Interim Remedial Measure (IRM) Work Plan

Greenpoint Ferry Site
127-141 West Street
Brooklyn, New York

March 23, 2021

Prepared for:

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Certification

I, Brian P. Morrissey, certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measure Work Plan for the Greenpoint Ferry Site was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and the BCP Agreement for the Site.

Brian P. Morrissey, P.E.
NYS Professional Engineer #062617

March 23, 2021
Date

Signature

1. Introduction

Roux Environmental Engineering and Geology, D.P.C. (Roux) has prepared this Interim Remedial Measure (IRM) Work Plan on behalf of 1 Java Owner LLC (1 Java Owner) to detail the environmental components related to the upcoming building demolition and completion of geotechnical test pits at the Greenpoint Ferry site, located at 127-141 West Street (a.k.a. 14-28 India Street and 1-45 Java Street) in the Greenpoint section of Brooklyn, Kings County, New York (referred to herein as Site or property; Figure 1). The Site is also identified as Tax Block and Lot 3-2538-1. The IRM will be an initial phase in the overall remediation and redevelopment of the Site.

Stiles Properties, LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) on October 31, 2018 to investigate, remediate and redevelop the 2.441-acre Site (BCA Index No. C224272-08-15; BCP Site No. C224272). Subsequently, 1 Java Owner was added to the BCA as a Participant on January 8, 2021. In the course of remediation and redevelopment, the existing structures at the Site will be demolished to facilitate access to subgrade soils and groundwater for remediation to support redevelopment. At this time, 1 Java Owner anticipates that the redevelopment for the Site will include a mixed commercial, residential, and recreational use development. The western end of the property will remain improved with an active New York City East River ferry terminal. Note that as part of the building demolition activities described in this IRM Work Plan, the aboveground building structures will be demolished, and the concrete slab on grade and subgrade foundation components will remain. The slab and subgrade foundation components will be removed to facilitate remediation at a later date and will be described in the Remedial Action Work Plan (RAWP), which will be submitted for NYSDEC review in the coming months. As part of the scope presented in this IRM Work Plan, the slab on grade will be cracked in several locations to eliminate standing water during precipitation events.

This IRM Work Plan has been prepared in accordance with NYSDEC procedures set forth in the document titled DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and complies with all applicable federal, state and local laws, regulations and requirements.

1.1 Objectives and Scope of the IRM Work Plan

The Site is improved with two connected warehouse-style buildings. These buildings are currently vacant but were previously utilized for a number of different commercial purposes, as described in section 2.1.1 of this IRM Work Plan. There is also an active New York City East River ferry terminal on the western portion of the property. The proposed IRM includes the demolition of the buildings as well as the completion of geotechnical test pits, which need to be completed in order to allow for the remediation to take place. Further details regarding the remedial action beyond what is described in this IRM Work Plan will be provided in the RAWP, which will be provided as a separate submittal.

While it is not expected, if grossly contaminated soil is encountered during the geotechnical test pits that are proposed as part of this IRM, conditions remaining following completion of the IRM will be documented in the Construction Completion Report (CCR). Remaining contamination will be documented and addressed as part of the RAWP, which will describe the overall remedy for the Site.

Plans depicting the proposed IRM scope of work for the Site are presented on Figure 2. The IRM is a component of, but does not constitute, the overall remedy for the Site. The objectives of the IRM are to

conduct community air monitoring during demolition and exterior soil disturbance activities. This will advance the BCP goals but will not complete the remediation of the Site.

The remainder of this IRM Work Plan is organized as follows:

Section 2: Site Background

Section 3: Scope of Work

Section 4: Soils/Materials Management Plan

Section 5: Reporting

Section 6: IRM Implementation Schedule

2. Background

Relevant Site background information is presented in this section. A Site location map is included as Figure 1.

2.1 Site Description and Setting

Site Location	
Site Name:	Greenpoint Ferry Site
Site Address:	127-141 West Street
Site Town, County, State:	Neighborhood of Greenpoint, Brooklyn Kings County, New York
Site Tax Identification:	Section 3, Block 2538, Lot 1
Nearest Intersection:	The Site is bounded by India Street to the north, Java Street to the south, West Street to the east, and the East River to the west.
Area Description:	The Site is in a mixed-use area of Brooklyn, New York. To the north is India Street and then Huxley Envelope BCP Site further north (still under construction); to the south is Java Street and then warehouse-style commercial buildings further south; to the east is West Street and then mixed use commercial/residential properties further east; and to the west is the East River.

Site Information	
Site Acreage:	2.441 (total)
Site Shape:	Rectangular
Site Use:	The Site is improved with two connected warehouse-style buildings utilized for storage by respective movie prop storage companies. There is also an active New York City East River ferry terminal on the western portion of the property. Stored material inside the buildings consists of, but was not limited to movie props, such as furniture, paintings, kitchen-ware, wagons, clothing, lighting fixtures and the like.
Basement/ Slab-on-Grade:	Slab-on-grade

2.1.1 Site Operations

According to the available Sanborn® Fire Insurance Maps, the Site was developed sometime prior to 1887. The current Site buildings were constructed by circa 1942. As of 1951, piers/docks are noted at the end of each street along the shoreline of the East River from Green Street (to the north) to Milton Street (to the south), including India Street. All the piers/docks, except for the pier/dock at the end of Green Street, were no longer depicted by 2006. By 2011, a new pier/dock at the end of India Street was noted (current pier used as NYC Ferry terminal). Further review of the documents suggests that there was a partial bulkhead collapse and the shoreline adjacent to the Site had eroded over time beginning in the late 1980s.

The historical Site uses include: lumber storage (including presence of a drying kiln) and planing mill (western portion of the Site) between 1887 until the 1940s; an Independent Energy Plant (IEP); a sash, door and blind factory; sheet metal works (fabrication); truck repair; gasoline tank and pumps for fueling; bottling plant warehouse; plastics manufacturer; cargo storage; and parking. The two connected warehouse-style buildings at the Site are currently vacant.

2.1.2 Topography/Hydrogeology

The Site is bordered to the west by the East River, where there is an active NYC East River ferry terminal; to the south by warehouse-style commercial buildings; to the east by mixed-use commercial/residential properties; and to the north by a new residential building in the process of being constructed on the Huxley Envelope BCP Site. The Site topography is relatively flat with an elevation of approximately 9 feet above mean sea level. Regional elevation slopes gently to the west.

Based on the soil borings completed during this Remedial Investigation (RI) and geotechnical investigations, fine to medium sand with varying amounts of course sand, silt, gravel, tar, brick and concrete fragments (historic fill layer) ranging in thickness of up to 15 to 20 feet throughout most of the Site, and deeper near the waterfront was encountered. This fill layer was underlain by a native glacial silty fine to medium sand stratum with varying amounts of gravel and silt. Bedrock was not encountered during the RI. Groundwater was encountered at depths ranging from six to eight feet below land surface (ft bls).

2.2 Summary of Environmental Conditions

The following is a summary of environmental conditions at the Site.

2.2.1 RI Environmental Sampling

Data collected as part of the Roux RI work is provided in Tables 1 through 11 and summarized in Figures 4 through 7, and the locations of all RI samples are shown on Figure 3. A summary of all activities completed is provided below, and a complete analysis of the data can be found in the Remedial Investigation Report (RIR) dated March 2020 (approved by NYSDEC on April 22, 2020).

As part of the RI beginning on September 15, 2017, Roux installed a total of seventeen soil borings (SB-1 through SB-12 and MW-1 through MW-5) at the Site. Five of the 17 soil borings were converted to permanent monitoring wells (MW-1 through MW-5) for collection of water-level elevation measurements and groundwater sampling. Additionally, 10 soil vapor points (SV-1 through SV-10) were installed during the RI for the collection of soil vapor samples. The locations of all soil borings, monitoring wells and soil vapor points are shown on Figure 3.

As part of the RI completed by Roux, a total of 53 discrete soil samples (excluding quality assurance/quality control [QA/QC] samples) were collected and submitted for laboratory analysis for the following parameters:

- Target Compound List (TCL) VOCs;
- TCL semivolatile organic compounds (SVOCs);
- TCL pesticides;
- PCBs; and
- Target Analyte List (TAL) metals.

A total of five groundwater samples (excluding QA/QC samples) were collected and submitted for laboratory analysis for the following parameters:

- TCL VOCs;
- TCL SVOCs;
- PCBs;
- Pesticides; and
- TAL Metals (total and dissolved).

A total of ten soil vapor samples (excluding QA/QC samples) were collected and submitted for laboratory analysis for the following parameter:

- VOCs via USEPA Method TO-15.

Soil/Fill Results

The soil laboratory analytical results were compared to NYSDEC Part 375 Unrestricted Use Soil Cleanup Objectives (SCOs), Protection of Groundwater SCOs and Restricted Residential SCOs.

There were two VOCs (acetone and naphthalene) detected above the Protection of Groundwater SCOs, and one VOC detected above the Restricted Residential SCOs, as described below:

- Acetone was detected at a concentration exceeding its Protection of Groundwater SCO (0.05 milligrams per kilogram [mg/kg]) in four soil samples at four locations (SB-1/10-12, SB-4/8-10, MW-4/8-10, and SB-7/10-12). Acetone is commonly used in laboratories, and thus, may be introduced into a sample from laboratory cross-contamination and is not from the Site.
- Naphthalene was detected at a concentration exceeding its Protection of Groundwater SCO (12 mg/kg) in three samples at two locations (SB-10/0-2, SB-10/5-7, SB-11/3-5). Two samples also had a concentration of naphthalene that exceeded its Restricted Residential SCO (100 mg/kg), including SB-10/5-7 (detected at concentration of 120 mg/kg) and SB-11/3-5 (detected at concentration of 140 mg/kg).

There were seven SVOCs (all polycyclic aromatic hydrocarbons [PAHs]) detected above the Protection of Groundwater SCOs and seven SVOCs detected above the Restricted Residential SCOs, as summarized below:

- 3- and 4-Methylphenol (total) was detected at a concentration exceeding its Protection of Groundwater SCO (0.33 mg/kg) in three samples at three locations at depths ranging from 0-12 ft ft bls. The maximum concentration detected was 0.870 mg/kg (estimated), which was found in sample SB-11/3-5.
- Benzo[a]anthracene was detected at a concentration exceeding its Protection of Groundwater SCO and Restricted Residential SCO (both 1 mg/kg) in 14 samples at nine locations at depths ranging from 0-12 ft bls. The maximum concentration detected was 42 mg/kg, which was found in both samples SB-4/8-10 and SB-11/3-5.
- Benzo[a]pyrene was detected at a concentration exceeding its Restricted Residential SCO (1 mg/kg) in 13 samples at eight locations at depths ranging from 0-12 ft bls. Three samples also had a concentration of benzo[a]pyrene that exceeded its Protection of Groundwater SCO (22 mg/kg). The maximum concentration detected was 54 mg/kg, which was found in sample SB-4/8-10.
- Benzo[b]fluoranthene was detected at a concentration exceeding its Restricted Residential SCO (1 mg/kg) in sixteen samples at 11 locations at depths ranging from 7-17 ft bls. Nine samples at six locations also had concentrations of benzo[b]fluoranthene that exceeded its Protection of

Groundwater SCO (1.7 mg/kg). The maximum concentration detected was 57 mg/kg, which was found in sample SB-4/8-10.

