverse to quality are detected or at the request of the Project Manager, additional audits may occur.

10.3 PERFORMANCE AUDITS

The laboratory may be required to conduct an analysis of Performance Evaluation samples or provide proof that Performance Evaluation samples submitted by the USEPA or a state agency were analyzed within the past twelve months.

10.4 FORMAL AUDITS

Formal audits refer to any system or performance audit that is documented and implemented by the QA group. These audits encompass documented activities performed by qualified lead auditors to a written procedure or checklists to objectively verify that quality assurance requirements were developed, documented, and instituted in accordance with contractual and project criteria. Formal audits may be performed on project and subcontractor work at various locations.

Audit reports will be written by auditors who have performed the site audit after gathering and evaluating all data. Items, activities, and documents determined by lead auditors to be in noncompliance shall be identified at exit interviews conducted with the involved management. Non-compliances will be logged, and documented through audit findings, which are attached to

and are a part of the integral audit report. These audit-finding forms are directed to management to satisfactorily resolve the noncompliance in a specified and timely manner.

The Project Manager has overall responsibility to ensure that all corrective actions necessary to resolve audit findings are acted upon promptly and satisfactorily. Audit reports must be submitted to the Project Manager within fifteen days of completion of the audit. Serious deficiencies will be reported to the Project Manager within 24 hours. All audit checklists, audit reports, audit findings, and acceptable resolutions will be reviewed and approved by the QAO. Verification of acceptable resolutions may be determined by re-audit or documented surveillance of the item or activity. Upon verification acceptance, the QAO will close out the audit report and findings.

11.0 PREVENTIVE MAINTENANCE PROCEDURES AND SCHEDULES

11.1 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.

11.2 SCHEDULES

Written procedures will establish the schedule for servicing critical items to minimize the downtime of the measurement system. Rental equipment subcontractors and the laboratory will adhere to the maintenance schedule, and arrange any necessary and prompt service. Required service will be performed by qualified personnel.

11.3 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. The QAO may audit these records to verify complete adherence to these procedures.

12.0 CORRECTIVE ACTION

12.1 INTRODUCTION

The following procedures were established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, evaluated, and corrected.

12.2 PROCEDURE DESCRIPTION

When a significant condition adverse to quality is noted at site or laboratory, 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 laboratory 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 and laboratory groups, will monitor on-going work performance in the normal course of daily responsibilities. Work may be audited at the sites or laboratory. Activities ascertained to be noncompliant with quality assurance requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the Project Manager.

Personnel assigned to quality assurance functions will have the responsibility to issue and control Corrective Action Request (CAR) Forms (Figure 12.1 or similar). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered. The CAR is issued to the personnel responsible for the affected item or activity. A copy is also submitted to the Project Manager. The individual to whom the CAR is addressed returns the requested response promptly to the QA personnel, affixing his/her signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The QA personnel maintain the log for status of CARs, confirms the adequacy of the intended corrective action, and verifies its implementation. CARs will be retained in the project file for the records.

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.

Figure 4: Corrective Action Request

CORRECTIVE ACTION REQUEST
Number: _____ Date: _____
TO: _____ You are hereby requested to take corrective actions indicated below and as otherwise determined by you to (a) resolve the noted condition and (b) to prevent it from recurring. Your written response is to be returned to the project quality assurance manager by _____
CONDITION:
REFERENCE DOCUMENTS:
RECOMMENDED CORRECTIVE ACTIONS:
_____ _____ _____ _____ _____ _____ Originator Date Approval Date Approval Date
• RESPONSE
CAUSE OF CONDITION
CORRECTIVE ACTION (A) RESOLUTION (B) PREVENTION (C) AFFECTED DOCUMENTS
C.A. FOLLOWUP: CORRECTIVE ACTION VERIFIED BY: _____ DATE:_____

13.0 REFERENCES

NYSDEC. Division of Environmental Remediation. DER-10/Technical Guidance for Site Investigation and Remediation, dated May 3, 2010.

NYSDEC. Division of Environmental Remediation. Sampling, Analysis and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs, dated April 2023.

Taylor, J. K., 1987. Quality Assurance of Chemical Measurements. Lewis Publishers, Inc., Chelsea, Michigan

USEPA. Validating Volatile Organic Compounds By Gas Chromatography/Mass Spectrometry. SOP No. HW-24, Revision 4, dated October 2014. USEPA Region II.

USEPA. Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15. SOP No. HW-31, Revision 6, dated June 2014. USEPA Region II.

USEPA. Polychlorinated Biphenyl (PCB) Aroclor Data Validation. SOP No. HW-37, Revision 3, dated May 2013. USEPA Region II.

USEPA. Pesticide Data Validation. SOP No. HW-36, Revision 4, dated May 2013. USEPA Region II.

USEPA. Semivolatile Data Validation. SOP No. HW-35, Revision 2, dated March 2013. USEPA Region II.

USEPA. Tetro-through Octa-chlorinated Dioxins and Furans by Isotope Dilution (HRGC/HRMS). SOP For EPA Method 1613, Revision B, dated December 2010. USEPA Region II.

USEPA. PCDDs/PCDFs using HRGC/HRMS. SOP for SW-846 Method 8290 HW-19, Revision 1.1, dated December 2010. USEPA Region II.

USEPA, Polychlorinated Dibenzodioxins/Polychlorinated Dibenzofurans. SW-846 Method 8280 HW-11, Revision 3, dated December 2010. USEPA Region II.

USEPA. Low/Medium Volatile Data Validation. SOP No. HW-33, Revision 3, dated March 2013. USEPA Region II.

USEPA. ICP-AES Data Validation. SOP No. HW-2a, Revision 15, dated December 2012. USEPA Region II.

USEPA. ICP-MS Data Validation. SOP No. HW-2b, Revision 15, dated December 2012. USEPA Region II.

USEPA. Mercury and Cyanide Data Validation. SOP No. HW-2c, Revision 15, dated December 2012, USEPA Region II.

USEPA. Trace Volatile Data Validation. SOP No. HW-34, Revision 3, dated February 2013, USEPA Region II.

ATTACHMENT A

RESUMES

WILLIAM BOHRER, PG

PROJECT GEOLOGIST

GEOLOGIST

Mr. Bohrer is an experienced geologist responsible for managing Langan's environmental standards and Health and Safety compliance for projects throughout New York City. His services include dissemination of environmental protocols, troubleshooting at project sites, in-house/field training, and maintenance of quality standards across the environmental discipline. Mr. Bohrer has a diverse and extensive background in geophysics, hydrogeology, mining and petroleum, and geotechnical engineering. He has developed conceptual site models for public, industrial and commercial facilities nationwide.



SELECTED PROJECTS

- NYU Poly – 122 Johnson Street, Brooklyn, NY
- Con Edison of New York at Governor's Island, NY, NY
- 535 4th Avenue, Brooklyn, NY
- 27 Wooster Street, New York, NY
- 42 West Street, Brooklyn, NY
- 455 West 19th Street, New York, NY
- Kings Plaza Mall, Brooklyn, NY
- Hudson Yards "Terra Firma," New York, NY
- Hudson Yards, Platform Special Inspection, New York, NY
- PSAC II, Bronx, NY
- 595-647 Smith Street, Brooklyn, NY
- New York University, 7-13 Washington Square North Investigation, New York, NY
- NYU 4 Washington Square Village, New York, NY
- 125th Street and Lenox Avenue, New York, NY
- Sullivan Street Development, New York, NY
- Hudson Crossing II, New York, NY
- New York Aquarium, Shark Tank & Animal Care Facility, Brooklyn, NY
- 209-219 Sullivan Street, New York, NY
- 261 Hudson Street, New York, NY
- 460 Washington Street, New York, NY
- 552 West 24th Street, New York, NY
- Brooklyn Bridge Park Pier 1, New York, NY
- International Leadership Bronx Charter School, Bronx, NY
- 203 East 92nd Street, New York, NY
- HighLine 28-29, New York, NY
- 539 Smith Street Bulkhead, Brooklyn, NY
- Willets Point, Corona, NY
- Plume Migration and Fracture Flow Aquifer Investigation, Brunswick, MD
- Plume Migration and Fracture Flow Aquifer Investigation, Fallston, MD
- Emergency Response Site Investigation & Remediation, Wappingers Falls, NY
- Emergency Response Site Investigation & Remediation, Allentown, PA

EDUCATION

Post Graduate Studies in Geophysics
Cornell University

B.S., Geology
Tufts University

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY

40 Hour OSHA HazWOPER

OSHA Construction Safety & Health

OSHA Supervisory Certification
Credential (TWIC)

Transportation Worker Identification

NYS DEC- Protecting New York's Natural Resources with Better Construction Site Management

AFFILIATIONS

American Association of Petroleum Geologists

National Groundwater Association

Geological Society of America

LANGAN

- Emergency Response Site Investigation & Remediation, Shamokin, PA
- Bermuda International Airport, Jet Fuel Release Investigation, Bermuda
- Little Missouri River Basin, Geotechnical Site Evaluation (Horizontal Drilling Pipeline Install), ND
- Seismic Susceptibility Evaluation (Class 2 Injection Wells), Litchfield, OH
- Bedrock Mapping, Bradford and Sullivan Counties, PA
- Soil Solidification, Carteret, NJ

PA Council of Professional Geologists

JOSEPH CONBOY

STAFF CHEMIST

ENVIRONMNETAL

Mr. Conboy has seven years of environmental chemistry, quality assurance, and environmental database management experience, with a current emphasis on validation of laboratory data for submittal to NJDEP via the New Jersey Data of Known Quality Protocols and to NYSDEC. Previous work experience includes performing validation of data for projects in USEPA Regions 2 and 3 while employing appropriate validation guidelines for each region, managing large data sets, updating appropriate regulatory limits, performing statistical evaluations, and preparing electronic data deliverables and report deliverables using the Earthsoft EQuIS database program, and acted as an intermediary between project managers, field staff, and laboratories. Mr. Conboy also has experience in field sampling techniques and maintains current OSHA HAZWOPER certification.



EDUCATION

B.Sc., Chemistry with a minor in Mathematics
Rowan University

CERTIFICATIONS & TRAINING

OSHA 40-Hour HAZWOPER 29 CFR 1910.120(e)(4) Certification

NJ Analytical Guidance and Data Usability Training

USEPA Data Validation Training

Earthsoft EQuIS Environmental Database Training

SELECTED PROJECTS

- 1400 Ferris, Bronx, NY – Completed validation of soil and groundwater data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOCs and SVOCs including 1,4-dioxane, and tangentially used based on professional judgment to perform validation of PFAS data.
- Broome Street Parking Lot, NY - Completed validation of waste characterization data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOCs, SVOCs, herbicides, PCBs, pesticides, metals including mercury, ignitability temperature, pH, reactive cyanide, reactive sulfide, cyanide, and hexavalent chromium. Toxicity characteristic leachate procedure extraction data for VOCs, SVOCs, herbicides, pesticides, metals, and mercury were also validated.
- 215 North 10th Street, Brooklyn, NY - Completed validation of soil and groundwater data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOC, SVOC, SVOC SIM, herbicide, PCB, pesticide, metals, mercury, cyanide, hexavalent chromium, trivalent chromium data.
- 35 Commercial Street, Brooklyn, NY - Completed validation of soil data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOC, SVOC, SVOC SIM, herbicide, PCB, pesticide, metals, mercury, cyanide, hexavalent chromium, trivalent chromium data, and tangentially used based on professional judgment to perform validation of PFAS data.
- Suffolk Street, Lower East Side, NY- Completed validation of soil, groundwater, and soil vapor data and prepared the Data Usability Summary Report for submittal to NYSDEC. USEPA Region II

guidelines, with aide from National Functional Guidelines, were employed to perform validation of VOC, VOCs by USEPA TO-15, SVOC, SVOC SIM, herbicide, PCB, pesticide, metals, mercury, cyanide, hexavalent chromium, trivalent chromium data, and tangentially used based on professional judgment to perform validation of PFAS data.