- Benzo[k]fluoranthene was detected at a concentration exceeding its Protection of Groundwater SCO (1.7 mg/kg) in six samples at four locations at depths ranging from 0-10 ft bls. Four samples at three locations also had a concentration of benzo[k]fluoranthene that exceeded its Restricted Residential SCO (3.9 mg/kg). The maximum concentration detected was 17 mg/kg, which was found in sample SB-4/8-10.
- Chrysene was detected at a concentration exceeding its Protection of Groundwater SCO (1 mg/kg) in 13 samples at nine locations at depths ranging from 0-10 ft bls. Six samples at four locations also had a concentration of chrysene that exceeded its Restricted Residential SCO (3.9 mg/kg). The maximum concentration detected was 36 mg/kg, which was found in sample SB-11/3-5.
- Dibenzo(a,h)anthracene was detected at a concentration exceeding its Restricted Residential SCO (0.33 mg/kg) in six samples at four locations at depths ranging from 0-10 ft bls. The maximum concentration detected was 8.3 mg/kg, which was found in sample SB-4/8-10.
- Indeno(1,2,3-cd)pyrene was detected at a concentration exceeding its Restricted Residential SCO (0.5 mg/kg) in 17 samples at twelve locations at depths ranging from 0-12 ft bls. Four samples at three locations also had a concentration of indeno(1,2,3-cd)pyrene that exceeded its Protection of Groundwater SCO (8.2 mg/kg). The maximum concentration detected was 36 mg/kg, which was found in sample SB-4/8-10.
- Phenanthrene was detected at a concentration of 120 mg/kg in sample SB-11/3-5. This sample exceeded the Restricted Residential SCO (100 mg/kg).

There were five metals detected above the Protection of Groundwater SCOs and/or the Restricted Residential SCOs. Laboratory analytical data for the soil exceedances for metals are summarized below:

- Arsenic was detected at a concentration exceeding its Protection of Groundwater SCO and Restricted Residential SCO (both 16 mg/kg) in nine samples at six locations at depths ranging from 0-12 ft bls. The maximum detection of arsenic was 71.4 mg/kg, found in sample SB-10/0-2.
- Cadmium was detected at a concentration exceeding its Restricted Residential SCO and Protection of Groundwater SCO (4.3 mg/kg and 7.5 mg/kg, respectively) in one sample (SB-2/10-12), with a concentration of 8.61 mg/kg.
- Copper was detected at a concentration exceeding its Restricted Residential SCO (270 mg/kg) in one sample (SB-7/2.5-4.5), with a concentration of 1,590 mg/kg.
- Lead was detected at a concentration exceeding its Restricted Residential SCO and Protection of Groundwater SCO (400 mg/kg and 450 mg/kg, respectively) in two samples from two locations. Specifically, lead was detected in sample SB-1/10-12 at 2,530 mg/kg, and in sample SB-5/2.5-4.5 at 1,090 mg/kg.
- Mercury was detected at a concentration exceeding its Protection of Groundwater SCO (0.73 mg/kg) in four samples at four locations. Three samples also had a concentration of mercury that exceeded its Restricted Residential SCO (0.81 mg/kg). The highest concentration of mercury detected was 2 mg/kg in sample SB-1/10-12.

There were minor detections of PCBs and pesticides; however, all detections were below all applicable SCOs.

Groundwater Results

Laboratory analytical data for groundwater samples are summarized in Tables 6 through 10 and are compared to NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs) for Class GA groundwater.

There were no detections of VOCs exceeding the AWQSGVs. The only VOC detected was chloroform, at a maximum concertation of 5.6 micrograms per liter (µg/L) in well MW-2 at its AWQSGV of 5.6 µg/L.

Groundwater SVOC exceedances were identified in two monitoring wells (MW-1 and MW-4). A total of four SVOCs, including benzo[a]anthracene (maximum concentration of 0.04 µg/L in well MW-4); benzo[a]pyrene (maximum concentration of 0.06 µg/L in well MW-4); benzo[b]fluoranthene (maximum concentration of 0.03 µg/L in well MW-MW-4); and indeno(1,2,3-c,d)pyrene (maximum concentration of 0.06 µg/L in well MW-4) were found exceeding their AWQSGVs. These detections were relatively low and estimated by the laboratory since they were below reporting limits. These detections are related to the historic fill placed at the Site below the water table.

Five metals were detected above the AWQSGVs, including antimony (maximum detection of 4.11 µg/L found in MW-5); iron (maximum detection of 35,400 µg/L found in MW-1); magnesium (maximum detection of 104,000 µg/L found in MW-1); manganese (maximum detection of 4,574 µg/L found in MW-3); and sodium (maximum detection of 986,000 µg/L found in MW-1). Note that these are all naturally occurring metals that are commonly found in groundwater. Laboratory analysis for the field filtered and unfiltered samples yielded fairly consistent results.

PCBs and pesticides were not detected in any of the groundwater samples collected during the RI.

Soil Vapor Results

Ten soil vapor samples were collected from locations beneath the existing warehouse buildings, as shown on Figure 2 and submitted for analysis for VOC. As shown in Table 11, in total, 25 compounds were detected in the 10 soil vapor samples collected.

There are currently no standards for soil vapor established by either NYSDEC or the New York State Department of Health (NYSDOH). The NYSDOH has established guidance for evaluating soil vapor intrusion in which the results of soil vapor samples are compared to corresponding indoor air quality results. The guidance is presented in Matrix A, Matrix B, and Matrix C from the NYSDOH Center for Environmental Health (CEH) Bureau of Environmental Exposure Investigation (BEEI) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, October 2006 (matrices were updated in May 2017). The matrices provide guidance relative to carbon tetrachloride, cis-1,2-dichloroethene, 1,1-dichloroethene, trichloroethene (TCE), tetrachloroethene (PCE), 1,1,1-trichloroethane, methylene chloride, and vinyl chloride.

Matrix A Compounds: carbon tetrachloride, cis-1,2-dichloroethene, 1,1-dichloroethene, TCE

- Carbon tetrachloride was not detected in soil vapor.
- Cis-1,2-dichloroethene was detected in one soil vapor sample (SV-10 DUP) at a concentration of 116 micrograms per cubic meter (µg/m^3). Note that this was a duplicate sample, and cis-1,2-dichloroethene was not detected in the corresponding original sample (SV-10), suggesting that this elevated detection was an anomaly and not representative of Site conditions).
- 1,1- Dichloroethene was detected in one soil vapor sample (SV-10 DUP) at a concentration of 2.87 µg/m^3.
- TCE was detected in five soil vapor samples (SV-1, SV-2, SV-8, SV-9 and SV-10 DUP) at concentrations ranging from 1.35 µg/m^3 to 14.1 µg/m^3, with a maximum detection in SV-10 DUP.

Matrix B Compounds: PCE, 1,1,1-trichloroethane, methylene chloride

- PCE was detected in all eleven soil vapor samples (SV-1 through SV-10 and SV-10 DUP) ranging in concentration from 2.79 µg/m^3 to 304 µg/m^3, with a maximum detection in soil vapor sample SV-10 DUP. Note that this was a duplicate sample, and PCE was detected at only 2.9 µg/m^3 in the corresponding original sample (SV-10), suggesting that this elevated detection was an anomaly and not representative of site conditions.
- 1,1,1-Trichloroethane was detected in three soil vapor samples (SV-8, SV-9, and SV-10 DUP) ranging in concentration from 1.36 µg/m^3 to 47.6 µg/m^3, with a maximum detection in soil vapor sample SV-10 DUP. Note that this was a duplicate sample, and 1,1,1-Trichloroethane was not detected in the corresponding original sample (SV-10), suggesting that this elevated detection was an anomaly and not representative of site conditions.
- Methylene chloride was detected in one soil vapor sample (SV-2) at a concentration of 2.2 µg/m^3.

Matrix C Compound: vinyl chloride

- Vinyl chloride was detected in one soil vapor sample (SV-10 DUP) at a concentration of 1.55 µg/m^3.

Additionally, chloroform was detected in excess of the United States Environmental Protection Agency (USEPA) Target Sub-Slab Concentration of 4.1 ug/m3 in seven samples: SV-1 (40 µg/m^3), SV-2 (237 µg/m^3), SV-3 (27.9 µg/m^3), SV-4 (5.13 µg/m^3), SV-5 (8.79 µg/m^3), SV-8 (16 µg/m^3), and SV-9 (10 µg/m^3).

3. Scope of Work

The scope of work for the IRM consists of the following tasks:

- Site mobilization and Site preparation, including installation of the perimeter construction fence;
- Demolition of building structures on the Site;
- Completion of geotechnical test pits to evaluate the efficacy of the proposed foundation elements; and
- Documentation and preparation of CRR.

Implementation of the IRM will be in accordance with the Soils/Materials Management Plan (SoMP) included in Section 4 of this Work Plan. The NYSDEC will be provided with at least five days advanced notice prior to intrusive activities described in this IRM Work Plan.

3.1 Mobilization and Site Preparation

The selected Contractor will supply labor (Hazardous Waste Operations and Emergency Response [HAZWOPER] Certified in accordance with OSHA 1910.120) and materials required for the implementation of the IRM scope of work. In addition, necessary permits, insurance, bonds, and licenses required to complete the work will be obtained and fees necessary to obtain these permits will be paid. Mobilization and Site preparation activities include:

1. Mobilization of equipment to the work area; and
2. Installation of construction fencing (in accordance with New York City Department of Buildings [NYCDOB] requirements) and traffic barricades surrounding the Site to delineate the work zone, act as a work Site security measure, and mark the truck loading and decontamination areas.

3.2 Building Structure Demolition

Building demolition will include dismantling and offsite removal of all above grade building structures, including walls, roof system, columns, interior wall, etc. The floor slab and below grade foundation elements will not be removed as part of this scope of work. No soil is expected to be disturbed as part of the building demolition. All on-Site monitoring wells will be protected to the extent practical to ensure that they remain functional following the building structure demolition. The concrete slab will however be cracked in several locations to prevent the ponding of water during precipitation events. Roux will conduct air monitoring in accordance with the site-specific Community Air Monitoring Plan (CAMP) during all demolition activities not fully contained within the intact building structure. CAMP will be completed when exterior demolition work is being completed, and full time once the exterior building structure is breached. Oversight and CAMP will continue until the buildings are fully demolished and only the building slabs remain. Details of the air monitoring requirements are provided in Section 4.12.

3.3 Geotechnical Test Pits

Seven geotechnical test pits will be advanced through the building slab and adjacent sidewalk, at the locations shown in Figure 2. The test pits will be advanced to an estimated depth of six ft bls, and all excavated soil and drill spoils will be returned to the test pit (provided gross contamination is not observed) in accordance with the procedures detailed in Section 4.2. It is anticipated that the test pits will be conducted post demolition, therefore, Roux anticipates conducting CAMP during all test pitting activities. Oversight and

CAMP will continue until the cover system is restored with concrete or a temporary cover consisting of 6 inches of stone. Details of the air monitoring requirements are provided in Section 4.12.

4. Soils/Materials Management Plan

The following sections provide the SoMP to be implemented during the IRM. It should be noted that the only soil disturbance that will be performed during the IRM will be done as part of the limited geotechnical test pitting activities. The procedures below are largely being provided in case unexpected conditions are encountered.

4.1 Soil Screening Methods

Visual, olfactory and photoionization detector (PID) soil screening and assessment will be performed during geotechnical test pitting that are conducted under the supervision of Roux personnel.