- Managed a database for a confidential client containing 10+ years of environmental chemical data from multiple laboratories, requiring select data validation in accordance with New Jersey Data of Known Quality Protocols and identifying areas of delineation from historic field information. Once identified, NJDEP designated groundwater, surface water, soil, sediment, soil vapor, and custom screening criteria were researched and applied to each area, requiring individualized flagging for reporting.*
- Prepared the New Jersey Data of Known Quality Protocol Data Usability Evaluation and managed the database for a confidential client for a data set greater than 20 years old. A DUE or any validation effort was not prepared in the 20 years prior to current. This included data from variations of methods for volatile organic compounds, semivolatile organic compounds, total and dissolved metals, pesticides, herbicides, natural attenuation parameters, and per- and polyfluoroalkyl substances in multiple media.*
- Performed 200+ Stage 2a validations for a combined 87-acre USEPA designated Corrective Action site under the Resource Conservation and Recovery Act, including a quick-turn USEPA required PCB by soxhlet extraction investigation across multiple plants. Once a former train car painting facility, USEPA required a quick-turn PCB by soxhlet extraction soil investigation.
- Preparation of a quality assurance program for a confidential client in West Virginia. A quick turn QAPP was prepared in a service location new to the consultant, resulting in research into state requirements for data usability and auditing newly employed laboratories. The QAPP was understood to be prepared for groundwater only, but the client did not reveal the need for sediment and soil. Two QAPPs were submitted for review to governing agencies.*
- Used statistical software to determine a localized background upper confidence limit of chromium for a confidential client's sand and gravel site. Validation was used to confirm laboratory procedures, and data was used in ProUCL calculations to compare to researched background chromium levels for Pennsylvania soils. *
- Prepared daily perimeter dust and air monitoring summaries and validation of low level mirex data for a confidential client's superfund site. Low level mirex data was generated by university laboratories and subject to validation following national functional guidelines to aide in river clean-up, including sediment, surface water, and treatment system water matrices.*

**Project completed prior to employment at LANGAN.*

JOSHUA GOLDING, PE

SENIOR STAFF ENGINEER

ENVIRONMENTAL ENGINEERING

Mr. Golding is an environmental engineer with experience in excavation oversight, waste classification, Community Air Monitoring Programs (CAMP), regulatory reporting, and soil/groundwater sampling. He has provided cleanup services for sites in New York City and upstate New York. He also has experience in the site/civil industry in Sydney, Australia.



SELECTED PROJECTS

- Keller Hotel, Manhattan, New York, NY
- Evergreen Charter School, Hempstead, NY
- Greenpoint Marina, Brooklyn, New York, NY
- Bush Terminal, Brooklyn, New York, NY
- 215 North 10th Street, Brooklyn, New York, NY
- 445 Gerard Avenue, Bronx, New York, NY
- 4650 Broadway, Manhattan, New York, NY
- Jackson Park Residential Development, Queens, New York, NY
- Coney Island Amphitheater, Brooklyn, New York, NY
- 388 Bridge Street, Brooklyn, New York, NY
- A. Duie Pyle Bronz Truck Depot, Bronx, New York, NY
- One Hudson Yards, Manhattan, New York, NY
- 511 West 21st Street, Manhattan, New York, NY
- 32-00 Skillman Avenue, Queens, New York, NY
- UTS Engineering Building, Sydney, Australia
- UNSW Tyree Energy Technologies Building, Sydney, Australia

EDUCATION

B.E., Civil and Environmental Engineering
University of Technology, Sydney

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in TX

OSHA 10 Hour

OSHA 40 Hour HAZWOPER

NYCDEC Stormwater Pollution Prevention and Control Certificate

JASON J. HAYES, PE, LEED AP

PRINCIPAL/VICE PRESIDENT

ENVIRONMENTAL ENGINEERING

Mr. Hayes has experience in New York, New Jersey, Washington D.C., California, Washington, Oregon, Alaska, and Internationally. His experience includes Environmental Protection Agency (EPA), New York State (NYS) Brownfields applications, investigation, and remediation; New York City Department of Environmental Protection (NYCDEP) and New York City Office of Environmental Remediation (OER) E-designated site applications, investigations, and remediation. His expertise also includes Phase I and II Environmental Site Investigations and Assessments; contaminated building cleanup and demolition; Underground Storage Tank (UST) permitting, removal specifications, and closure reporting; soil vapor intrusion investigation and mitigation system design (depressurization systems, etc.); development of groundwater contaminant plume migration models; environmental analysis; and oversight, design and specification generation for remediation operations with contaminants of concern to include polychlorinated biphenyls (PCBs), solvents, mercury, arsenic, petroleum products, asbestos, mold and lead.

SELECTED PROJECTS

- NYC School Construction Authority (PCB Remediation), Various Locations, New York, NY
- 28-29 High Line (Phase I ESA, Phase II ESI, and Environmental Remediation), New York, NY
- Georgetown Heating Plant (Phase II ESI and Remedial Design for Mercury Impacted Site), Washington D.C.
- 268 West Street (BCP Application, RI and RIWP), New York, NY
- Confidential Multiple Mixed-Use Tower Location (BCP Application, RI, Phase I ESA, and Phase II ESI), New York, NY
- Dock 72 at Brooklyn Navy Yard, (NYS Voluntary Cleanup Program), Brooklyn, NY
- 27-21 44th Drive (BCP Application, Remedial Investigation Phase I ESA, and Phase II ESI), Long Island City, NY
- Purves Street Development, BCP Application, RAWP, and Phase II ESI, Long Island City, NY
- 267-273 West 87th Street (BCP Application, Remedial Investigation, RIWP, RAWP), New York, NY
- New York Aquarium, Shark Tank and Animal Care Facility (Environmental Remediation), Coney Island, NY
- International Leadership Charter School (Environmental Remediation), Bronx, NY
- West & Watts (BCP Application), New York, NY
- Hudson Yards Redevelopment (Phase I ESA and Phase II ESI), New York, NY
- 627 Smith Street (RI and Report), Brooklyn, NY
- Gateway Center II Retail (Phase I ESA and Phase II ESI), Brooklyn, NY
- 261 Hudson Street (Phase I ESA, Phase II ESI, BCP, and RAWP),



EDUCATION

M.S., Environmental Engineering
Columbia University

B.S., Chemistry, Environmental Toxicology (Business Administration minor)
Humboldt State University

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in NY

LEED Accredited Professional (LEED AP)

Troxler Certification for Nuclear Densometer Training

OSHA 40-Hour HAZWOPER

OSHA HAZWOPER Site Supervisor

AFFILIATIONS

US Green Building Council, NYC Chapter, Communications Committee

Urban Land Institute (ULI), member

Commercial Real Estate Development Associations (NAIOP), member

LANGAN

New York, NY
- Riverside Center, Building 2 (BCP, Phase I ESA and Phase II ESI), New York, NY
- New York Police Academy, (Sub-Slab Depressurization and Vapor Barrier System), College Point, NY
- Bronx Terminal Market (BCP, RIWP, RAWP, Phase I ESA and Phase II ESI), Bronx, NY
- Jacob Javits Convention Center (Phase I ESA and Phase II ESI), New York, NY
- Yankee Stadium Development Waterfront Park (NYSDEC Spill Sites), Bronx, NY
- Bushwick Inlet Park (Phase I ESA, Approvals for NYC E-Designation), Brooklyn, NY
- Silvercup West (BCP, RIWP, RIR, RAWP, and RAA), Long Island City, NY
- 29 Flatbush, Tall Residential Building (Groundwater Studies, RIR and RAWP), Brooklyn, NY
- Gowanus Village I (BCP, RIWP and RIR), Brooklyn, NY
- Sullivan Street Hotel (Site Characterization Study and Owner Representation), New York, NY
- Riker's Island Co-Generation Plant (Soil and Soil Vapor Quality Investigations), Bronx, NY
- The Shops at Atlas Park (Sub-Slab Depressurization and Vapor Barrier Design), Glendale, NY
- Memorial Sloan-Kettering Cancer Center (Subsurface and Soil Vapor Intrusion Investigations), New York, NY
- Element West 59th Street (Oversight and Monitoring of Sub-Slab Depressurization and Vapor Barrier Systems), New York, NY
- Teterboro Airport (Delineation and Remedial Oversight of Petroleum-Contaminated Soils), Teterboro, NJ
- Proposed New York JETS Stadium (Phase I ESA), New York, NY
- Former Con Edison Manufactured Gas Plant Sites (Research Reports), New York, NY
- 7 World Trade Center (Endpoint Sampling and Final Closure Report), New York, NY
- Peter Cooper Village, Environmental Subsurface Investigations, New York, NY
- Greenpoint Terminal Market (BCP), Brooklyn, NY
- Confidential Location (Remediation for Mercury-Contaminated Site), New York, NY
- Confidential Location (Phase II ESI and Remedial Design for Mercury Impacted Site), Brooklyn, NY

NYC Brownfield Partnership, member

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

NYC Mayor's Office of Environmental Remediation – Big Apple Brownfield Workshop – Presented on Soil Vapor Intrusion Remedies (e.g., SSD Systems, Vapor Barriers, Modified HVAC)

New York City Brownfield Partnership – Presented on environmental considerations and complications of the Hudson Yards Development

Waterfront Development Technical Course – Presented on Impacted Waterfront Planning Considerations

STUART KNOOP, PG, LEED AP

SENIOR PROJECT MANAGER

REMEDIAL AND GEOLOGICAL INVESTIGATIONS

Mr. Knoop is a geologist with experience at sites in New York, Connecticut, North Carolina, South Carolina, and Georgia. He has managed high profile, multi-disciplinary projects and worked extensively on projects under City and State regulatory oversight in New York City. Mr. Knoop has developed remedial action and waste management plans and executed remedial investigations, remedial actions, closures at brownfield sites, and former MGP and commercial development sites throughout New York City. He has conducted numerous Phase I and Phase II Environmental Site Assessments, and coordinated remedial action programs at commercial, residential, industrial, telecommunication, and undeveloped sites. He has also coordinated an on-call environmental contract with the New York City School Construction Authority and managed sites under the New York State Brownfield Cleanup Program, and the New York City Voluntary Cleanup Program.

Mr. Knoop's experience includes coordination of free product recovery, development of soil vapor mitigation systems, and implementation of soil and groundwater remediation programs utilizing soil vapor extraction, air sparging, chemical injection, and contaminant removal. He has also supervised the assessment and removal of petroleum underground storage tanks in accordance with state regulatory standards. Additional experience includes extensive geologic mapping, stable isotope reaction and transport modeling, geotechnical analysis of soil and rock for highway, and utility construction projects.

SELECTED PROJECTS

- Queens Plaza Park, Long Island City, NY
- Red Hook Development Sites, Brooklyn, NY
- 173-177 Harrison Avenue, Brooklyn, NY
- Gotham West Development (Studio City), New York, NY
- NYCHA, On-Call Environmental Contract, New York, NY
- Kingsbridge Armory Redevelopment, Bronx, NY
- 54 Rutledge Street Property, Brooklyn, NY
- Peter Cooper Village/Stuyvesant Town Utility Replacement Project, New York, NY
- Former Linen Cleaning Facility, Bronx, NY
- New York Sports Complex and Convention Center, New York, NY
- West Side Site, New York, NY
- Rikers Island Correctional Facility, East Elmhurst, NY
- Macon County School Bus Garage, Franklin, NC
- Skyland Distributing Facility, Asheville, NC
- Rental Uniform Facilities, Various Locations, Nationwide
- Interstate Brands Corporation, Winston-Salem, NC



EDUCATION

M.S., Geology
University of British Columbia

B.A., Economics and Environmental Studies
Oberlin College

Hydrogeology and Geology Coursework
University of Texas

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY, NC

LEED Accredited Professional (LEED AP)

10-Hour OSHA

CPR and First Adi Certified

AFFILIATIONS

Geological Society of America

Geological Association of New Jersey

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

"*Small Site, Big Challenges: Negotiating Overlapping Regulatory Commitments for a Private School Development in Emergent, Post-Industrial Brooklyn, NY*", Poster Session, 2012 Langan Environmental Workshop, New Brunswick, NJ.

An Introduction to Phase I Environmental Site Assessments, Co-Presenter for Langan Training Webinar, November 2011.

"New Evidence for Syn-Tectonic Fluid Migration across the Hinterland-Foreland Transition of the Canadian Cordillera", Journal of Geophysical Research, *v. 107,* Knoop, S., Kennedy, L., and Dipple, G. 2002.

"Were the Hinterland and Foreland Hydrologically Coupled during Mesozoic Contraction?", Abstracts with Programs, Geological Society of America, Annual Meeting, Knoop, S., Kennedy, L., and Dipple, G. 1999. Presented at October 1999 meeting in Denver, CO.

"New Evidence for the Flow of Hinterland-Derived Fluids Into the Canadian Rockies During Mesozoic Contraction.", Abstracts with Programs, Geological Association of Canada, Annual Meeting, 2000. Presented as poster at May 2000 meeting in Calgary, AB. Knoop, S., Kennedy, L., and Dipple, G.

JULIA LEUNG, PE

PROJECT ENGINEER

ENVIRONMENTAL ENGINEERING & WATER RESOURCES

Ms. Leung is an environmental engineer working in the New York Metro area. Her projects involve the investigation and assessment of environmental systems including physical/chemical processes, water chemistry, environmental system analysis, solid waste and water resources engineering, stormwater design and hydrology.



SELECTED PROJECTS

- Phase I ESA, Various Locations, NYC and Westchester County, NY
- Phase II ESI, 412 East 90th Street, New York, NY
- 420 Kent Avenue, Brooklyn, NY
- West and Watts Development, New York, NY
- 203 East 92nd Street, Mixed-Use Building, New York, NY
- BAM North Tower, Brooklyn, NY
- Phase II ESI, FedEx Distribution Facility (830 Fountain Avenue), Brooklyn, NY
- Waste Classification and Lead Delineation Investigation (261 Hudson Street), New York, NY
- Waste Classification Investigation (41-43 East 22nd Street), New York, NY
- Columbia University, Manhattanville Campus, New York, NY
- Riverside Building 5, New York, NY
- Condominium at 200 East 79th Street, New York, NY
- Mercedes Benz of Manhattan (536 West 41st Street), New York, NY
- Phase II ESI (627 Smith Street), Brooklyn, NY
- 340 Court Street, Brooklyn, NY
- 460 Washington Street, New York, NY
- 208 East 79th Street, New York, NY
- 320 Fordham Landing, Bronx, NY
- Greenpoint Landing, Brooklyn, NY
- ABC Block 25, ABC Block 26, ABC Block 27, Long Island City, NY
- 80 Flatbush Avenue, Brooklyn, NY
- 2409 Jerome Avenue, Bronx, NY
- Bronx Point, Bronx, NY
- 4650 Broadway, New York, NY
- 445 Gerard Avenue and 414 Gerard Avenue, Bronx, NY

EDUCATION

M.E., Environmental Engineering
Cornell University

B.S., Biological Engineering (Environmental Studies Concentration)
Cornell University

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in NY

10-Hour OSHA

AFFILIATIONS

American Society of Civil Engineers (ASCE)

Anthony Moffa, Jr., ASP, CHMM, COSS

Associate/Corporate Health and Safety Manager



20 years in the industry

Mr. Moffa is Langan's Corporate Health & Safety Manager and is responsible for managing health and safety compliance in all Langan office locations. He has over 20 years' experience in the health and safety field. He is responsible for ensuring compliance with all federal and state occupational health and safety laws and development and implementation of corporate health and safety policies. Responsibilities include reviewing and updating Langan's Corporate Health and Safety Program and assisting employees in the development of site specific Health & Safety Plans. He maintains and manages health and safety records for employees in all Langan office locations including medical evaluations, respirator fit testing, and Hazardous Waste Operations and Emergency Response training. He is also responsible for documentation and investigation of work-related injuries and incidents and sharing this information with employees to assist in the prevention of future incidents. He is also the chairman of the Corporate Health & Safety Committee and Health & Safety Leadership Team that meet periodically throughout the year. He is responsible for coordinating and providing health and safe training to Langan employees. He was formerly the Environmental, Health and Safety Coordinator at a chemical manufacturer. His experience included employee hazard communications, development of material safety data sheets for developed products, respirator fit testing and conducting required Occupational Health & Safety Association and Department of Transportation training.

Selected Projects

Verizon - Pennsylvania, Inc. Philadelphia Naval Yard, PA
Confidential Client, Philadelphia, PA
Penn Color, Doylestown, PA
Verizon - Pennsylvania, Inc., Phase I Environmental Assessment, Lansdowne, PA
Verizon - Pennsylvania, Inc. (formerly Bell Atlantic Corporation), Various Locations, PA
Kinder Morgan Bulk Terminals, Inc. Fairless Hills, PA
PP&L – Martins Creek, Bangor, PA
Concord Beverage Company, Concordville, PA
Penn Color, Hatfield, PA
National Starch & Chemical Company, Bloomfield, NJ
Air Products and Chemicals, Inc.., Middlesex, NJ
PSEG Services Corporation, Jersey City, NJ
Sampson Coatings, Richmond, VA
Custom Chemicals Corporation, Elmwood Park, NJ

Education

B.S., Physics
West Chester University

Professional Registration

Associate Safety Professional (ASP)

Certified Hazardous Material Manager (CHMM)

Certified Occupational Safety Specialist (COSS)

Affiliations

Pennsylvania Chamber of Business & Industry

Chemical Council of New Jersey

New Jersey Business & Industry Association

Geoprofessional Business Association

Certifications and Training

Hazardous Waste Operations and Emergency Response Training

OSHA Site Supervisor Training

10 & 30-Hour Construction Safety & Health Training

30-Hour Construction Safety & Health Training

10-Hour Industry Safety & Health Training

Confined Space Awareness & Entry

Competent Person in Excavations

Hazard Communications

Defensive Driving Training

LANGAN

HEATHER NUNN, GISP

PROJECT DATA ANALYST
IT/CADD/GIS

Ms. Nunn has over nine years of experience with database design, management and visualization using EarthSoft EQuIS database and ESRI ArcGIS in support of environmental site characterizations for sites regulated under federal and state compliance programs. Her expertise includes integration of analytical databases and GIS.

In her current role, Ms. Nunn assists project teams with planning and implementation of project databases and data visualization. This includes coordinating with field staff and laboratories to define workflows, ensure the receipt of the proper deliverables for field and lab data; reviewing and managing project data and information using EQuIS, Microsoft Access, and Excel; generating data reports including tables, graphs, charts, and GIS compatible files; and generating and reviewing electronic data deliverables following project or agency specific formats. Ms. Nunn also assists project teams with GIS tasks including spatial analysis, report figure generation, software conversions and general support.

SELECTED PROJECTS

- Air Products and Chemicals, Various Locations, NJ
- Brodson-Montville, NJ
- CERCLA 554 Old Water Works Rd, Old Bridge, NJ
- Confidential Client Phase II ESA – AL, CA, CT, FL, IL, IN, KS, KY, LA, MD, MA, MD, MI, MN, MO, NH, NJ, NM, NY, OH, PA, TX, UT, VA, WA,
- Curtiss Wright, NJ
- Former Roche Facility, Belleville, NJ
- JCP&L, Various locations, NJ
- NPDES Landfill Compliance Sampling & Reporting, West Union, WV
- PRC, Paulsboro, NJ
- Project Flash, Gold Coast, FL
- UPMC, Various Locations, PA
- US Steel, Tullytown, PA
- Various NYC BCP projects

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

Best Data Management Practices in GIS - NEARC Newport, Rhode Island (November 2017)

Interactive ESA Mapping Rutgers - DPCC Continuing Professional Education Class New Brunswick, NJ, March 1017

Querying an EQuIS Database in ArcGIS, Esri User Conference Poster Presentation, San Diego, California, June 2016.

Batch Contour Creation in Minutes Using EQuIS for ArcGIS, Esri User Conference Poster Presentation, San Diego, California, June 2016.



EDUCATION

B.S., Geography
Indiana University of Pennsylvania

B.S., Regional Planning
Indiana University of Pennsylvania

PROFESSIONAL REGISTRATION

GISP License #: 99268

AFFILIATIONS

Perkasie Planning Commission

URISA

Pennsylvania Mapping and Geographic Information Consortium

Women in GIS

ATTACHMENT B

SAMPLE NOMENCLATURE

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SAMPLE NOMENCLATURE

The sample nomenclature outlined below provides consistency between sample events and projects but, most importantly, establish unique sample IDs that will avoid confusion months or years after the sample has been collected. Furthermore, unique sample IDs are required for any data submitted to the NYSDEC in EDD format or being uploaded to an EQuIS database.

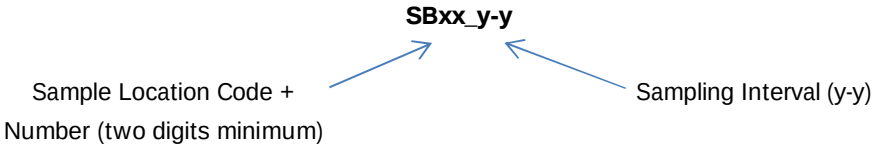
1.0 INVESTIGATION LOCATION CODES

SB	Soil Boring	SV	Soil Vapor Point
WC	Waste Characterization Boring	IA	Indoor Air
TP	Test Pit	AA	Ambient Air
EPSW	Endpoint Location (Sidewall)	SVE	Vapor Extraction Well
EPB	Endpoint Location (Bottom)	DS	Drum
MW	Monitoring Well	IDW	Investigation Derived Waste
TMW	Temporary Monitoring Well	SL	Sludge
SW	Surface Water	FP	Free Product

2.0 SAMPLE NOMENCLATURE

Each sample at a site must have a unique value.