4.2 Stockpile Methods

Soil excavated during geotechnical test pitting will be segregated (unsaturated versus saturated [if encountered]). Stockpiles will be used only when necessary and will be removed as soon as practicable. Excavated soils will be stockpiled on, at minimum, double layers of 6-mil minimum poly-sheeting, will be kept covered at all times (except when material is being added or removed) with appropriately anchored polyethylene sheeting, and will be routinely inspected. Broken or ripped sheeting will be promptly replaced. If used, roll-off containers for saturated materials will be lined. While stockpiles are in place, they will be inspected at a minimum each week, and before and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

Stockpile activities will be compliant with applicable laws and regulations. Stockpiles of excavated soils and other materials will be located a minimum of 20 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles as needed, except for areas where access by equipment is required. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles of petroleum-contaminated soils are not anticipated to remain onsite for longer than 60 days. In the event that stockpiles will need to remain onsite longer than 60 days, Roux will coordinate with NYSDEC.

4.3 Characterization of Excavated Materials

Soil/fill or other excavated media that will be transported off-Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils proposed for reuse on-Site will be managed as defined in this plan.

4.4 Materials Excavation and Load Out

Roux will oversee all invasive work and the excavation and load-out of all excavated material.

The Participant and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The selected contractor will be required to place a one-call dig safe notification prior to mobilization. In addition, existing private mark out information, where available, will be consulted prior to excavation. Support of excavation will be provided, if necessary, based upon Site conditions and local regulations.

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

Loaded outbound trucks will be inspected by Roux and cleaned, if necessary, before leaving the Site.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking. Vehicles/trucks will either be staged on asphalt/concrete, where still existing, or in the event that the asphalt/concrete is removed, contractor will install and maintain a stabilized construction entrance at any vehicle egress points. Regardless, all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during the implementation of the IRM. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

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

4.5 Materials Transport Off-Site

All transport of materials 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.

The proposed inbound truck route to the Site is:

- From Interstate 278, take McGuiness Blvd north
- Take Greenpoint Avenue west (left turn)
- Turn north on Franklin Street (right turn)
- Turn west on Java Street (left turn)
- The Site is located on the right

The proposed outbound truck route from the Site is:

- Leave the Site in India Street
- Take Franklin Street south (right turn)
- Take Greenpoint Avenue east (left turn)
- Take McGuiness Blvd south (right turn)

These are the most appropriate routes and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. To the extent possible, trucks loaded with Site materials will travel to/from the Site using these approved truck routes. Tiffany Street, Bruckner Boulevard and Garrison Avenue are New York City Department of Transportation approved Local Truck Routes.

Trucks will avoid stopping and idling in the neighborhood outside the project Site, to the extent practicable. Queuing of trucks will be performed on-Site, when possible, in order to minimize off Site disturbance. Off-Site queuing will be minimized.

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

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

4.6 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from the Site will be disposed of in accordance with regulatory requirements based on the levels of contamination found to be present in waste characterization samples collected.

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

The CCR will include an accounting of the destination of all material removed from the Site during this IRM. This information will also be presented in a tabular form in the CCR.

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 CCR.

Hazardous wastes derived from on-Site will be stored, transported, and disposed of in compliance with applicable local, State, and Federal regulations.

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

Waste characterization will be performed for off-Site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

4.7 Materials Reuse On-Site

Soil generated during the geotechnical test pitting will be reused on-Site, as appropriate, provided no impacts are observed (staining, odors, PID response). “Reuse on-Site” means material that is excavated during the geotechnical test pitting does not leave the property and is put back in the excavation from which it came. Roux will confirm that materials proposed for reuse are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this SoMP are followed. If impacts to soil are observed, the soil will be sampled and disposed of offsite and offsite backfill will be used (Section 4.9).

Soil or fill excavated from the Site during the IRM will not be reused within a final cover soil layer or within landscaping berms.

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

4.8 Fluids Management

All liquids to be removed from the Site will be handled, transported and disposed in accordance with applicable laws and regulations. Liquid waste manifests will be reported to NYSDEC in the CCR.

Dewatering is not expected to be necessary during the IRM activities.

4.9 Backfill from Off-Site Sources

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

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.

All imported soils will meet NYSDEC approved backfill or cover soil quality objectives for this Site. These NYSDEC approved backfill or cover soil quality objectives are the lower of the protection of groundwater or the protection of public health soil cleanup objectives for Restricted-Residential or higher use as set forth in Table 375-6.8(b) of 6 NYCRR Part 375. Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved IRM or its approval by NYSDEC should be construed as an approval for this purpose.

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

In accordance with DER-10, the following material may be imported, without chemical testing, to be used as backfill beneath pavement, buildings or as part of the final site cover, provided that it contains less than 10% by weight material which would pass through a size 80 sieve and consists of:

- gravel, rock or stone, consisting of virgin material from a NYSDEC permitted mine or quarry; or
- recycled concrete or brick from a NYSDEC registered construction and demolition debris processing facility if the material conforms to the requirements of Section 304 of the New York State Department of Transportation *Standard Specifications Construction and Materials Volume 1* (2002).

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

4.10 Stormwater Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the IRM activities. Erosion and sediment control measures (silt fences and/or barriers, and/or hay bale checks) will be installed, as appropriate, around the entire perimeter of the remedial construction area and inspected once a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant

impacts to receptors. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs to erosion and sediment controls shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

4.11 Contingency Plan

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during implementation of the IRM.

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation, sampling will be performed on potentially contaminated source material and surrounding soils and reported to NYSDEC. Chemical analytical work will be for NYSDEC CP-51 Soil Cleanup Guidance Tables 2 and 3, Soil Cleanup Levels for Gas and Fuel Oil Contaminated Soil (CP-51) parameters. In areas where samples will be collected in close proximity to the location of a soil sample proposed in the RIWP, the full suite of parameters (TCL VOCs, TCL SVOCs, TAL metals, PCBs, pesticides and herbicides) will be analyzed. Analyses will not be otherwise limited without NYSDEC approval.

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

4.12 Health and Safety Plan

A site-specific Health and Safety Plan (HASP) was prepared and is included as part of this IRM Work Plan. All of the IRM field work will be performed using the site-specific HASP. The Site-specific CAMP was prepared in accordance with DER-10, Appendix 1A and is provided as Appendix B.

4.13 Community Air Monitoring Plan

In accordance with the Site-specific Health and Safety Plan (HASP, Appendix A), CAMP monitoring will be implemented during the building demolition and geotechnical test pitting. The CAMP monitoring will be performed in accordance with the site-specific CAMP (Appendix B) and will include the real-time monitoring of VOCs and particulates at the upwind and downwind perimeter of the designated work area. Should monitoring results exceed action levels as noted in the CAMP, efforts will be made to mitigate/eliminate the exceedance.

4.14 Odor, Dust, and Nuisance Control Plan

4.14.1 Odor Control Plan

In addition to the CAMP monitoring, Roux will closely monitor the presence of odors emanating from either the excavation or the stockpile.

Odor controls will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and (c) use of odor suppressants to cover exposed odorous soils. If nuisance odors develop and

cannot otherwise be controlled, additional means to eliminate them will include: (d) direct load-out of soils to trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, the source of odors will be identified and corrected. If necessary, to identify or correct a nuisance odor source, work will be temporarily halted and will not resume until such nuisance odors have been identified and abated. NYSDEC will be notified of all odor complaint events.

4.14.2 Dust Control Plan

Dust management during invasive on-Site work will include, at a minimum:

- Use of properly anchored tarps to cover stockpiles;
- Exercising extra care during dry and high-wind periods; and
- Dust suppression will be achieved through the use of water for wetting excavation areas. Water will be available on-Site at suitable supply and pressure for use in dust control.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted, and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. NYSDEC will be notified of all dust complaint events.

4.14.3 Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards. Rodent control will be provided during building demolition and during the remedial program, as necessary, to prevent nuisances.

5. Reporting

5.1 Reporting during Site Activities

Daily reports to NYSDEC and NYSDOH will be submitted during the days when IRM activities take place. Daily reports will include a summary of all work completed that day; locations of work and quantities of material imported and exported from the Site; a summary of any and all complaints with relevant details (names, phone numbers); a summary of CAMP readings and an explanation of notable Site conditions and photo-documentation. Monthly reports will be submitted to the NYSDEC and NYSDOH on the 10th day of the following month. Monthly reports will provide an update of progress made during the reporting period, a summary of the daily reports, any analytical data received during the reporting period and a summary of activities scheduled for the next reporting period.

5.2 Construction Completion Report (CCR)

Detailed information regarding the IRM (e.g., general description of the construction activities, waste disposal documentation, backfill documentation, photographic documentation, etc.) will be included in the CCR to be prepared following receipt of all data, the DUSR (if data requiring 3rd party review are generated) and all final disposal documentation. The CCR will be submitted within 30 days after the completion of building demolition.

6. IRM Implementation Schedule

This IRM Work Plan is anticipated to begin in late April 2021. It is anticipated that the actual onsite duration of major remedial construction tasks will be completed as follows:

- Building Demolition – Late April 2021 through July 2021
- Geotechnical Test Pitting – July 2021
- Submittal of CCR – 30 days following completion of geotechnical test pitting

TABLES

Notes Utilized Throughout Tables	
Soil Tables	
J -	Estimated value
U -	Indicates that the compound was analyzed for but not detected
T -	Indicates that a quality control parameter has exceeded laboratory limits
V -	Value altered or qualifier added during data validation
R -	Sample results rejected by validator
UJ -	Analyte was not detected. The associated reported quantitation limit is an estimate
NJ -	Detection is tentative in identification and estimated in value
J+ -	Estimated value, high bias
J- -	Estimated value, low bias
ft bls -	Feet below land surface
FD -	Duplicate sample
mg/kg -	Milligrams per kilogram
NYSDEC -	New York State Department of Environmental Conservation
SCO -	Soil Cleanup Objectives
--	No SCO available
Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use SCO	
Shaded data indicates that parameter was detected above the NYSDEC Part 375 Restricted Residential SCO	
Red data indicates that parameter was detected above the NYSDEC Part 375 Protection of Groundwater SCO	
Groundwater Tables	
NYSDEC -	New York State Department of Environmental Conservation
AWQSGVs -	Ambient Water-Quality Standards and Guidance Values
µg/L -	Micrograms per liter
J -	Estimated Value
U -	Compound was analyzed for but not detected
T -	Indicates that a quality control parameter has exceeded laboratory limits
V -	Value altered or qualifier added during data validation
R -	Sample results rejected by validator
UJ -	Analyte was not detected. The associated reported quantitation limit is an estimate
NJ -	Detection is tentative in identification and estimated in value
J+ -	Estimated value, high bias
J- -	Estimated value, low bias
FD -	Duplicate
--	No NYSDEC AWQSGV available
Bold data indicates that parameter was detected above the NYSDEC AWQSGVs	
Soil Vapor	
J -	Estimated value
U -	Indicates that the compound was analyzed for but not detected
FD -	Duplicate sample
ug/m3 -	Micrograms per cubic meter
Bold data indicates that parameter was detected	