- **Soil/Sediment Samples:**

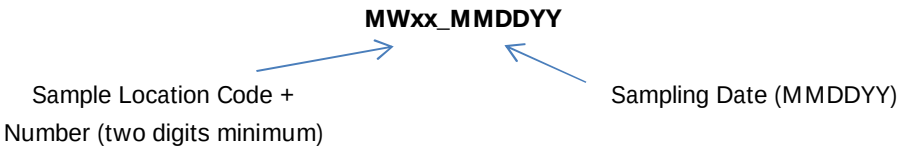


Sample Type	Sample Location Code	Sampling Depth or Interval (feet bgs or approx. elevation)	Sample Name
Phase II/Remedial Investigation			
Grab Soil Sample	SB01	2 to 4	SB01_2-4
	SB02	4	SB02_4
Waste Characterization			
Grab Soil Sample	WC01	2 to 4	WC01_2-4
	WC02	4	WC02_4
Composite Soil Sample from one or more locations	COMP01 or COMP02 + COMP03	0 to 10 (Fill)	COMP01_0-10

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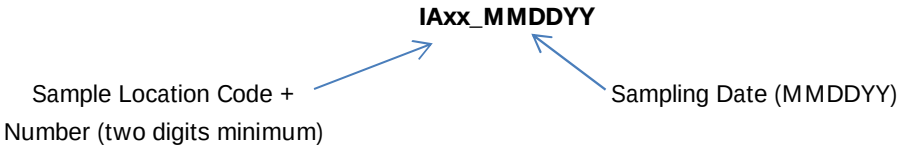
Sample Type	Sample Location Code	Sampling Depth or Interval (feet bgs or approx. elevation)	Sample Name
Endpoint Sampling			
Grab Soil Sample	EPSW01_N	5	EPSW01_N_5
	EPSW01_S	5	EPSW01_S_5
	EPSW01_E	5	EPSW01_E_5
	EPSW01_W	5	EPSW01_W_5
	EPB01	6	EPB01_6

- **Groundwater/Surface Water Samples:**



Sample Type	Sample Location Code	Sampling Date	Sample Name
Groundwater Sample	MW01	02/21/2013	MW01_022113

- **Air/Soil Vapor Samples:**



Sample Type	Sample Location Code	Date	Sample Name
Air Sample	IA01	02/21/2013	IA01_022113
Soil Vapor Sample	SV01	02/21/2013	SV01_022113
Vapor Extraction Well Sample	SVE01 (INLET/MIDPOINT/OUTLET)	02/21/2013	SVE01_IN_022113 SVE01_ MID_022113 SVE01_ OUT_022113

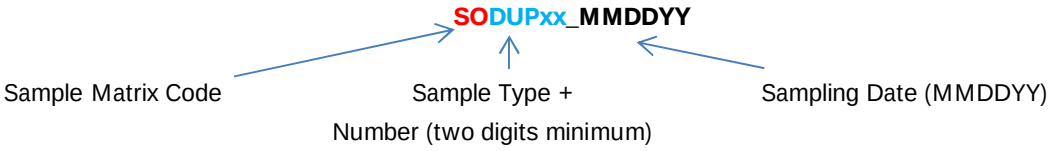
- **QA/QC Samples:**

Sample Matrix Codes

SO	Soil	AS	Air
SE	Sediment	SV	Soil Vapor
GW	Groundwater	SL	Sludge
SW	Surface Water	FP	Free Product

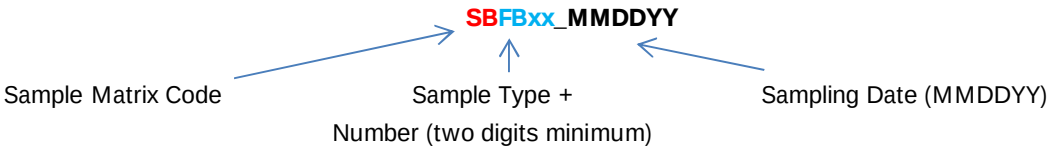
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- Duplicates Samples



Sample Type	Parent Sample Code	Date	Sample Name
Groundwater Duplicate Sample (DUP)	MW01_022113	02/21/2013	GWDUP01_022113
Soil boring Duplicate Sample (DUP)	SBP01_022113	02/21/2013	SODUP01_022113
Grab Waste Characterization	WC01	02/21/2013	WCDUP01_022113
Composite Waste Characterization	COMP01	02/21/2013	COMPDUP01_022113

- Field Blanks and Trip Blanks



Sample Type	Date	Sample Name
Groundwater Field Blank (FB)	02/21/2013	GWFB01_022113
Groundwater Trip Blank (TB)	02/21/2013	GWTB01_022113
Soil Field Blank	02/21/2013	SOFB01_022113
Soil Trip Blank	02/21/2013	SOTB01_022113

- Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Parent Sample Name_MS or MSD

Sample Type	Sample Location	Parent Sample Name	Sample Name
Matrix Spike Soil (MS)	SB01	SB01_2-4	SB01_2-4_MS
Matrix Spike Soil Duplicate (MSD)	SB01	SB01_2-4	SB01_2-4_MSD
Matrix Spike GW (MS)	MW01	MW01	MW01_MS
Matrix Spike GW Duplicate (MSD)	MW01	MW01	MW01_MSD

3.0 NOTES

1. The sample location code should not exceed 20 characters and the sample name should not exceed 40 characters.
2. Sample location code (**SB01, MW01, etc.)** is a sequential number (starting with 01) and should be a minimum of two digits.
3. Sample Interval (SB01_**0-5**) is separated from the sample location code with an underscore, and the top and bottom interval with a dash. Soil and sediment sample intervals should always be in

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feet. Soil and sediment sample intervals should contain no "/" or "()" or unit.

4. Sample date (MW01_**022113**) is separated from the sample location code with an underscore and should be provided in MMDDYY format [the date should contain no "/" or "-"].
5. If groundwater samples are collected from multiple intervals within one well, you may assign a letter designation (in lower case) to the well ID to differentiate between intervals (i.e., MW01a_022113, MW01b_022113, and MW01c_022113). The letter "a" would indicate the shallowest interval and "c" the deepest. The actual depth intervals should be documented in the project field book or field sheets and the letter designations should be used consistently between sampling events.
6. According to USEPA's Contract Laboratory Program (CLP) Guidance for Field Samplers (January 2011), field duplicate samples should remain "blind" to the laboratory (i.e., they should have separate CLP Sample numbers). Assign two separate (unique) CLP sample numbers (i.e., one number to the field sample and one to the duplicate). Submit blind to the laboratory. (http://www.epa.gov/superfund/programs/clp/download/sampler/CLPSamp-01-2011.pdf)

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ATTACHMENT C

PER- AND POLY-FLUOROALKYL SUBSTANCES SAMPLING PROCEDURES

SOP 18 – BEST PRACTICES FOR PFAS SAMPLING IN SOIL – APRIL 2019

This discussion is about best practices to assist you in soil sampling for Per- and Poly-Fluoro Alkyl Substances (PFAS). Similar to groundwater sampling for PFAS, the current discussion surrounding PFAS sampling is long on assumption and short on research. As such, the best guidance is a discussion of best practices. Please review PFAS Sampling Best Practices (PFAS-SBP) in planning and implementing PFAS sampling activities. As more information becomes available, this best practices document will be updated. Be sure you are reviewing the most recent version when planning PFAS sampling activities. Copies of best practices will be stored on the server at \\langan.com\data\NYC\other\environmental group\SOPs\19 Best Practices for PFAS Sampling Soil.

This version of PFAS-SBP will briefly discuss field safety and personal protection equipment (PPE), clothing and personal hygiene, sampling equipment, sampling documentation and labeling, and sampling procedure:

Safety:

Staff safety is still paramount. The following equipment must be donned at PFAS sampling events – no exceptions.

- All sites
  - Safety Glasses
  - Powderless Nitrile (no latex)
  - Safety Shoes – Note that safety shoes are commonly treated to be water-resistant or water proof with a PFAS type material, therefore, staff must don natural rubber overboots.



Figure 1 ONGUARD Disposable Natural Rubber Overshoe (Part No. 97591LG00 [large])

- Construction Sites

[1] Available in the environmental closet

- Langan Hardhat
- Langan reflective vest, avoid yellow reflective jacket)
- Hearing protection as required.

Daily field notes should list the PPE donned when soil sampling.

Clothing and Personal Hygiene

As a first approximation, any clothing advertised as waterproof, water-repellant, or dirt and/or stain resistant should not be donned for PFAS sampling activities. In addition, clothing designed to block ultraviolet protection should also be avoided. Fabric Softeners and ant-static ingredients in clothing detergents should also be avoided.

Clothing from synthetic and natural fibers (cotton) are acceptable, as a precaution, do not wear new clothing into the field. Plain uncoated Tyvek™ is acceptable for use when sampling as it does not contain PFAS. Coated Tyvek™ is not acceptable as the suits are usually treated with PFAS type material unless deemed necessary with no alternative PPE from a health and safety perspective.

When sampling in cold weather, consider layers for warmth since most jackets are treated with waterproofing material. However, in the event of wet weather, please use the PVC rain gear (e.g. River City Garment 3-piece Rain Gear 35mm PVC/polyester suits [Part no. 5500009600 {large}]).[2]

The literature abounds with differing recommendations regarding personal hygiene products. In general, avoid hair and body wash products that include conditioning agents. Most important, if you have long hair, pin it back to avoid having to touch your hair with your hands during sampling activities.

There is a limited number of insect repellent and sunscreen products available in the marketplace that are suitable to don when sampling for PFAS. As of now, insect repellent with Deet or derived from100% organic ingredients material and water repellent sunscreen (as opposed to those advertised as withstanding a dip in a pool or will not succumb to sweat) are suitable for field work. A list of suitable products will be provided as they become available. When using approved insect repellent and sunscreen products, be sure to apply away from the sampling area and to wash your hands after applying.

As a side note, do not eat or consume beverages during sampling activities. When drinking

[2] Available in the environmental closet

beverages to avoid dehydration, do so away from the sampling area and remove your nitrile gloves. Don a new set of gloves after consuming the beverage. Consume all meals away from the sampling area, use wax paper where possible to wrap your meal. If purchasing your meal, consume off-site and wash your hand thoroughly after your meal to prevent transference of potential PFAS compounds from food packaging.

Drilling/Excavation Equipment

The principal of preventing cross contamination and the greatest challenge to sampling soil for PFAS compounds is the field practices of the drilling or excavation contractor. Currently, literature searches have not yielded insights into soil sampling for PFAS compounds. There is an equally lack of information on potential interference drilling and excavation practices can impact on PFAS analytical data. As such, the approach with regards to the drilling or excavation contractor is to insure they rigorously follow the approved decontamination practice. Attempting to implement additional controls on the drillers and excavation contractor at this time without significant independent assessment or refereed literature will undoubtable added significant additional cost with little substantiated benefit. Langan should modify the quality assurance/quality control (QA/QC) sampling to provide a context for assessing the resulting analytical PFAS soil data.