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-3
			Sample Date:		09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		3 - 5	9 - 11	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	12.5 - 14.5	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
1,1,2-Trichloroethane	--	--	--	MG/KG	0.0017 U	0.0019 U	0.002 UJV	0.002 U	0.0018 U	0.0018 U	0.0018 U	0.0021 U	0.0017 U	0.0022 U
1,1-Dichloroethane	0.27	26	0.27	MG/KG	0.0017 U	0.0019 U	0.002 UJV	0.002 U	0.0018 U	0.0018 U	0.0018 U	0.0021 U	0.0017 U	0.0022 U
1,1-Dichloroethene	0.33	100	0.33	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
1,1-Dichloropropene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,2,3-Trichloropropane	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG	0.0047 U	0.0051 U	0.0054 UJV	0.0053 U	0.0048 U	0.0048 U	0.0048 U	0.0056 U	0.0046 U	0.006 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,2,4-Trimethylbenzene	3.6	52	3.6	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG	0.0047 U	0.0051 U	0.0054 UJV	0.0053 U	0.0048 U	0.0048 U	0.0048 U	0.0056 U	0.0046 U	0.006 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,2-Dichloroethane	0.02	3.1	0.02	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
1,2-Dichloropropane	--	--	--	MG/KG	0.0041 U	0.0045 U	0.0047 UJV	0.0046 U	0.0042 U	0.0042 U	0.0042 U	0.0049 U	0.004 U	0.0052 U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	8.4	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,3-Dichloropropane	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
1,4-Diethyl Benzene	--	--	--	MG/KG	0.0047 U	0.0051 U	0.0054 UJV	0.0053 U	0.0048 U	0.0048 U	0.0048 U	0.0056 U	0.0046 U	0.006 U
1,4-Dioxane (P-Dioxane)	0.1	13	0.1	MG/KG	0.047 URV	0.051 URV	0.054 URV	0.053 URV	0.048 URV	0.048 URV	0.048 URV	0.056 URV	0.046 URV	0.06 URV
2,2-Dichloropropane	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
2-Chlorotoluene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
2-Hexanone	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
4-Chlorotoluene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
4-Ethyltoluene	--	--	--	MG/KG	0.0047 U	0.0051 U	0.0054 UJV	0.0053 U	0.0048 U	0.0048 U	0.0048 U	0.0056 U	0.0046 U	0.006 U
Acetone	**0.05**	100	0.05	MG/KG	0.011 J	0.024	0.02 J-V	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.029	0.015 U
Acrylonitrile	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-3
			Sample Date:		09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		3 - 5	9 - 11	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	12.5 - 14.5	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
Benzene	0.06	4.8	0.06	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Bromobenzene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Bromochloromethane	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Bromodichloromethane	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Bromoform	--	--	--	MG/KG	0.0047 U	0.0051 U	0.0054 UJV	0.0053 U	0.0048 U	0.0048 U	0.0048 U	0.0056 U	0.0046 U	0.006 U
Bromomethane	--	--	--	MG/KG	0.0023 UJV	0.0026 UJV	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
Carbon Disulfide	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
Carbon Tetrachloride	0.76	2.4	0.76	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Chlorobenzene	1.1	100	1.1	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Chloroethane	--	--	--	MG/KG	0.0023 UJV	0.0026 UJV	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
Chloroform	0.37	49	0.37	MG/KG	0.0017 U	0.0019 U	0.002 UJV	0.002 U	0.0018 U	0.0018 U	0.0018 U	0.0021 U	0.0017 U	0.0022 U
Chloromethane	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Cis-1,2-Dichloroethylene	0.25	100	0.25	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Cymene	--	--	--	MG/KG	0.0012 U	0.0056	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Dibromochloromethane	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Dibromomethane	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
Dichlorodifluoromethane	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
Dichloroethylenes	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Ethylbenzene	1	41	1	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Hexachlorobutadiene	--	--	--	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
m,p-Xylene	--	--	--	MG/KG	0.0023 U	0.0026 U	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	0.12	MG/KG	0.012 U	0.013 U	0.0016 J-V	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.0054 J	0.015 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
Methylene Chloride	0.05	100	0.05	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.0019 J	0.015 U
Naphthalene	**12**	100	12	MG/KG	0.00093 J	0.0064 U	0.00032 J-V	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
N-Butylbenzene	12	100	12	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
N-Propylbenzene	3.9	100	3.9	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
O-Xylene (1,2-Dimethylbenzene)	--	--	--	MG/KG	0.0023 U	0.0026 U	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
Sec-Butylbenzene	11	100	11	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Styrene	--	--	--	MG/KG	0.0023 UJV	0.0026 UJV	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
T-Butylbenzene	5.9	100	5.9	MG/KG	0.0058 U	0.0064 U	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Tert-Butyl Methyl Ether	0.93	100	0.93	MG/KG	0.0023 U	0.0026 U	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
Tetrachloroethylene (PCE)	1.3	19	1.3	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Toluene	0.7	100	0.7	MG/KG	0.0017 U	0.0019 U	0.002 UJV	0.002 U	0.0018 U	0.0018 U	0.0018 U	0.0021 U	0.0017 U	0.0022 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG	0.0017 U	0.0019 U	0.002 UJV	0.002 U	0.0018 U	0.0018 U	0.0018 U	0.0021 U	0.0017 U	0.0022 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG	0.0058 UJV	0.0064 UJV	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Trichloroethylene (TCE)	0.47	21	0.47	MG/KG	0.0012 U	0.0013 U	0.0014 UJV	0.0013 U	0.0012 U	0.0012 U	0.0012 U	0.0014 U	0.0012 U	0.0015 U
Trichlorofluoromethane	--	--	--	MG/KG	0.0058 UJV	0.0064 UJV	0.0068 UJV	0.0066 U	0.0059 U	0.006 U	0.006 U	0.0069 U	0.0058 U	0.0075 U
Vinyl Acetate	--	--	--	MG/KG	0.012 U	0.013 U	0.014 UJV	0.013 U	0.012 U	0.012 U	0.012 U	0.014 U	0.012 U	0.015 U
Vinyl Chloride	0.02	0.9	0.02	MG/KG	0.0023 UJV	0.0026 UJV	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U
Xylenes	0.26	100	1.6	MG/KG	0.0023 U	0.0026 U	0.0027 UJV	0.0026 U	0.0024 U	0.0024 U	0.0024 U	0.0028 U	0.0023 U	0.003 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation:	MW-3	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	SB-1	SB-1	SB-10	SB-10	SB-10	SB-10
					Sample Date:	09/20/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/18/2017	09/18/2017	09/18/2017	09/18/2017
					Sample Depth (ft bls):	5 - 7	2.5 - 4.5	8 - 10	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5	10 - 12	0 - 2	5 - 7	12 - 14	18 - 20
					Normal or Field Duplicate:	FD	N	N	N	N	N	N	N	N	N	N	N	N
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
1,1,2-Trichloroethane	--	--	--	MG/KG		0.0018 U	0.0025 U	0.0026 U	0.0018 U	0.0018 U	0.0016 U	0.0015 U	0.0021 U	0.0024 U	0.22 U	1.3 U	0.1 U	0.0016 U
1,1-Dichloroethane	0.27	26	0.27	MG/KG		0.0018 U	0.0025 U	0.0026 U	0.0018 U	0.0018 U	0.0016 U	0.0015 U	0.0021 U	0.0024 U	0.22 U	1.3 U	0.1 U	0.0016 U
1,1-Dichloroethene	0.33	100	0.33	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
1,1-Dichloropropene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,2,3-Trichloropropane	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG		0.0048 U	0.0066 U	0.0068 U	0.0048 U	0.0047 U	0.0043 U	0.0041 U	0.0055 U	0.0065 U	0.59 U	3.5 U	0.26 U	0.0043 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,2,4-Trimethylbenzene	3.6	52	3.6	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.077 J	0.46 J	0.33 U	0.00021 J
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG		0.0048 U	0.0066 U	0.0068 U	0.0048 U	0.0047 U	0.0043 U	0.0041 U	0.0055 U	0.0065 U	0.59 U	3.5 U	0.26 U	0.0043 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,2-Dichloroethane	0.02	3.1	0.02	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
1,2-Dichloropropane	--	--	--	MG/KG		0.0042 U	0.0057 U	0.006 U	0.0042 U	0.0041 U	0.0037 U	0.0036 U	0.0048 U	0.0057 U	0.52 U	3.1 U	0.23 U	0.0038 U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	8.4	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.03 J	0.19 J	0.33 U	0.0054 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,3-Dichloropropane	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
1,4-Diethyl Benzene	--	--	--	MG/KG		0.0048 U	0.0066 U	0.0068 U	0.0048 U	0.0047 U	0.0043 U	0.0041 U	0.0055 U	0.0065 U	0.59 U	3.5 U	0.26 U	0.0043 U
1,4-Dioxane (P-Dioxane)	0.1	13	0.1	MG/KG		0.048 URV	0.066 URV	0.068 URV	0.048 URV	0.047 URV	0.043 URV	0.041 URV	0.055 URV	0.065 URV	5.9 URV	35 URV	2.6 URV	0.043 URV
2,2-Dichloropropane	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
2-Chlorotoluene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
2-Hexanone	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
4-Chlorotoluene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
4-Ethyltoluene	--	--	--	MG/KG		0.0048 U	0.0066 U	0.0068 U	0.0048 U	0.0047 U	0.0043 U	0.0041 U	0.0055 U	0.0065 U	0.045 J	0.3 J	0.26 U	0.0043 U
Acetone	**0.05**	100	0.05	MG/KG		0.012 U	0.016 U	**0.12**	0.014	0.012 U	0.0029 J	0.0061 J	0.0064 J	**0.064**	1.5 U	8.8 U	0.66 U	0.0038 J
Acrylonitrile	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation:	MW-3	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	SB-1	SB-1	SB-10	SB-10	SB-10	SB-10
					Sample Date:	09/20/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/18/2017	09/18/2017	09/18/2017	09/18/2017
					Sample Depth (ft bls):	5 - 7	2.5 - 4.5	8 - 10	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5	10 - 12	0 - 2	5 - 7	12 - 14	18 - 20
					Normal or Field Duplicate:	FD	N	N	N	N	N	N	N	N	N	N	N	N
Benzene	0.06	4.8	0.06	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.00032 J
Bromobenzene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
Bromochloromethane	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
Bromodichloromethane	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 UJV	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 UJV
Bromoform	--	--	--	MG/KG		0.0048 U	0.0066 U	0.0068 U	0.0048 U	0.0047 U	0.0043 U	0.0041 U	0.0055 U	0.0065 U	0.59 U	3.5 U	0.26 U	0.0043 U
Bromomethane	--	--	--	MG/KG		0.0024 U	0.0033 UJV	0.0034 UJV	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 UJV	0.0032 UJV	0.3 UJV	1.8 UJV	0.13 UJV	0.0022 U
Carbon Disulfide	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
Carbon Tetrachloride	0.76	2.4	0.76	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 UJV	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 UJV
Chlorobenzene	1.1	100	1.1	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Chloroethane	--	--	--	MG/KG		0.0024 U	0.0033 UJV	0.0034 UJV	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 UJV	0.0032 UJV	0.3 U	1.8 U	0.13 U	0.0022 U
Chloroform	0.37	49	0.37	MG/KG		0.0018 U	0.0025 U	0.0026 U	0.0018 U	0.0018 U	0.0016 U	0.0015 U	0.0021 U	0.0024 U	0.22 U	1.3 U	0.1 U	0.0016 U
Chloromethane	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
Cis-1,2-Dichloroethylene	0.25	100	0.25	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Cymene	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Dibromochloromethane	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Dibromomethane	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
Dichlorodifluoromethane	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
Dichloroethylenes	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
Ethylbenzene	1	41	1	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Hexachlorobutadiene	--	--	--	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
m,p-Xylene	--	--	--	MG/KG		0.0024 U	0.0033 U	0.0034 U	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 U	0.0032 U	0.3 U	1.8 U	0.13 U	0.0022 U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	0.12	MG/KG		0.012 U	0.016 U	0.024	0.00096 J	0.012 U	0.011 U	0.01 U	0.014 U	0.012 J	1.5 U	8.8 U	0.66 U	0.011 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
Methylene Chloride	0.05	100	0.05	MG/KG		0.012 U	0.016 U	0.017 U	0.012 U	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 U
Naphthalene	**12**	100	12	MG/KG		0.006 U	0.00051 J	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.00015 J	0.00035 J	0.0081 U	23	120	0.45	0.033
N-Butylbenzene	12	100	12	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
N-Propylbenzene	3.9	100	3.9	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
O-Xylene (1,2-Dimethylbenzene)	--	--	--	MG/KG		0.0024 U	0.0033 U	0.0034 U	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 U	0.0032 U	0.3 U	1.8 U	0.13 U	0.0022 U
Sec-Butylbenzene	11	100	11	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Styrene	--	--	--	MG/KG		0.0024 U	0.0033 UJV	0.0034 UJV	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 UJV	0.0032 UJV	0.11 J	0.67 J	0.13 U	0.0022 U
T-Butylbenzene	5.9	100	5.9	MG/KG		0.006 U	0.0082 U	0.0085 U	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 U	0.0081 U	0.74 U	4.4 U	0.33 U	0.0054 U
Tert-Butyl Methyl Ether	0.93	100	0.93	MG/KG		0.0024 U	0.0033 U	0.0034 U	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 U	0.0032 U	0.3 U	1.8 U	0.13 U	0.0022 U
Tetrachloroethylene (PCE)	1.3	19	1.3	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0021	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Toluene	0.7	100	0.7	MG/KG		0.0018 U	0.0025 U	0.0026 U	0.0018 U	0.0018 U	0.0016 U	0.0015 U	0.0021 U	0.0024 U	0.22 U	1.3 U	0.1 U	0.00028 J
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG		0.0018 U	0.0025 U	0.0026 U	0.0018 U	0.0018 U	0.0016 U	0.0015 U	0.0021 U	0.0024 U	0.22 U	1.3 U	0.1 U	0.0016 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG		0.006 U	0.0082 UJV	0.0085 UJV	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 UJV	0.0081 UJV	0.74 U	4.4 U	0.33 U	0.0054 U
Trichloroethylene (TCE)	0.47	21	0.47	MG/KG		0.0012 U	0.0016 U	0.0017 U	0.0012 U	0.0012 U	0.0011 U	0.001 U	0.0014 U	0.0016 U	0.15 U	0.88 U	0.066 U	0.0011 U
Trichlorofluoromethane	--	--	--	MG/KG		0.006 U	0.0082 UJV	0.0085 UJV	0.0061 U	0.0059 U	0.0053 U	0.0052 U	0.0069 UJV	0.0081 UJV	0.74 UJV	4.4 UJV	0.33 UJV	0.0054 U
Vinyl Acetate	--	--	--	MG/KG		0.012 U	0.016 U	0.017 U	0.012 UJV	0.012 U	0.011 U	0.01 U	0.014 U	0.016 U	1.5 U	8.8 U	0.66 U	0.011 UJV
Vinyl Chloride	0.02	0.9	0.02	MG/KG		0.0024 U	0.0033 UJV	0.0034 UJV	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 UJV	0.0032 UJV	0.3 U	1.8 U	0.13 U	0.0022 U
Xylenes	0.26	100	1.6	MG/KG		0.0024 U	0.0033 U	0.0034 U	0.0024 U	0.0024 U	0.0021 U	0.0021 U	0.0028 U	0.0032 U	0.3 U	1.8 U	0.13 U	0.0022 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	SB-11 09/29/2017 0 - 2 N	SB-11 09/29/2017 3 - 5 N	SB-11 09/29/2017 15 - 17 N	SB-12 09/29/2017 0 - 2 N	SB-12 09/29/2017 15 - 17 N	SB-2 09/20/2017 0 - 2 N	SB-2 09/20/2017 5 - 7 N	SB-2 09/20/2017 10 - 12 N	SB-2 09/20/2017 15 - 17 N	SB-3 09/18/2017 0 - 2 N	SB-3 09/19/2017 5 - 7 N	SB-3 09/19/2017 10 - 12 N	SB-3 09/19/2017 15 - 17 N
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG	0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG	0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG	0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
1,1,2-Trichloroethane	--	--	--	MG/KG	0.002 U	0.31 U	0.0017 U	0.0018 U	0.0015 U	0.0021 U	0.0019 U	0.0016 U	0.0017 U	0.002 U	0.0019 U	0.0018 U	0.0015 U
1,1-Dichloroethane	0.27	26	0.27	MG/KG	0.002 U	0.31 U	0.0017 U	0.0018 U	0.0015 U	0.0021 U	0.0019 U	0.0016 U	0.0017 U	0.002 U	0.0019 U	0.0018 U	0.0015 U
1,1-Dichloroethene	0.33	100	0.33	MG/KG	0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