Sampling Equipment

When sampling soil for PFAS compounds, Langan's responsibility is to initiate a soil sampling protocol that prevents the cross contamination of soil from the moment the open direct push liner or split spoon is put under the field staff's preview. The bullets below specify several key components:

- Langan field staff should change out nitrile gloves with each liner;
- The putty knife or other tool being used in assessing volatile organic compounds (VOCs) in soil by creating a slice in the sample soil column must be thoroughly decontaminated with each liner;
- Prior to further disturbance of the recovered soil column for soil description, the grab sample for volatile organic compounds (VOCs) should be collected from that segment of the soil sample column exhibiting the highest PID in accordance with the requirements of the work plan;
- In addition and also prior to further disturbance of the recovered soil compound, the soil samples being submitted for analysis of PFAS compounds should be collected in such a manner that it doesn't include samples previously disturbed for assessing PID or collecting the grab samples for VOCs. Remember to follow the requirements of the work plan. Note that the sampler should change out nitrile gloves between collected

the grab sample for VOCs and the collecting the sample for PFAS.

- After collecting the grab sample for VOCs and the sample for PFAS compounds, Langan staff may proceed with the detail soil identification following Langan standards outlined in the Langan Field Investigation and Sampling Manual and instructions given in the Soil Identification Practical training; and
- After completing the soil identification description, Langan staff may proceed with collecting the remaining require soil samples in accordance with the work plan.

Sampling Documentation and Labeling

Documentation remains extremely important. There are general rules that apply to PFAS sampling:

- Use ballpoint pens and pencils to complete labels and record field notes. There is no consensus of Sharpie® markers, therefore, avoid completing labels with anything but ballpoint pens;
- Aluminum, Masonite and polypropylene (including Langan) clipboards are suitable for holding loose papers;
- There is no consensus around the suitability of "Rite-in-Rain"™ notebooks on PFAS sampling sites. Some states including Michigan do permit them but not the U.S. Navy. Until further information is available, avoid completing filling out any types of waterproof field books in the vicinity of the PFAS sampling. If you have a field map anointed with post-its, transfer the information to the map. Post-it, or any other adhesive paper pad is not suitable for PFAS sampling sites. Only use loose paper for written note taking; and
- Use lab supplied labels only.

Quality Assurance/Quality Control Sampling

A critical factor in understanding the soil analytical PFAS data is to gauge the possibility of interference. As such, the QA/QC requirements as they pertain to soil sampling might require modification. Best practices recommends the following:

- Duplicate soil samples for PFAS should be collected at the same rate as duplicate sampling for other parameters;
- Spike Matrix Sampling and Duplicate Spiked Matrix sampling should be collected at the same rate as similar sampling for other parameters;
- Separate PFAS Field Blanks should be incorporated into the Soil Field Blank Sampling program;
- The source of the driller rinse water (truck mounted tank or local water supply faucet)

should be sampled for PFAS analysis;

- A rinse sample collected from the cutting head of the sampling equipment should be collected for PFAS analysis following decontamination;
- The source of rinse water for the Langan decontamination process should also be collected for PFAS analysis;
- A rinse sample collected from the tool used to manipulate soil samples during PID assessment should also be submitted for PFAS analysis; and
- When preparing the PFAS field blank sample, remember to change gloves, then prepare the field blanks.
    - Transfer the reagent water from the filled plastic container to the field blank container;
    - Both the empty Reagent Water container and the filled Field Blank container must be returned to the lab along with the samples taken.

Post Sampling

Place all disposable sampling material in a heavy duty garbage bag (environmental closet). Move reusable sampling equipment to the decon staging area. Decontaminate per instructions above. Then proceed to the next soil sampling location.

SOP #19: BEST PRACTICES FOR PFAS SAMPLING OF GROUNDWATER – APRIL 2019

This discussion is about best practices to assist you in groundwater sampling for Per- and Poly-Fluoro Alkyl Substances (PFAS). The current discussion surrounding PFAS sampling is long on assumption and short on research. As such, the best guidance is a discussion of best practices. Please review PFAS Sampling Best Practices (PFAS-SBP) in planning and implementing PFAS sampling activities. As more information becomes available, this best practices document will be updated. Be sure you are reviewing the most recent version when planning PFAS sampling activities. Copies of best practices will be stored on the server at \\langan.com\data\NYC\other\environmental group\SOPs\12 Low Flow Groundwater Sampling\PFAS Best Practices.

This version of PFAS-SBP will briefly discuss field safety and personal protection equipment (PPE), clothing and personal hygiene, sampling equipment, sampling documentation and labeling, and sampling procedure:

Safety:

Staff safety is still paramount. The following equipment must be donned at PFAS sampling events – no exceptions.

- All sites
  - Safety Glasses
  - Powderless Nitrile (no latex)
  - Safety Shoes – Note that safety shoes are commonly treated to be water-resistant or water proof with a PFAS type material, therefore, staff must don natural rubber overboots.



Figure 1 ONGUARD Disposable Natural Rubber Overshoe (Part No. 97591LG00 [large])[1]

[1] Available in the environmental closet

- Construction Sites
    - Langan Hardhat
    - Langan reflective vest (yellow reflective jacket not permitted for PFAS sampling)
    - Hearing protection as required.

Clothing and Personal Hygiene

As a first approximation, any clothing advertised as waterproof, water-repellant, or dirt and/or stain resistant should not be donned for PFAS sampling activities. In addition, clothing designed to block ultraviolet protection should also be avoided. Fabric Softeners and ant-static ingredients in clothing detergents should also be avoided.

Clothing from synthetic and natural fibers (cotton) are acceptable, as a precaution, do not wear new clothing into the field. Plain uncoated Tyvek™ is acceptable for use when sampling as it does not contain PFAS. Coated Tyvek™ is not acceptable as the suits are usually treated with PFAS type material unless deemed necessary with no alternative PPE from a health and safety perspective.

When sampling in cold weather, consider layers for warmth since most jackets are treated with waterproofing material. However, in the event of wet weather, please use the PVC rain gear (e.g. River City Garment 3-piece Rain Gear 35mm PVC/polyester suits [Part no. 5500009600 {large}]).[2]

The literature abounds with differing recommendations regarding personal hygiene products. In general, avoid hair and body wash products that include conditioning agents. Most important, if you have long hair, pin it back to avoid having to touch your hair with your hands during sampling activities.

There is a limited number of products available to meet field insect repellent (insect repellent with Deet or derived from100% organic ingredients) and sunscreen requirement when sampling for PFAS. A list of suitable products will be provided as they become available. When using approved insect repellent and sunscreen products, be sure to apply away from the sampling area and to wash your hands after applying.

As a side note, do not eat or consume beverages during sampling activities. When drinking beverages to avoid dehydration, do so away from the sampling area and remove your nitrile gloves. Don a new set of gloves after consuming the beverage. Consume all meals away from the sampling area, use wax paper where possible to wrap your meal. If purchasing your meal,

[2] Available in the environmental closet

consume off-site and wash your hand thoroughly after your meal to prevent transference of potential PFAS compounds from food packaging.

Sampling Equipment

- Pumps – In general, pumps (and other sampling equipment including the Solinst interface probe) having parts containing fluoropolymer and should be avoided where possible. The following pumps are acceptable.
    - Peristaltic is the best option when depth to water is less than 20-feet.
    - Bladder pumps (QED Sample Pro, or equivalent[3]) are the only currently available option to sample for PFAS when depth to water is greater than 20-feet.
    - Inertial pumps (Waterra, or equivalent) while suitable for PFAS sampling are not to be used because they are very difficult to operate within the proscribed flow rate defined in low flow sampling guidances. They also are unsuitable for VOC sampling if the sampling plan is coupled with traditional analytes.
    - *Three are no other submersible pumps (including Monsoon pumps) that have preliminary data to substantiate being PFAS-free and are readily available*.
- Tubing – In general, tubing containing fluoropolymers are prohibited.
    - Silicon tubing if permitted
    - High-density polyethylene (HDPE) tubing is permitted
    - Low-density polyethylene (LDPE) tubing is permissible by the US Navy and a limited number of other agencies (Michigan) but is still considered questionable by many state and local authorities including the NYSDEC. Therefore, its use should only be considered when an alternative is not available and prior approval from project managers and potentially regulators may be necessary. Further additional QA/QC samples are suggested when using this material.
- Note passive samples such as HydraSleeve samplers (made from LDPE) may be an option; however, regulatory approval should be obtained prior to sampling and may require additional QA/QC to prove they do not bias or effect sample results.
- If a piece of equipment containing fluoropolymer parts must be used (depth to water probes or interface probes (e.g. Solinst) or an acceptable alternative cannot be found, an equipment blank of that piece of equipment should be submitted for analysis as a QA/QC measure.

Sampling Documentation and Labeling

Documentation remains extremely important. There are general rules that apply to PFAS sampling:

[3] QED has provided company run test results demonstrating the Sample Pro is PFAS-free, currently there is no independent testing on sampling equipment. Only use pumps that have some laboratory basis for being PFAS-free.

- Use ballpoint pens and pencils to complete labels and record field notes. There is no consensus of Sharpie® markers, therefore, avoid completing labels with anything but ballpoint pens.
- Aluminum, Masonite and polypropylene (including Langan) clipboards are suitable for holding loose papers.
- There is no consensus around the suitability of "Rite-in-Rain"™ notebooks on PFAS sampling sites. Some states including Michigan do permit them but not the U.S. Navy. Until further information is available, do not use any types of waterproof field books during PFAS sampling. If you have a field map anointed with post-its, transfer the information to the map. Post-it, or any other adhesive paper pad is not suitable for PFAS sampling sites. Only use loose paper for written note taking.
- Standard practice should be to use a Langan tablet with the low flow sampling spreadsheet preloaded. It is recommended that you print out a number of hard copies of the spreadsheet should the tablet fail.
- Use lab supplied labels only.

Sampling Procedure

Langan will follow standard low flow procedures and stability criteria when sampling for PFAS. This applies to those sampling events where only PFAS is being evaluated as well as when traditional sampling follows PFAS sampling. Note that when doing combined sampling events (PFAS and traditional analytes), sample for PFAS first. Where possible every effort should be made to use disposal and dedicated equipment for each sample location to avoid potential cross contamination and limit errors and issues from inadequate decontamination between samples.

Gauging

Gauging data will not be collected on monitoring wells subject to PFAS sampling. As stated, the Solinst interface probe is not suitable for gauging depth to water during PFAS sampling. However, prior to the field event, field staff, senior staff and the PM will discuss an alternative strategy to collect site wide synoptic groundwater gauging data after PFAS sampling is completed.