1,1-Dichloropropene	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 UJV	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,2,3-Trichloropropane	--	--	--	MG/KG	0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG	0.0052 U	0.091 J	0.0046 U	0.0048 U	0.004 U	0.0056 U	0.005 U	0.0042 U	0.0046 UJV	0.0052 U	0.005 U	0.0047 U	0.0041 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.0065 UJV	1 UJV	0.0058 UJV	0.006 UJV	0.005 UJV	0.007 U	0.0062 U	0.0053 U	0.0057 UJV	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,2,4-Trimethylbenzene	3.6	52	3.6	MG/KG	0.0065 U	0.3 J	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG	0.0052 U	0.83 U	0.0046 U	0.0048 U	0.004 U	0.0056 U	0.005 U	0.0042 U	0.0046 U	0.0052 U	0.005 U	0.0047 U	0.0041 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,2-Dichloroethane	0.02	3.1	0.02	MG/KG	0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
1,2-Dichloropropane	--	--	--	MG/KG	0.0046 U	0.72 U	0.0041 U	0.0042 U	0.0035 U	0.0049 U	0.0043 U	0.0037 U	0.004 U	0.0046 U	0.0044 U	0.0041 U	0.0036 U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	8.4	MG/KG	0.0065 U	0.15 J	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,3-Dichloropropane	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 UJV	0.0065 U	0.0063 U	0.0058 U	0.0052 U
1,4-Diethyl Benzene	--	--	--	MG/KG	0.0052 U	0.83 U	0.0046 U	0.0048 U	0.004 U	0.0056 U	0.005 U	0.0042 U	0.0046 UJV	0.0052 U	0.005 U	0.0047 U	0.0041 U
1,4-Dioxane (P-Dioxane)	0.1	13	0.1	MG/KG	0.052 URV	8.3 URV	0.046 URV	0.048 URV	0.04 URV	0.056 URV	0.05 URV	0.042 URV	0.046 URV	0.052 URV	0.05 URV	0.047 URV	0.041 URV
2,2-Dichloropropane	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
2-Chlorotoluene	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
2-Hexanone	--	--	--	MG/KG	0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
4-Chlorotoluene	--	--	--	MG/KG	0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
4-Ethyltoluene	--	--	--	MG/KG	0.0052 U	0.18 J	0.0046 U	0.0048 U	0.004 U	0.0056 U	0.005 U	0.0042 U	0.0046 U	0.0052 U	0.005 U	0.0047 U	0.0041 U
Acetone	**0.05**	100	0.05	MG/KG	0.013 U	2.1 U	0.012 U	0.012 U	0.0055 J	0.014 U	0.012 U	0.017	0.0068 J	0.012 J	0.013 U	0.012 U	0.0037 J
Acrylonitrile	--	--	--	MG/KG	0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation:	SB-11	SB-11	SB-12	SB-12	SB-2	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-3
					Sample Date:	09/29/2017	09/29/2017	09/29/2017	09/29/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
					Sample Depth (ft bls):	0 - 2	3 - 5	15 - 17	0 - 2	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17
					Normal or Field Duplicate:	N	N	N	N	N	N	N	N	N	N	N	N	N
Benzene	0.06	4.8	0.06	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Bromobenzene	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Bromochloromethane	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Bromodichloromethane	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 UJV	0.0013 U	0.0012 U	0.001 U
Bromoform	--	--	--	MG/KG		0.0052 U	0.83 U	0.0046 U	0.0048 U	0.004 U	0.0056 U	0.005 U	0.0042 U	0.0046 U	0.0052 U	0.005 U	0.0047 U	0.0041 U
Bromomethane	--	--	--	MG/KG		0.0026 U	0.41 UV	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U
Carbon Disulfide	--	--	--	MG/KG		0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
Carbon Tetrachloride	0.76	2.4	0.76	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 UJV	0.0013 U	0.0012 U	0.001 U
Chlorobenzene	1.1	100	1.1	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Chloroethane	--	--	--	MG/KG		0.0026 U	0.41 U	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U
Chloroform	0.37	49	0.37	MG/KG		0.002 U	0.31 U	0.0017 U	0.0018 U	0.0015 U	0.0021 U	0.0019 U	0.0016 U	0.0017 U	0.002 U	0.0019 U	0.0018 U	0.0015 U
Chloromethane	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Cis-1,2-Dichloroethylene	0.25	100	0.25	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Cymene	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Dibromochloromethane	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Dibromomethane	--	--	--	MG/KG		0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
Dichlorodifluoromethane	--	--	--	MG/KG		0.013 UJV	2.1 UJV	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
Dichloroethylenes	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Ethylbenzene	1	41	1	MG/KG		0.0013 U	0.057 J	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Hexachlorobutadiene	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 UJV	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
m,p-Xylene	--	--	--	MG/KG		0.0026 U	0.12 J	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	0.12	MG/KG		0.013 UJV	2.1 UJV	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG		0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
Methylene Chloride	0.05	100	0.05	MG/KG		0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 U	0.013 U	0.012 U	0.01 U
Naphthalene	**12**	100	12	MG/KG		0.0026 JV	140 JV	0.00078 J	0.006 U	0.00028 J	0.007 U	0.0062 U	0.0053 U	0.0057 UJV	0.0013 J	0.0006 J	0.004 J	0.00034 J
N-Butylbenzene	12	100	12	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 UJV	0.0013 U	0.0013 U	0.0012 U	0.001 U
N-Propylbenzene	3.9	100	3.9	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
O-Xylene (1,2-Dimethylbenzene)	--	--	--	MG/KG		0.0026 U	0.41 U	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U
Sec-Butylbenzene	11	100	11	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Styrene	--	--	--	MG/KG		0.0026 U	0.41 U	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U
T-Butylbenzene	5.9	100	5.9	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Tert-Butyl Methyl Ether	0.93	100	0.93	MG/KG		0.0026 U	0.41 U	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.00083 J	0.0026 U	0.0025 U	0.0023 U	0.0021 U
Tetrachloroethylene (PCE)	1.3	19	1.3	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Toluene	0.7	100	0.7	MG/KG		0.002 U	0.054 J	0.0017 U	0.0018 U	0.0015 U	0.0021 U	0.0019 U	0.0016 U	0.0017 U	0.002 U	0.0019 U	0.0018 U	0.0015 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG		0.002 U	0.31 U	0.0017 U	0.0018 U	0.0015 U	0.0021 U	0.0019 U	0.0016 U	0.0017 U	0.002 U	0.0019 U	0.0018 U	0.0015 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Trichloroethylene (TCE)	0.47	21	0.47	MG/KG		0.0013 U	0.21 U	0.0012 U	0.0012 U	0.001 U	0.0014 U	0.0012 U	0.0011 U	0.0011 U	0.0013 U	0.0013 U	0.0012 U	0.001 U
Trichlorofluoromethane	--	--	--	MG/KG		0.0065 U	1 U	0.0058 U	0.006 U	0.005 U	0.007 U	0.0062 U	0.0053 U	0.0057 U	0.0065 U	0.0063 U	0.0058 U	0.0052 U
Vinyl Acetate	--	--	--	MG/KG		0.013 U	2.1 U	0.012 U	0.012 U	0.01 U	0.014 U	0.012 U	0.011 U	0.011 U	0.013 UJV	0.013 U	0.012 U	0.01 U
Vinyl Chloride	0.02	0.9	0.02	MG/KG		0.0026 UJV	0.41 UJV	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U
Xylenes	0.26	100	1.6	MG/KG		0.0026 U	0.12 J	0.0023 U	0.0024 U	0.002 U	0.0028 U	0.0025 U	0.0021 U	0.0023 U	0.0026 U	0.0025 U	0.0023 U	0.0021 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-4	SB-4	SB-5	SB-5	SB-6	SB-6	SB-6
			Sample Date:		09/27/2017	09/27/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11	0 - 2	5 - 7	11.5 - 13.5
			Normal or Field Duplicate:		N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit							
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
1,1,2-Trichloroethane	--	--	--	MG/KG	0.0018 U	0.0017 U	0.0021 U	0.0015 U	0.0018 U	0.0022 U	0.0018 U
1,1-Dichloroethane	0.27	26	0.27	MG/KG	0.0018 U	0.0017 U	0.0021 U	0.0015 U	0.0018 U	0.0022 U	0.0018 U
1,1-Dichloroethene	0.33	100	0.33	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
1,1-Dichloropropene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,2,3-Trichloropropane	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG	0.0048 U	0.0045 U	0.0057 U	0.0041 U	0.0048 U	0.0058 U	0.0048 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,2,4-Trimethylbenzene	3.6	52	3.6	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG	0.0048 U	0.0045 U	0.0057 U	0.0041 U	0.0048 U	0.0058 U	0.0048 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,2-Dichloroethane	0.02	3.1	0.02	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
1,2-Dichloropropane	--	--	--	MG/KG	0.0042 U	0.0039 U	0.005 U	0.0036 U	0.0042 U	0.005 U	0.0042 U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	8.4	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,3-Dichloropropane	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
1,4-Diethyl Benzene	--	--	--	MG/KG	0.0048 U	0.0045 U	0.0057 U	0.0041 U	0.0048 U	0.0058 U	0.0048 U
1,4-Dioxane (P-Dioxane)	0.1	13	0.1	MG/KG	0.048 URV	0.045 URV	0.057 URV	0.041 URV	0.048 URV	0.058 URV	0.048 URV
2,2-Dichloropropane	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
2-Chlorotoluene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
2-Hexanone	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U
4-Chlorotoluene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
4-Ethyltoluene	--	--	--	MG/KG	0.0048 U	0.0045 U	0.0057 U	0.0041 U	0.0048 U	0.0058 U	0.0048 U
Acetone	**0.05**	100	0.05	MG/KG	0.015	**0.06**	0.019	0.023	0.0099 J	0.014 U	0.012 U
Acrylonitrile	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	SB-4	SB-4	SB-5	SB-5	SB-6	SB-6	SB-6
Sample Designation:					SB-4	SB-4	SB-5	SB-5	SB-6	SB-6	SB-6
Sample Date:					09/27/2017	09/27/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017
Sample Depth (ft bls):					2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11	0 - 2	5 - 7	11.5 - 13.5
Normal or Field Duplicate:					N	N	N	N	N	N	N
Benzene	0.06	4.8	0.06	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Bromobenzene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
Bromochloromethane	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
Bromodichloromethane	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 UJV	0.0014 U	0.0012 U
Bromoform	--	--	--	MG/KG	0.0048 U	0.0045 U	0.0057 U	0.0041 U	0.0048 U	0.0058 U	0.0048 U
Bromomethane	--	--	--	MG/KG	0.0024 UJV	0.0022 UJV	0.0028 UJV	0.002 UJV	0.0024 U	0.0029 U	0.0024 U
Carbon Disulfide	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.0018 J	0.014 U	0.012 U
Carbon Tetrachloride	0.76	2.4	0.76	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 UJV	0.0014 U	0.0012 U
Chlorobenzene	1.1	100	1.1	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Chloroethane	--	--	--	MG/KG	0.0024 UJV	0.0022 UJV	0.0028 UJV	0.002 UJV	0.0024 U	0.0029 U	0.0024 U
Chloroform	0.37	49	0.37	MG/KG	0.0018 U	0.0017 U	0.0021 U	0.0015 U	0.0018 U	0.0022 U	0.0018 U
Chloromethane	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
Cis-1,2-Dichloroethylene	0.25	100	0.25	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Cymene	--	--	--	MG/KG	0.0012 U	0.0011 U	0.033	0.001 U	0.0012 U	0.0014 U	0.0012 U
Dibromochloromethane	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Dibromomethane	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U
Dichlorodifluoromethane	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U
Dichloroethylenes	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
Ethylbenzene	1	41	1	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Hexachlorobutadiene	--	--	--	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
m,p-Xylene	--	--	--	MG/KG	0.0024 U	0.0022 U	0.0028 U	0.002 U	0.0024 U	0.0029 U	0.0024 U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	0.12	MG/KG	0.012 U	0.01 J	0.014 U	0.003 J	0.012 U	0.014 U	0.012 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U
Methylene Chloride	0.05	100	0.05	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 U	0.014 U	0.012 U
Naphthalene	**12**	100	12	MG/KG	0.0043 J	0.00022 J	0.0003 J	0.0051 U	0.00034 J	0.0072 U	0.006 U
N-Butylbenzene	12	100	12	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
N-Propylbenzene	3.9	100	3.9	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
O-Xylene (1,2-Dimethylbenzene)	--	--	--	MG/KG	0.0024 U	0.0022 U	0.0028 U	0.002 U	0.0024 U	0.0029 U	0.0024 U
Sec-Butylbenzene	11	100	11	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Styrene	--	--	--	MG/KG	0.0024 UJV	0.0022 UJV	0.0028 UJV	0.002 UJV	0.0024 U	0.0029 U	0.0024 U
T-Butylbenzene	5.9	100	5.9	MG/KG	0.006 U	0.0056 U	0.0071 U	0.0051 U	0.006 U	0.0072 U	0.006 U
Tert-Butyl Methyl Ether	0.93	100	0.93	MG/KG	0.0024 U	0.0022 U	0.0028 U	0.002 U	0.0024 U	0.0029 U	0.0024 U
Tetrachloroethylene (PCE)	1.3	19	1.3	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Toluene	0.7	100	0.7	MG/KG	0.0018 U	0.0017 U	0.0021 U	0.0015 U	0.0018 U	0.0022 U	0.0018 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG	0.0018 U	0.0017 U	0.0021 U	0.0015 U	0.0018 U	0.0022 U	0.0018 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG	0.006 UJV	0.0056 UJV	0.0071 UJV	0.0051 UJV	0.006 U	0.0072 U	0.006 U
Trichloroethylene (TCE)	0.47	21	0.47	MG/KG	0.0012 U	0.0011 U	0.0014 U	0.001 U	0.0012 U	0.0014 U	0.0012 U
Trichlorofluoromethane	--	--	--	MG/KG	0.006 UJV	0.0056 UJV	0.0071 UJV	0.0051 UJV	0.006 U	0.0072 U	0.006 U
Vinyl Acetate	--	--	--	MG/KG	0.012 U	0.011 U	0.014 U	0.01 U	0.012 UJV	0.014 U	0.012 U
Vinyl Chloride	0.02	0.9	0.02	MG/KG	0.0024 UJV	0.0022 UJV	0.0028 UJV	0.002 UJV	0.0024 U	0.0029 U	0.0024 U
Xylenes	0.26	100	1.6	MG/KG	0.0024 U	0.0022 U	0.0028 U	0.002 U	0.0024 U	0.0029 U	0.0024 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation:	SB-6	SB-7	SB-7	SB-8	SB-8	SB-8	SB-8	SB-9	SB-9	SB-9	SB-9
					Sample Date:	09/19/2017	09/27/2017	09/27/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
					Sample Depth (ft bls):	15 - 17	2.5 - 4.5	10 - 12	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	8 - 10	10 - 12	15 - 17
					Normal or Field Duplicate:	N	N	N	N	N	N	N	N	N	N	N
1,1,1,2-Tetrachloroethane	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
1,1,1-Trichloroethane (TCA)	0.68	100	0.68	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
1,1,2,2-Tetrachloroethane	--	--	--	MG/KG		0.0011 U	0.0016 UJV	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
1,1,2-Trichloroethane	--	--	--	MG/KG		0.0017 U	0.0023 U	0.0017 U	0.0019 U	0.0021 U	0.0019 U	0.0019 U	0.11 U	0.0016 U	0.0018 U	0.0019 U
1,1-Dichloroethane	0.27	26	0.27	MG/KG		0.0017 U	0.0023 U	0.0017 U	0.0019 U	0.0021 U	0.0019 U	0.0019 U	0.11 U	0.0016 U	0.0018 U	0.0019 U
1,1-Dichloroethene	0.33	100	0.33	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
1,1-Dichloropropene	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,2,3-Trichlorobenzene	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,2,3-Trichloropropane	--	--	--	MG/KG		0.011 U	0.016 UJV	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
1,2,4,5-Tetramethylbenzene	--	--	--	MG/KG		0.0045 U	0.0062 UJV	0.0046 U	0.0051 U	0.0055 U	0.005 U	0.0051 U	0.3 U	0.0042 U	0.0049 U	0.0051 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,2,4-Trimethylbenzene	3.6	52	3.6	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,2-Dibromo-3-Chloropropane	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	--	MG/KG		0.0045 U	0.0062 U	0.0046 U	0.0051 U	0.0055 U	0.005 U	0.0051 U	0.3 U	0.0042 U	0.0049 U	0.0051 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,2-Dichloroethane	0.02	3.1	0.02	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
1,2-Dichloropropane	--	--	--	MG/KG		0.004 U	0.0055 U	0.004 U	0.0045 U	0.0048 U	0.0044 U	0.0045 U	0.26 U	0.0037 U	0.0043 U	0.0045 U
1,3,5-Trimethylbenzene (Mesitylene)	8.4	52	8.4	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,3-Dichloropropane	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
1,4-Diethyl Benzene	--	--	--	MG/KG		0.0045 U	0.0062 UJV	0.0046 U	0.0051 U	0.0055 U	0.005 U	0.0051 U	0.3 U	0.0042 U	0.0049 U	0.0051 U
1,4-Dioxane (P-Dioxane)	0.1	13	0.1	MG/KG		0.045 URV	0.062 URV	0.046 URV	0.051 URV	0.055 URV	0.05 URV	0.051 URV	3 URV	0.042 URV	0.049 URV	0.051 URV
2,2-Dichloropropane	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
2-Chlorotoluene	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
2-Hexanone	--	--	--	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
4-Chlorotoluene	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
4-Ethyltoluene	--	--	--	MG/KG		0.0045 U	0.0062 UJV	0.0046 U	0.0051 U	0.0055 U	0.005 U	0.0051 U	0.3 U	0.0042 U	0.0049 U	0.0051 U
Acetone	**0.05**	100	0.05	MG/KG		0.011 U	0.012 J+V	**0.055**	0.013 U	0.014 U	0.021	0.018	0.74 U	0.003 J	0.013	0.003 J
Acrylonitrile	--	--	--	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U