Decon Station

Use the three bucket procedure for decontaminating the bladder pump prior to sampling the first monitoring well and directly before each subsequent well. All the buckets should be filled with DI water supplied by the lab and confirmed to be PFAS-free. In some instances, the lab may be unable or unwilling to supply the quantities of PFAS-free water necessary for

decontamination. If the lab will not supply the volume required, use the DI water supplied by Pine and submit a blank analysis of the decon water with your QA/QC samples. Alconox®, Liquinox® or Citranox® are the only decontamination solutions currently cleared for sampling PFAS. On sites where PFAS sampling is scheduled over multiple days, have enough proper decon water to mix a new solution each day. Decontaminating the night before is not acceptable.

Ideally, the decon station should be set up on thin plastic sheeting; but the only material available is LDPE. As such, the best practice is to lay out the LDPE sheet, then cover the work area with clean cotton rags (environmental closet) to place the decontaminated bladder pump on. Avoid placing the pump or any of its parts directly on the plastic. Also submit a rinse sample - separate from the field blank, with your QA/QC samples.

Sampling Set Up

At each step during set up and sampling, best practices require changing nitrile gloves between each step. Remember, any time you do something out of procedure such as writing a field note, answering the phone or pushing your hair aside, you risk transference unless you change gloves.

Stage the pump supporting equipment (compressor, battery, etc.), buckets, water quality meter (Horiba), lab coolers and other equipment at least 5-feet away from the open wellhead. Do not stage any unnecessary equipment or cases near the wellhead during sampling. If it isn't directly related to sampling the well in question, leave it staged in a central area away from the wellheads.

When inserting the tubing into the well, it's important to keep the tubing that will come in contact with the water table from coming into contact with the surrounding platform (concrete/asphalt/soil apron around the well) which can serve as a source of transference. This is especially difficult when using HDPE tubing. The best method is to patiently unroll off your arm into the well. Use PVC cutters to cut the tubing.

Connect the tubing to the water quality meter through a bridge of silicon tubing. This will give a bit of extra flexibility in setting up, especially on cold days.

Stability

There are two important items to remember during the period when you are tracking stability:

- Do not allow the pump to stop, backflow from the water quality meter can pose a

significant risk of cross contamination. If you must shut down, disconnect the pump to water quality meter feed line before turning off the pump.

- While you can fill out the labels (remember to change gloves), do not set up the sample bottles until you are ready to sample.

Sampling

- Once stability is achieved (or an hour has passed), change gloves again, then pull the pump to water quality meter tubing from the water quality meter, change gloves and begin collecting the samples.
- At a minimum, the PFAS sample bottles must be filled to container neck. Do not under fill.



- After sampling groundwater, you can allow the tubing to discharge to a bucket while you set up for PFAS field blanks. Change gloves, then prepare the field blanks.
    - Transfer the reagent water from the filled plastic container to the field blank container;
    - Both the empty Reagent Water container and the filled Field Blank container must be returned to the lab along with the samples taken.
- If the work plan is for sampling the standard suite of analytes (VOCs, SVOCs, etc.), then commence collecting those samples after completing the PFAS and PFAS field blank sampling.

Post Sampling

Place all disposable sampling material (tubing, discarded gloves, etc.) in a heavy duty garbage bag (environmental closet). Move pump to decon area. If using a bladder pump, decontaminate per instructions above. If using a peristaltic pump, change the silicon pump tubing using a new set of nitrile gloves. Then proceed to the next monitoring well location.

APPENDIX G
Project Personnel Résumés

JASON J. HAYES, PE, LEED AP

PRINCIPAL/VICE PRESIDENT

ENVIRONMENTAL ENGINEERING

Mr. Hayes has experience in New York, New Jersey, Washington D.C., California, Washington, Oregon, Alaska, and Internationally. His experience includes Environmental Protection Agency (EPA), New York State (NYS) Brownfields applications, investigation, and remediation; New York City Department of Environmental Protection (NYCDEP) and New York City Office of Environmental Remediation (OER) E-designated site applications, investigations, and remediation. His expertise also includes Phase I and II Environmental Site Investigations and Assessments; contaminated building cleanup and demolition; Underground Storage Tank (UST) permitting, removal specifications, and closure reporting; soil vapor intrusion investigation and mitigation system design (depressurization systems, etc.); development of groundwater contaminant plume migration models; environmental analysis; and oversight, design and specification generation for remediation operations with contaminants of concern to include polychlorinated biphenyls (PCBs), solvents, mercury, arsenic, petroleum products, asbestos, mold and lead.

SELECTED PROJECTS

- NYCDPR Bushwick Inlet Park (Phase I ESA, Approvals for NYC E-Designation), Brooklyn, NY
- WCS New York Aquarium, Shark Tank and Animal Care Facility (Environmental Remediation), Coney Island, NY
- NYC School Construction Authority (PCB Remediation), Various Locations, New York, NY
- 28-29 High Line (Phase I ESA, Phase II ESI, and Environmental Remediation), New York, NY
- Georgetown Heating Plant (Phase II ESI and Remedial Design for Mercury Impacted Site), Washington D.C.
- 268 West Street (BCP Application, RI and RIWP), New York, NY
- Confidential Multiple Mixed-Use Tower Location (BCP Application, RI, Phase I ESA, and Phase II ESI), New York, NY
- Dock 72 at Brooklyn Navy Yard, (NYS Voluntary Cleanup Program), Brooklyn, NY
- 27-21 44th Drive (BCP Application, Remedial Investigation Phase I ESA, and Phase II ESI), Long Island City, NY
- Purves Street Development, BCP Application, RAWP, and Phase II ESI, Long Island City, NY
- 267-273 West 87th Street (BCP Application, Remedial Investigation, RIWP, RAWP), New York, NY
- International Leadership Charter School (Environmental Remediation), Bronx, NY
- West & Watts (BCP Application), New York, NY
- Hudson Yards Redevelopment (Phase I ESA and Phase II ESI), New York, NY
- 627 Smith Street (RI and Report), Brooklyn, NY



EDUCATION

M.S., Environmental Engineering
Columbia University

B.S., Chemistry, Environmental Toxicology (Business Administration minor)
Humboldt State University

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in NY

LEED Accredited Professional (LEED AP)

Troxler Certification for Nuclear Densometer Training

OSHA 40-Hour HAZWOPER

OSHA HAZWOPER Site Supervisor

AFFILIATIONS

US Green Building Council, NYC Chapter, Communications Committee

Urban Land Institute (ULI), member

Commercial Real Estate Development Associations (NAIOP), member

LANGAN

- Gateway Center II Retail (Phase I ESA and Phase II ESI), Brooklyn, NY
- 261 Hudson Street (Phase I ESA, Phase II ESI, BCP, and RAWP), New York, NY
- Riverside Center, Building 2 (BCP, Phase I ESA and Phase II ESI), New York, NY
- New York Police Academy, (Sub-Slab Depressurization and Vapor Barrier System), College Point, NY
- Bronx Terminal Market (BCP, RIWP, RAWP, Phase I ESA and Phase II ESI), Bronx, NY
- Jacob Javits Convention Center (Phase I ESA and Phase II ESI), New York, NY
- Yankee Stadium Development Waterfront Park (NYSDEC Spill Sites), Bronx, NY
- Silvercup West (BCP, RIWP, RIR, RAWP, and RAA), Long Island City, NY
- 29 Flatbush, Tall Residential Building (Groundwater Studies, RIR and RAWP), Brooklyn, NY
- Gowanus Village I (BCP, RIWP and RIR), Brooklyn, NY
- Sullivan Street Hotel (Site Characterization Study and Owner Representation), New York, NY
- Riker's Island Co-Generation Plant (Soil and Soil Vapor Quality Investigations), Bronx, NY
- The Shops at Atlas Park (Sub-Slab Depressurization and Vapor Barrier Design), Glendale, NY
- Memorial Sloan-Kettering Cancer Center (Subsurface and Soil Vapor Intrusion Investigations), New York, NY
- Element West 59th Street (Oversight and Monitoring of Sub-Slab Depressurization and Vapor Barrier Systems), New York, NY
- Teterboro Airport (Delineation and Remedial Oversight of Petroleum-Contaminated Soils), Teterboro, NJ
- Proposed New York JETS Stadium (Phase I ESA), New York, NY
- Former Con Edison Manufactured Gas Plant Sites (Research Reports), New York, NY
- 7 World Trade Center (Endpoint Sampling and Final Closure Report), New York, NY
- Peter Cooper Village, Environmental Subsurface Investigations, New York, NY
- Greenpoint Terminal Market (BCP), Brooklyn, NY
- Confidential Location (Remediation for Mercury-Contaminated Site), New York, NY
- Confidential Location (Phase II ESI and Remedial Design for Mercury Impacted Site), Brooklyn, NY

NYC Brownfield Partnership, member

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

NYC Mayor's Office of Environmental Remediation – Big Apple Brownfield Workshop – Presented on Soil Vapor Intrusion Remedies (e.g., SSD Systems, Vapor Barriers, Modified HVAC)

New York City Brownfield Partnership – Presented on environmental considerations and complications of the Hudson Yards Development

Waterfront Development Technical Course – Presented on Impacted Waterfront Planning Considerations

MICHAEL D. BURKE, PG, CHMM, LEED AP

PRINCIPAL/VICE PRESIDENT

ENVIRONMENTAL ENGINEERING AND REMEDIATION

Mr. Burke is a geologist/environmental scientist whose practice involves site investigation and remediation, transactional due diligence, environmental site assessments, in-situ remedial technology, and manufactured gas plant (MGP) site characterization and remediation. His additional services include multi-media compliance audits, sub-slab depressurization system design, non-hazardous and hazardous waste management, emergency response, community air monitoring programs, environmental and geotechnical site investigations, and health and safety monitoring. He has experience with projects in the New York State Department of Environmental Conservation (NYSDEC) and New York State Brownfield Cleanup (NYS BCP) Programs; Inactive Hazardous Waste, and Spill Programs, and New York City Office of Environmental Remediation (OER) e-designated and New York City Voluntary Cleanup Program (NYC VCP) sites.