Table 1. Summary of Volatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation:	SB-6	SB-7	SB-7	SB-8	SB-8	SB-8	SB-8	SB-9	SB-9	SB-9	SB-9
					Sample Date:	09/19/2017	09/27/2017	09/27/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
					Sample Depth (ft bls):	15 - 17	2.5 - 4.5	10 - 12	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	8 - 10	10 - 12	15 - 17
					Normal or Field Duplicate:	N	N	N	N	N	N	N	N	N	N	N
Benzene	0.06	4.8	0.06	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Bromobenzene	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Bromochloromethane	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Bromodichloromethane	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Bromoform	--	--	--	MG/KG		0.0045 U	0.0062 U	0.0046 U	0.0051 U	0.0055 U	0.005 U	0.0051 U	0.3 U	0.0042 U	0.0049 U	0.0051 U
Bromomethane	--	--	--	MG/KG		0.0023 U	0.0031 UJV	0.0023 UJV	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 UJV	0.0021 U	0.0024 U	0.0026 U
Carbon Disulfide	--	--	--	MG/KG		0.011 U	0.016 U	0.0014 J	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Carbon Tetrachloride	0.76	2.4	0.76	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Chlorobenzene	1.1	100	1.1	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Chloroethane	--	--	--	MG/KG		0.0023 U	0.0031 UJV	0.0023 UJV	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U
Chloroform	0.37	49	0.37	MG/KG		0.0017 U	0.0023 U	0.0017 U	0.0019 U	0.0021 U	0.0019 U	0.0019 U	0.11 U	0.0016 U	0.0018 U	0.0019 U
Chloromethane	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Cis-1,2-Dichloroethylene	0.25	100	0.25	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Cis-1,3-Dichloropropene	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Cymene	--	--	--	MG/KG		0.0011 U	0.0016 UJV	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Dibromochloromethane	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Dibromomethane	--	--	--	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Dichlorodifluoromethane	--	--	--	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Dichloroethylenes	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Diethyl Ether (Ethyl Ether)	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Ethylbenzene	1	41	1	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Hexachlorobutadiene	--	--	--	MG/KG		0.0057 U	0.0078 U	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Isopropylbenzene (Cumene)	--	--	--	MG/KG		0.0011 U	0.0016 UJV	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
m,p-Xylene	--	--	--	MG/KG		0.0023 U	0.0031 U	0.0023 U	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U
Methyl Ethyl Ketone (2-Butanone)	0.12	100	0.12	MG/KG		0.011 U	0.016 U	0.01 J	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	--	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Methylene Chloride	0.05	100	0.05	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Naphthalene	**12**	100	12	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	1.9	0.0053 U	0.0032 J	0.00031 J
N-Butylbenzene	12	100	12	MG/KG		0.0011 U	0.0016 UJV	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
N-Propylbenzene	3.9	100	3.9	MG/KG		0.0011 U	0.0016 UJV	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
O-Xylene (1,2-Dimethylbenzene)	--	--	--	MG/KG		0.0023 U	0.0031 U	0.0023 U	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U
Sec-Butylbenzene	11	100	11	MG/KG		0.0011 U	0.0016 UJV	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Styrene	--	--	--	MG/KG		0.0023 U	0.0031 UJV	0.0023 UJV	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U
T-Butylbenzene	5.9	100	5.9	MG/KG		0.0057 U	0.0078 UJV	0.0057 U	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Tert-Butyl Methyl Ether	0.93	100	0.93	MG/KG		0.0023 U	0.0031 U	0.0023 U	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U
Tetrachloroethylene (PCE)	1.3	19	1.3	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Toluene	0.7	100	0.7	MG/KG		0.0017 U	0.0023 U	0.0017 U	0.0019 U	0.0021 U	0.0019 U	0.0019 U	0.11 U	0.0016 U	0.00028 J	0.0019 U
Total, 1,3-Dichloropropene (Cis And Trans)	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Trans-1,2-Dichloroethene	0.19	100	0.19	MG/KG		0.0017 U	0.0023 U	0.0017 U	0.0019 U	0.0021 U	0.0019 U	0.0019 U	0.11 U	0.0016 U	0.0018 U	0.0019 U
Trans-1,3-Dichloropropene	--	--	--	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Trans-1,4-Dichloro-2-Butene	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 UJV	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 U	0.0053 U	0.0061 U	0.0064 U
Trichloroethylene (TCE)	0.47	21	0.47	MG/KG		0.0011 U	0.0016 U	0.0011 U	0.0013 U	0.0014 U	0.0012 U	0.0013 U	0.074 U	0.0011 U	0.0012 U	0.0013 U
Trichlorofluoromethane	--	--	--	MG/KG		0.0057 U	0.0078 UJV	0.0057 UJV	0.0064 U	0.0069 U	0.0063 U	0.0064 U	0.37 UJV	0.0053 U	0.0061 U	0.0064 U
Vinyl Acetate	--	--	--	MG/KG		0.011 U	0.016 U	0.011 U	0.013 U	0.014 U	0.012 U	0.013 U	0.74 U	0.011 U	0.012 U	0.013 U
Vinyl Chloride	0.02	0.9	0.02	MG/KG		0.0023 U	0.0031 UJV	0.0023 UJV	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U
Xylenes	0.26	100	1.6	MG/KG		0.0023 U	0.0031 U	0.0023 U	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.15 U	0.0021 U	0.0024 U	0.0026 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-3
			Sample Date:		09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		3 - 5	9 - 11	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	12.5 - 14.5	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.18 U	0.2 U	0.19 URV	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.1 U	0.12 U	0.11 URV	0.12 U	0.12 U	0.12 U	0.11 U	0.12 U	0.12 U	0.13 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.16 U	0.18 U	0.17 URV	0.17 U	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.2 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.18 U	0.2 U	0.19 URV	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.84 U	0.96 U	0.92 URV	0.92 U	0.96 U	0.98 U	0.86 U	0.93 U	0.92 U	1 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2-Chloronaphthalene	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2-Chlorophenol	--	--	--	MG/KG	0.18 U	0.2 U	0.19 URV	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2-Methylnaphthalene	--	--	--	MG/KG	0.14 J	0.24 U	0.23 U	0.23 U	0.24 U	0.25 U	0.038 J	0.23 U	0.23 U	0.26 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.18 U	0.2 U	0.19 URV	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2-Nitroaniline	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
2-Nitrophenol	--	--	--	MG/KG	0.38 U	0.43 U	0.41 URV	0.42 U	0.43 U	0.44 U	0.39 U	0.42 U	0.42 U	0.47 U
3- And 4- Methylphenol (Total)	**0.33**	100	0.33	MG/KG	0.25 U	0.29 U	0.28 URV	0.28 U	0.29 U	0.3 U	0.26 U	0.28 U	0.28 U	0.32 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 UJV	0.2 UJV	0.18 U	0.19 U	0.19 U	0.22 U
3-Nitroaniline	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.46 U	0.52 U	0.5 URV	0.5 U	0.52 U	0.53 U	0.46 U	0.5 U	0.5 U	0.57 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.18 U	0.2 U	0.19 URV	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
4-Chloroaniline	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
4-Nitroaniline	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
4-Nitrophenol	--	--	--	MG/KG	0.24 U	0.28 U	0.27 URV	0.27 U	0.28 U	0.29 U	0.25 U	0.27 U	0.27 U	0.31 U
Acenaphthene	20	100	98	MG/KG	0.32	0.084 J	0.15 U	0.15 U	0.16 U	0.16 U	0.047 J	0.16 U	0.15 U	0.18 U
Acenaphthylene	100	100	107	MG/KG	0.097 J	0.16 U	0.15 U	0.15 U	0.16 U	0.16 U	0.23	0.16 U	0.15 U	0.18 U
Acetophenone	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Anthracene	100	100	1000	MG/KG	0.54	0.15	0.11 U	0.12 U	0.12 U	0.12 U	0.24	0.12 U	0.12 U	0.13 U
Benzo(A)Anthracene	**1**	1	1	MG/KG	**1.3**	0.15	0.053 J	0.12 U	0.12 U	0.12 U	0.88	0.12 U	0.12 U	0.13 U
Benzo(A)Pyrene	**1**	1	22	MG/KG	**1.2**	0.1 J	0.15 U	0.15 U	0.16 U	0.16 U	0.89	0.16 U	0.15 U	0.18 U
Benzo(B)Fluoranthene	**1**	1	1.7	MG/KG	**1.5**	0.12	0.052 J	0.12 U	0.12 U	0.12 U	**1.3**	0.12 U	0.12 U	0.13 U
Benzo(G,H,I)Perylene	100	100	1000	MG/KG	0.68	0.038 J	0.027 J	0.15 U	0.16 U	0.16 U	0.63	0.16 U	0.15 U	0.18 U
Benzo(K)Fluoranthene	**0.8**	3.9	1.7	MG/KG	0.42	0.058 J	0.11 U	0.12 U	0.12 U	0.12 U	0.3	0.12 U	0.12 U	0.13 U
Benzoic Acid	--	--	--	MG/KG	0.57 URV	0.65 URV	0.62 URV	0.62 U	0.65 UJV	0.66 UJV	0.58 U	0.63 U	0.62 U	0.71 U
Benzyl Alcohol	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-3
				Sample Date:	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
				Sample Depth (ft bls):	3 - 5	9 - 11	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	12.5 - 14.5	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.05 J	0.46 U	0.44 U	0.44 U	0.46 U	0.47 U	0.41 U	0.44 U	0.44 U	0.5 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.19 U	0.22 U	0.21 U	0.21 U	0.22 U	0.22 U	0.19 U	0.21 U	0.21 U	0.24 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.16 U	0.18 U	0.17 U	0.17 U	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.2 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.21 U	0.24 U	0.23 U	0.23 U	0.24 U	0.25 U	0.22 U	0.23 U	0.23 U	0.26 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.16 J	0.2 U	0.12 J	0.19 U	0.2 UV	0.2 UV	0.18 U	0.19 U	0.19 U	0.22 U
Carbazole	--	--	--	MG/KG	0.25 J-V	0.054 J-V	0.19 U	0.19 U	0.2 U	0.2 U	0.074 J	0.19 U	0.19 U	0.22 U
Chrysene	**1**	3.9	1	MG/KG	**1.3**	0.12	0.046 J	0.12 U	0.12 U	0.12 U	0.89	0.12 U	0.12 U	0.13 U
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.14	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U	0.12	0.12 U	0.12 U	0.13 U
Dibenzofuran	**7**	59	210	MG/KG	0.22	0.05 J	0.19 U	0.19 U	0.2 U	0.2 U	0.034 J	0.19 U	0.19 U	0.22 U
Diethyl Phthalate	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Dimethyl Phthalate	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Fluoranthene	100	100	1000	MG/KG	3	0.36	0.1 J	0.12 U	0.12 U	0.12 U	1.7	0.12 U	0.12 U	0.028 J
Fluorene	30	100	386	MG/KG	0.27	0.087 J	0.19 U	0.19 U	0.2 U	0.2 U	0.064 J	0.19 U	0.19 U	0.22 U
Hexachlorobenzene	0.33	1.2	3.2	MG/KG	0.1 U	0.12 U	0.11 U	0.12 U	0.12 U	0.12 U	0.11 U	0.12 U	0.12 U	0.13 U
Hexachlorobutadiene	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.5 U	0.57 U	0.55 U	0.55 U	0.58 U	0.59 U	0.51 U	0.56 U	0.55 U	0.63 U
Hexachloroethane	--	--	--	MG/KG	0.14 U	0.16 U	0.15 U	0.15 U	0.16 U	0.16 U	0.14 U	0.16 U	0.15 U	0.18 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	0.5	8.2	MG/KG	**0.72**	0.048 J	0.029 J	0.15 U	0.16 U	0.16 U	**0.67**	0.16 U	0.15 U	0.18 U
Isophorone	--	--	--	MG/KG	0.16 U	0.18 U	0.17 U	0.17 U	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.2 U
Naphthalene	**12**	100	12	MG/KG	0.34	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.077 J	0.19 U	0.19 U	0.22 U
Nitrobenzene	--	--	--	MG/KG	0.16 U	0.18 U	0.17 U	0.17 U	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.2 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.18 U	0.2 U	0.19 U	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.14 U	0.16 U	0.15 U	0.15 U	0.16 U	0.16 U	0.14 U	0.16 U	0.15 U	0.18 U
Pentachlorophenol	0.8	6.7	0.8	MG/KG	0.14 U	0.16 U	0.15 URV	0.15 U	0.16 U	0.16 U	0.14 U	0.16 U	0.15 U	0.18 U
Phenanthrene	**100**	100	1000	MG/KG	2.8	0.44	0.069 J	0.12 U	0.12 U	0.12 U	0.87	0.12 U	0.12 U	0.13 U
Phenol	0.33	100	0.33	MG/KG	0.18 U	0.2 U	0.19 URV	0.19 U	0.2 U	0.2 U	0.18 U	0.19 U	0.19 U	0.22 U
Pyrene	100	100	1000	MG/KG	2.6	0.28	0.092 J	0.12 U	0.12 U	0.12 U	1.8	0.12 U	0.12 U	0.028 J

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-3	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	SB-1	SB-1	SB-10
				Sample Date:	09/20/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/18/2017
				Sample Depth (ft bls):	5 - 7	2.5 - 4.5	8 - 10	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5	10 - 12	0 - 2
				Normal or Field Duplicate:	FD	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 URV	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.12 U	0.099 U	0.13 U	0.11 URV	0.12 U	0.12 U	0.12 U	0.11 U	0.13 U	1.1 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.18 U	0.15 U	0.19 U	0.17 URV	0.18 U	0.18 U	0.17 U	0.16 U	0.2 U	1.6 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 URV	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.95 U	0.8 U	1 U	0.89 URV	0.94 U	0.93 U	0.93 U	0.87 U	1.1 U	8.6 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2-Chloronaphthalene	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2-Chlorophenol	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 URV	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2-Methylnaphthalene	--	--	--	MG/KG	0.24 U	0.046 J	0.11 J	0.22 U	0.24 U	0.23 U	0.23 U	0.086 J	0.034 J	8.4
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.2 U	0.16 U	0.22 U	0.18 URV	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2-Nitroaniline	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
2-Nitrophenol	--	--	--	MG/KG	0.42 U	0.36 U	0.46 U	0.4 URV	0.42 U	0.42 U	0.42 U	0.39 U	0.48 U	3.9 U
3- And 4- Methylphenol (Total)	**0.33**	100	0.33	MG/KG	0.28 U	0.24 U	0.31 U	0.26 URV	0.28 U	0.28 U	0.28 U	0.26 U	**0.41**	**0.48 J**
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 UJV	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
3-Nitroaniline	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.51 U	0.43 U	0.56 U	0.48 URV	0.51 U	0.5 U	0.5 U	0.47 U	0.58 U	4.6 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 URV	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
4-Chloroaniline	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
4-Nitroaniline	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
4-Nitrophenol	--	--	--	MG/KG	0.28 U	0.23 U	0.3 U	0.26 URV	0.28 U	0.27 U	0.27 U	0.25 U	0.31 U	2.5 U
Acenaphthene	20	100	98	MG/KG	0.16 U	0.14	0.75	0.15 U	0.16 U	0.16 U	0.15 U	0.22	0.097 J	9.6
Acenaphthylene	100	100	107	MG/KG	0.16 U	0.21	0.17 U	0.15 U	0.16 U	0.16 U	0.15 U	0.25	0.071 J	4.4
Acetophenone	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Anthracene	100	100	1000	MG/KG	0.12 U	0.44	1.8	0.11 U	0.12 U	0.12 U	0.12 U	0.5	0.44	26
Benzo(A)Anthracene	**1**	1	1	MG/KG	0.12 U	**1.1**	**2.4**	0.039 J	0.12 U	0.12 U	0.12 U	**1.6**	**1.9**	**31**
Benzo(A)Pyrene	**1**	1	22	MG/KG	0.16 U	**1.1**	**2**	0.15 U	0.16 U	0.16 U	0.15 U	**1.6**	**2.2**	**28**
Benzo(B)Fluoranthene	**1**	1	1.7	MG/KG	0.12 U	**1.4**	**2.5**	0.042 J	0.12 U	0.12 U	0.12 U	**2.3**	**2.5**	**35**
Benzo(G,H,I)Perylene	100	100	1000	MG/KG	0.16 U	0.62	0.8	0.15 U	0.16 U	0.16 U	0.15 U	1	1	15
Benzo(K)Fluoranthene	**0.8**	3.9	1.7	MG/KG	0.12 U	0.34	0.67	0.11 U	0.12 U	0.12 U	0.12 U	0.48	0.66	**11**
Benzoic Acid	--	--	--	MG/KG	0.64 U	0.54 URV	0.7 URV	0.6 URV	0.64 UJV	0.63 U	0.63 U	0.58 URV	0.72 URV	5.8 URV
Benzyl Alcohol	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-3	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	SB-1	SB-1	SB-10
				Sample Date:	09/20/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/18/2017
				Sample Depth (ft bls):	5 - 7	2.5 - 4.5	8 - 10	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5	10 - 12	0 - 2
				Normal or Field Duplicate:	FD	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.45 U	0.38 U	0.49 U	0.42 U	0.45 U	0.44 U	0.44 U	0.41 U	0.51 U	2.3 J
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.21 U	0.18 U	0.23 U	0.2 U	0.21 U	0.21 U	0.21 U	0.2 U	0.24 U	1.9 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.18 U	0.15 U	0.19 U	0.17 U	0.18 U	0.18 U	0.17 U	0.16 U	0.2 U	1.6 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.24 U	0.2 U	0.26 U	0.22 U	0.24 U	0.23 U	0.23 U	0.22 U	0.27 U	2.1 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.4	0.2 UV	0.19 UV	0.19 U	0.096 J	0.22 U	1.8 U
Carbazole	--	--	--	MG/KG	0.2 U	0.14 J-V	0.4 J-V	0.18 U	0.2 U	0.19 U	0.19 U	0.21 J-V	0.18 J-V	10
Chrysene	**1**	3.9	1	MG/KG	0.12 U	0.98	**2**	0.034 J	0.12 U	0.12 U	0.12 U	**1.6**	**1.6**	**29**
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.12 U	0.13	0.22	0.11 U	0.12 U	0.12 U	0.12 U	0.2	0.28	**3.4**
Dibenzofuran	**7**	59	210	MG/KG	0.2 U	0.08 J	0.32	0.18 U	0.2 U	0.19 U	0.19 U	0.13 J	0.068 J	**11**
Diethyl Phthalate	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Dimethyl Phthalate	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.039 J	0.22 U	1.8 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Fluoranthene	100	100	1000	MG/KG	0.12 U	2.4	5	0.075 J	0.12 U	0.12 U	0.12 U	3.2	2.1	82
Fluorene	30	100	386	MG/KG	0.2 U	0.14 J	0.74	0.18 U	0.2 U	0.19 U	0.19 U	0.19	0.13 J	15
Hexachlorobenzene	0.33	1.2	3.2	MG/KG	0.12 U	0.099 U	0.13 U	0.11 U	0.12 U	0.12 U	0.12 U	0.11 U	0.13 U	1.1 U
Hexachlorobutadiene	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.56 U	0.47 U	0.62 U	0.53 U	0.56 U	0.56 U	0.55 U	0.52 U	0.64 U	5.1 U
Hexachloroethane	--	--	--	MG/KG	0.16 U	0.13 U	0.17 U	0.15 U	0.16 U	0.16 U	0.15 U	0.14 U	0.18 U	1.4 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	0.5	8.2	MG/KG	0.16 U	**0.66**	**1**	0.15 U	0.16 U	0.16 U	0.15 U	**1.1**	**1.3**	**17**
Isophorone	--	--	--	MG/KG	0.18 U	0.15 U	0.19 U	0.17 U	0.18 U	0.18 U	0.17 U	0.16 U	0.2 U	1.6 U
Naphthalene	**12**	100	12	MG/KG	0.2 U	0.091 J	0.12 J	0.18 U	0.2 U	0.19 U	0.19 U	0.15 J	0.098 J	**23**
Nitrobenzene	--	--	--	MG/KG	0.18 U	0.15 U	0.19 U	0.17 U	0.18 U	0.18 U	0.17 U	0.16 U	0.2 U	1.6 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.2 U	0.16 U	0.22 U	0.18 U	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.16 U	0.13 U	0.17 U	0.15 U	0.16 U	0.16 U	0.15 U	0.14 U	0.18 U	1.4 U
Pentachlorophenol	0.8	6.7	0.8	MG/KG	0.16 U	0.13 U	0.17 U	0.15 URV	0.16 U	0.16 U	0.15 U	0.14 U	0.18 U	1.4 U
Phenanthrene	**100**	100	1000	MG/KG	0.12 U	1.7	5	0.05 J	0.12 U	0.12 U	0.12 U	2.2	1.2	93
Phenol	0.33	100	0.33	MG/KG	0.2 U	0.16 U	0.22 U	0.18 URV	0.2 U	0.19 U	0.19 U	0.18 U	0.22 U	1.8 U
Pyrene	100	100	1000	MG/KG	0.12 U	2.2	4	0.069 J	0.12 U	0.12 U	0.12 U	3	1.8	60