SELECTED PROJECTS

- 227-14 North Conduit Avenue, Industrial Wastewater Compliance, Jamaica, NY
- 420 Kent Avenue, NYS Brownfield Cleanup Program, Brooklyn, NY
- 572 Eleventh Avenue, NYC VCP, New York, NY
- Monian Site A, OER E-Designated Site, New York, NY
- 537 Sackett Street, Gowanus Canal Due Diligence/MGP Site, Brooklyn, NY
- ABC Blocks 25, 26 and 27, NYS Brownfield Cleanup Program Sites, Long Island City, NY
- 432 Rodney Street, NYS Brownfield Cleanup Program, Petroleum and Chlorinated Volatile Organic Compound Investigation and Remediation, Brooklyn, NY
- 787 Eleventh Avenue, NYS Brownfield Cleanup Program Site, New York, NY
- President Street at Gowanus Canal, NYS Brownfield Cleanup Program Site, Brooklyn, NY
- 22-36 Second Avenue at Gowanus Canal, NYS Brownfield Cleanup Program Site, Brooklyn, NY
- 563 Sacket Street, NYS Brownfield Cleanup Program Site, MGP Investigation, and Remediation, Brooklyn, NY
- 156-162 Perry Street, NYS Brownfield Cleanup Program Site, New York, NY
- Christopher and Weehawken Streets, NYS Brownfield Cleanup Program, New York, NY
- Phelps Dodge Block 2529 (Lots 40, 50, and 45), Inactive Hazardous Waste Disposal Site, Maspeth NY
- 42-50 24th Street, NYS Brownfield Cleanup Program Site, Long Island City, NY
- Storage Deluxe (163 6th Street), OER E-Designation Site, New York, NY



EDUCATION

M.S., Environmental Geology
Rutgers University

B.S., Geological Sciences
Rutgers University

B.S., Environmental Science
Rutgers University

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY

Certified Hazardous Materials Manager – CHMM No. 15998

LEED Accredited Professional (LEED AP)

OSHA Certification for Hazardous Waste Site Supervisor

OSHA 29 CFR 1910.120 Certification for Hazardous Waste Operations and Emergency Response

NJDEP Certification for Community Noise Enforcement

AFFILIATIONS

New York State Council of Professional Geologists – Board of Directors

LANGAN

- Prospect Park Redevelopment, Landfill Reclamation, Prospect Park, NJ
- 431 Carroll Street, Gowanus Canal Due Diligence, Brooklyn, NY
- 76 4th Street Property, Gowanus Due Diligence, Brooklyn, NY
- Foxgate/MREC, Due Diligence and Solid Waste Compliance, Central Islip, NY
- 175-225 3rd Street at Gowanus Canal, NYS Brownfield Cleanup Program, Brooklyn, NY
- New York University Tandon School of Engineering, Spill Investigation/Remediation Dual Phase Recovery, and Laser Fluorescence Investigation, Brooklyn, NY
- 2420-2430 Amsterdam Avenue, NYS Brownfield Cleanup Program/Board of Standards and Appeals Variance, New York, NY
- 170 Amsterdam Avenue, NYC VCP, New York, NY
- 538-540 Hudson Street, NYS Brownfield Cleanup Program (Former Gas Station), New York, NY
- 234 Butler Street, Gowanus Canal Due Diligence, Brooklyn, NY
- 550 Clinton Street, NYS Brownfield Cleanup Program E-Designation, Brooklyn, NY
- 111 Leroy Street, OER E-Designation Site, New York, NY
- 335 Bond Street, NYS Brownfield Cleanup Program, New York, NY
- Gowanus Canal Northside, NYS BCP Former Fuel Oil Terminal, Brooklyn, NY
- Multiple Buildings, Major Oil Storage Facility, Gowanus Canal Location, Brooklyn, NY
- 197-205 Smith Street at Gowanus Canal, MGP Due Diligence, Brooklyn, NY
- 450 Union Street at Gowanus Canal, NYS Brownfield Cleanup Program, Brooklyn, NY
- 86 Fleet Place, NYC VCP E-Designation, Brooklyn, NY
- New York University College of Nursing at 433 1st Avenue, NYS BCP, Bronx, NY
- Retail Building at 225 3rd Street, Brooklyn, NY
- 29-37 41st Avenue, NYS Brownfield Cleanup Program, Long Island City, NY
- 43-01 22nd Street, NYS Brownfield Cleanup Program, Long Island City, NY
- Compliance Audit for NYU at Washington Square Park, New York, NY
- Former Watermark Locations, NYS Brownfield Cleanup Program, Chlorinated Volatile Organic Compound Investigation and Remediation; AS/SVE, Brooklyn, NY
- Former Gas Station (1525 Bedford Avenue), Brooklyn, NY
- NYS Brownfield Cleanup Program at 514 West 24th Street, New York, NY
- Gowanus Canal Due Diligence at 76 4th Street, Brooklyn, NY
- Urban Health Plan, Medical Building, NYS Brownfield Cleanup Program CVOC Investigation and Remediation, Bronx, NY
- 420 East 54th Street, NYS Spill Closure, New York, NY
- Equity Residential at 160 Riverside Boulevard, NYS Spill Closure, New York, NY
- 357-359 West Street and 156 Leroy Street, NYC VCP, New York, NY
- Emergency Spill Response at 322 West 57th Street, Investigation and Closure, New York, NY

New York Building Congress – Energy Committee

- Hurricane Sandy, Emergency Response at 21 West Street, New York, NY
- Hurricane Sandy, Emergency Response at 71 Pine Street, New York, NY
- Greenpoint Landing, NYC E-Designation, Brooklyn, NY
- 23-01 42nd Road, NYS Brownfield Cleanup Program, Long Island City, NY
- Greenpoint Waterfront Development, NYS Brownfield Cleanup Program, Brooklyn, NY
- 125th Street and Lenox Avenue, NYC VCP, New York, NY
- Whitehead Realty Solvent Site, Inactive Hazardous Waste site, CVOC, Investigation and Remediation, Brooklyn, NY
- SunCap Property Group Environmental On-Call Consulting, Various Locations, Nationwide
- Con Edison, Underground Storage Tank On-Call Contract, Five Boroughs of New York City, NY
- Con Edison, Construction Inspections On-Call Contract, Five Boroughs of New York City, NY
- Con Edison, Appendix B Spill Sites On-Call Contract, Five Boroughs of New York City, NY
- Meeker Avenue Plume Trackdown Site, Brooklyn, NY
- Distribution Facility, Superfund Redevelopment, Long Island City, NY
- Edison Properties, West 17th Street Development Site (Former MGP Site), New York, NY
- Con Edison, Governors Island Dielectric Fluid Spill, Investigation and Remediation, New York, NY
- 144-150 Barrow Street, NYS Brownfield Cleanup Program, New York, NY
- West 17th Street Development, NYS Brownfield Cleanup Program, MGP Investigation and Remediation, New York, NY
- Montefiore Medical Center, Emergency Response, PCB Remediation, Bronx, NY
- New York University, 4 Washington Square Village Fuel Oil Remediation, New York, NY
- NYCSCA, Proposed New York City School Construction Sites, Five Boroughs of New York City, NY
- Con Edison, East 60th Street Generating Station, New York, NY
- Residential Building at 82 Irving Place, Environmental Remediation, New York, NY
- 1113 York Avenue, Storage Tank Closures, New York, NY
- Peter Cooper Village/Stuyvesant Town, Phase I ESA, New York, NY
- Superior Ink, Waste Characterization and Remedial Action Plans, New York, NY
- Bronx Mental Health Redevelopment Project, Phase I ESA, Bronx, NY
- 2950 Atlantic Avenue, Site Characterization Investigation, Brooklyn, NY
- Con Edison, East 74th Street Generating Station, Sediment Investigation, New York, NY
- Con Edison, First Avenue Properties, New York, NY
- Queens West Development Corp. Stage II, Long Island City, NY
- Article X Project Environmental Reviews, Various New York State Electrical Generation Sites, NY
- Poletti Generating Station, Astoria, NY

- Arthur Kill Generating Station, Staten Island, NY
- Distribution Facility, Phase I & Phase II ESA and Regulatory Compliance, Bohemia, NY
- Huntington Station Superfund Due Diligence, Huntington Station, NY
- Garvies Point Bulkhead, Glen Cove, NY
- Johnson & Hoffman Metal Stamping Facility, Environmental Compliance, Carle Place, NY
- Floral Park Storage Facility, Phase I and Phase II ESA
- Garden City Phase I ESAs at two sites, including part of a Superfund Site, Garden City, NY
- Huntington Station Storage Facility, Phase I and II ESA, Huntington Station, NY
- Trevor Day School, NYS Spill Site Expert Testimony, New York, NY
- 320 West Fordham Road, Bronx, NY
- Bedford Union Armory, NYS Brownfield Cleanup Program, Brooklyn, NY

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

Burke, M., Ciambruschini, S., Nicholls, G., Tashji, A., Vaidya, S., “Redeveloping a Remediated MGP Site”, MGP Symposium 2019, Atlantic City, NJ.

Anthony Moffa, Jr., ASP, CHMM, COSS

Associate/Corporate Health and Safety Manager



20 years in the industry

Mr. Moffa is Langan's Corporate Health & Safety Manager and is responsible for managing health and safety compliance in all Langan office locations. He has over 20 years' experience in the health and safety field. He is responsible for ensuring compliance with all federal and state occupational health and safety laws and development and implementation of corporate health and safety policies. Responsibilities include reviewing and updating Langan's Corporate Health and Safety Program and assisting employees in the development of site specific Health & Safety Plans. He maintains and manages health and safety records for employees in all Langan office locations including medical evaluations, respirator fit testing, and Hazardous Waste Operations and Emergency Response training. He is also responsible for documentation and investigation of work-related injuries and incidents and sharing this information with employees to assist in the prevention of future incidents. He is also the chairman of the Corporate Health & Safety Committee and Health & Safety Leadership Team that meet periodically throughout the year. He is responsible for coordinating and providing health and safe training to Langan employees. He was formerly the Environmental, Health and Safety Coordinator at a chemical manufacturer. His experience included employee hazard communications, development of material safety data sheets for developed products, respirator fit testing and conducting required Occupational Health & Safety Association and Department of Transportation training.

Selected Projects

Verizon - Pennsylvania, Inc. Philadelphia Naval Yard, PA
Confidential Client, Philadelphia, PA
Penn Color, Doylestown, PA
Verizon - Pennsylvania, Inc., Phase I Environmental Assessment, Lansdowne, PA
Verizon - Pennsylvania, Inc. (formerly Bell Atlantic Corporation), Various Locations, PA
Kinder Morgan Bulk Terminals, Inc. Fairless Hills, PA
PP&L – Martins Creek, Bangor, PA
Concord Beverage Company, Concordville, PA
Penn Color, Hatfield, PA
National Starch & Chemical Company, Bloomfield, NJ
Air Products and Chemicals, Inc.., Middlesex, NJ
PSEG Services Corporation, Jersey City, NJ
Sampson Coatings, Richmond, VA
Custom Chemicals Corporation, Elmwood Park, NJ

Education

B.S., Physics
West Chester University

Professional Registration

Associate Safety Professional (ASP)

Certified Hazardous Material Manager (CHMM)

Certified Occupational Safety Specialist (COSS)

Affiliations

Pennsylvania Chamber of Business & Industry

Chemical Council of New Jersey

New Jersey Business & Industry Association

Geoprofessional Business Association

Certifications and Training

Hazardous Waste Operations and Emergency Response Training

OSHA Site Supervisor Training

10 & 30-Hour Construction Safety & Health Training

30-Hour Construction Safety & Health Training

10-Hour Industry Safety & Health Training

Confined Space Awareness & Entry

Competent Person in Excavations

Hazard Communications

Defensive Driving Training

LANGAN

WILLIAM BOHRER, PG

PROJECT GEOLOGIST

GEOLOGIST

Mr. Bohrer is an experienced geologist responsible for managing Langan's environmental standards and Health and Safety compliance for projects throughout New York City. His services include dissemination of environmental protocols, troubleshooting at project sites, in-house/field training, and maintenance of quality standards across the environmental discipline. Mr. Bohrer has a diverse and extensive background in geophysics, hydrogeology, mining and petroleum, and geotechnical engineering. He has developed conceptual site models for public, industrial and commercial facilities nationwide.



SELECTED PROJECTS

- NYU Poly – 122 Johnson Street, Brooklyn, NY
- Con Edison of New York at Governor's Island, NY, NY
- 535 4th Avenue, Brooklyn, NY
- 27 Wooster Street, New York, NY
- 42 West Street, Brooklyn, NY
- 455 West 19th Street, New York, NY
- Kings Plaza Mall, Brooklyn, NY
- Hudson Yards "Terra Firma," New York, NY
- Hudson Yards, Platform Special Inspection, New York, NY
- PSAC II, Bronx, NY
- 595-647 Smith Street, Brooklyn, NY
- New York University, 7-13 Washington Square North Investigation, New York, NY
- NYU 4 Washington Square Village, New York, NY
- 125th Street and Lenox Avenue, New York, NY
- Sullivan Street Development, New York, NY
- Hudson Crossing II, New York, NY
- New York Aquarium, Shark Tank & Animal Care Facility, Brooklyn, NY
- 209-219 Sullivan Street, New York, NY
- 261 Hudson Street, New York, NY
- 460 Washington Street, New York, NY
- 552 West 24th Street, New York, NY
- Brooklyn Bridge Park Pier 1, New York, NY
- International Leadership Bronx Charter School, Bronx, NY
- 203 East 92nd Street, New York, NY
- HighLine 28-29, New York, NY
- 539 Smith Street Bulkhead, Brooklyn, NY
- Willets Point, Corona, NY
- Plume Migration and Fracture Flow Aquifer Investigation, Brunswick, MD
- Plume Migration and Fracture Flow Aquifer Investigation, Fallston, MD
- Emergency Response Site Investigation & Remediation, Wappingers Falls, NY
- Emergency Response Site Investigation & Remediation, Allentown, PA

EDUCATION

Post Graduate Studies in Geophysics
Cornell University

B.S., Geology
Tufts University

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY

40 Hour OSHA HazWOPER

OSHA Construction Safety & Health

OSHA Supervisory Certification
Credential (TWIC)

Transportation Worker Identification

NYS DEC- Protecting New York's Natural Resources with Better Construction Site Management

AFFILIATIONS

American Association of Petroleum Geologists

National Groundwater Association

Geological Society of America

LANGAN

- Emergency Response Site Investigation & Remediation, Shamokin, PA
- Bermuda International Airport, Jet Fuel Release Investigation, Bermuda
- Little Missouri River Basin, Geotechnical Site Evaluation (Horizontal Drilling Pipeline Install), ND
- Seismic Susceptibility Evaluation (Class 2 Injection Wells), Litchfield, OH
- Bedrock Mapping, Bradford and Sullivan Counties, PA
- Soil Solidification, Carteret, NJ

PA Council of Professional Geologists

STUART KNOOP, PG, LEED AP

SENIOR PROJECT MANAGER

REMEDIAL AND GEOLOGICAL INVESTIGATIONS

Mr. Knoop is a geologist with experience at sites in New York, Connecticut, North Carolina, South Carolina, and Georgia. He has managed high profile, multi-disciplinary projects and worked extensively on projects under City and State regulatory oversight in New York City. Mr. Knoop has developed remedial action and waste management plans and executed remedial investigations, remedial actions, closures at brownfield sites, and former MGP and commercial development sites throughout New York City. He has conducted numerous Phase I and Phase II Environmental Site Assessments, and coordinated remedial action programs at commercial, residential, industrial, telecommunication, and undeveloped sites. He has also coordinated an on-call environmental contract with the New York City School Construction Authority and managed sites under the New York State Brownfield Cleanup Program, and the New York City Voluntary Cleanup Program.

Mr. Knoop's experience includes coordination of free product recovery, development of soil vapor mitigation systems, and implementation of soil and groundwater remediation programs utilizing soil vapor extraction, air sparging, chemical injection, and contaminant removal. He has also supervised the assessment and removal of petroleum underground storage tanks in accordance with state regulatory standards. Additional experience includes extensive geologic mapping, stable isotope reaction and transport modeling, geotechnical analysis of soil and rock for highway, and utility construction projects.

SELECTED PROJECTS

- Mount Sinai Cancer Center, New York, NY
- Long Island College Hospital, Brooklyn, NY
- 805 Atlantic Avenue, Brooklyn, NY
- 145 Wolcott Street, Brooklyn, NY
- 111 Willow Avenue, Bronx, NY
- 320 West Fordham Portfolio Sites, Bronx, NY
- 50 Pennsylvania Avenue, Brooklyn, NY
- Queens Plaza Park, Long Island City, NY
- NYU – 181 Mercer Street Development, New York, NY
- Red Hook Development Sites, Brooklyn, NY
- 173-177 Harrison Avenue, Brooklyn, NY
- Gotham West Development (Studio City), New York, NY
- NYCHA, On-Call Environmental Contract, New York, NY
- Kingsbridge Armory Redevelopment, Bronx, NY
- 54 Rutledge Street Property, Brooklyn, NY
- Peter Cooper Village/Stuyvesant Town Utility Replacement Project, New York, NY
- New York Sports Complex and Convention Center, New York, NY
- Rikers Island Correctional Facility, East Elmhurst, NY
- Skyland Distributing Facility, Asheville, NC



EDUCATION

M.S., Geology
University of British Columbia

B.A., Economics and Environmental Studies
Oberlin College

Hydrogeology and Geology Coursework
University of Texas

PROFESSIONAL REGISTRATION

Professional Geologist (PG) in NY, NC

LEED Accredited Professional (LEED AP)

10-Hour OSHA

CPR and First Aid Certified

AFFILIATIONS

Geological Society of America

Geological Association of New Jersey

- Rental Uniform Facilities, Various Locations, Nationwide
- Interstate Brands Corporation, Winston-Salem, NC

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

"*Small Site, Big Challenges: Negotiating Overlapping Regulatory Commitments for a Private School Development in Emergent, Post-Industrial Brooklyn, NY*", Poster Session, 2012 Langan Environmental Workshop, New Brunswick, NJ.

An Introduction to Phase I Environmental Site Assessments, Co-Presenter for Langan Training Webinar, November 2011.

"New Evidence for Syn-Tectonic Fluid Migration across the Hinterland-Foreland Transition of the Canadian Cordillera", Journal of Geophysical Research, *v. 107,* Knoop, S., Kennedy, L., and Dipple, G. 2002.

"Were the Hinterland and Foreland Hydrologically Coupled during Mesozoic Contraction?", Abstracts with Programs, Geological Society of America, Annual Meeting, Knoop, S., Kennedy, L., and Dipple, G. 1999. Presented at October 1999 meeting in Denver, CO.

"New Evidence for the Flow of Hinterland-Derived Fluids Into the Canadian Rockies During Mesozoic Contraction.", Abstracts with Programs, Geological Association of Canada, Annual Meeting, 2000. Presented as poster at May 2000 meeting in Calgary, AB. Knoop, S., Kennedy, L., and Dipple, G.

KAITLYN GIOIA

SENIOR STAFF SCIENTIST

ENVIRONMENTAL ENGINEERING

Ms. Gioia is an Environmental Scientist with the New York City team. Ms. Gioia graduated in 2016 from Adelphi University with a B.A. in Environmental Studies. Ms. Gioia's experiences include project management, leading field work, exposure to an assortment of environmental pollutants, remedial action procedures, & Phase I and Phase II Environmental Assessments. Ms. Gioia has performed Asbestos Hazard and Emergency Response Act (AHERA) inspections and evaluations in schools and State Pollutant Discharge Elimination System (SPDES) sampling for power plants and commercial facilities.



SELECTED PROJECTS

- 80-100 Flatbush Avenue, Brooklyn, NY
- 250 Water Street, New York, NY
- 35-01 & 35-09 Northern Boulevard, Long Island City, NY
- 23-15 44th Road, Long Island City, NY
- South Randalls Due Diligence, New York, NY
- 595-647 Smith Street, Brooklyn, NY
- Willets Point Redevelopment, Flushing, NY
- President Street Properties, Brooklyn, NY
- 475 Bay Street, Staten Island, NY
- Confidential Project, Queens, NY
- 137 Kings Highway, Brooklyn, NY
- 111 Willow Avenue, Bronx, NY
- 560 Degraw Street, Brooklyn, NY
- 122 Fifth Avenue, New York, NY
- Insurance Claim Oversight, White Plains, NY*
- Subrogation Potential Investigation, Lindenhurst, NY*
- Brookhaven National Lab, Brookhaven, NY*
- Far Rockaway Vault Sampling, Far Rockaway, NY*
- East Islip School District AHERA Inspection, East Islip, NY*
- UPRS SPDES Sampling, Uniondale, NY*
- 550 Stewart Avenue Phase I and II, Garden City, NY*
- Riverhead to Canal Cable Expansion, Riverhead, NY*
- Noise Dosimetry Study, Queens, NY*
- School District Lead in Water Sampling, Yonkers, Kings Park, and Baldwin, NY*
- Potable Water Sampling, New York, NY*
- DCF Remediation Oversight, Malverne, West Hempstead, and Port Washington, NY*
- AOP Pilot Testing, Garden City Park, Franklin Square, and Port Washington, NY*

EDUCATION

B.A., Environmental Studies
Adelphi University

PROFESSIONAL REGISTRATION

OSHA 40-Hour

OSHA10-Hour

NYS Department of Labor, Asbestos Inspector License

USEPA Lead Based Paint Inspector License

NYSDEC Class A/B Operator of Underground Storage Tank Systems

NYSDEC 4-Hour Erosion and Sediment Control Contractor Training 2021

**Projects represent experience with a previous firm*

SELECTED PUBLICATIONS, REPORTS, AND PRESENTATIONS

"Fecundity and Embryonic Development of Spiny Dogfish in the Northwest Atlantic Ocean" Transactions of the American Fisheries Society 2019.

Dutton J., Fisher NS., Gioia KA., Madigan DJ., "Tissue Distribution of Mercury in Female Spiny Dogfish (Squalus Acanthias)" Society of Environmental Toxicology and Chemistry South-Central Regional Meeting 2016, Fort Worth, TX.

Dutton J., Fisher NS., Gioia KA., Madigan DJ., "Maternal Transfer of Mercury in Spiny Dogfish" 12th International Congress on The Biology of Fish 2016, San Marcos, TX.

Dutton J., Fisher NS., Gioia KA., Madigan DJ., "Mercury Bioaccumulation and Maternal Transfer in Spiny Dogfish (Squalus Acanthias)" 33rd Annual Meeting of The American Elasmobranch Society/Joint Meeting of Ichthyologists and Herpetologists 2017, Austin, TX.

APPENDIX H
Remediation Schedule

APPENDIX H

Remediation Schedule
261 Walton Avenue
Bronx, NY
BCP Site No.: C203135
Langan Project No.: 170601701

Item #	Action	2024												2025												2026									
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1	Revised RAWP Submission																																		
2	RAWP Approval and Decision Document																																		
3	Preparation/Submission of DER-31 Environmental Footprint Analysis/Climate Change Vulnerability Assessment																																		
3	NYC Permitting/Site Mobilization																																		
4	Remedial Excavation and Installation of Engineering Controls																																		
5	Final Engineering Report and Site Management Plan Preparation/Submittal																																		
6	FER Approval/Certificate of Completion																																		

Notes:

a) RAWP - Remedial Action Work Plan

b) FER - Final Engineering Report