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11
				Sample Date:	09/18/2017	09/18/2017	09/18/2017	09/29/2017	09/29/2017	09/29/2017
				Sample Depth (ft bls):	5 - 7	12 - 14	18 - 20	0 - 2	3 - 5	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.12 U	0.12 U	0.11 U	0.21 U	0.46 U	0.12 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.18 U	0.18 U	0.17 U	0.32 U	0.69 U	0.18 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.075 J	0.2 U	0.19 U	0.36 U	0.38 J	0.2 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.94 U	0.96 U	0.91 U	1.7 U	3.7 U	0.97 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2-Chloronaphthalene	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2-Chlorophenol	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2-Methylnaphthalene	--	--	--	MG/KG	2.5	0.038 J	0.23 U	0.74	10	0.24 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.075 J	0.2 U	0.19 U	0.36 U	0.32 J	0.2 U
2-Nitroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
2-Nitrophenol	--	--	--	MG/KG	0.42 U	0.43 U	0.41 U	0.77 U	1.6 U	0.44 U
3- And 4- Methylphenol (Total)	**0.33**	100	0.33	MG/KG	0.2 J	0.29 U	0.27 U	0.081 J	**0.87 J**	0.29 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
3-Nitroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.51 U	0.52 U	0.49 U	0.93 U	2 U	0.53 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
4-Chloroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
4-Nitroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
4-Nitrophenol	--	--	--	MG/KG	0.27 U	0.28 U	0.26 U	0.5 U	1.1 U	0.28 U
Acenaphthene	20	100	98	MG/KG	2.4	0.048 J	0.15 U	2.6	17	0.16 U
Acenaphthylene	100	100	107	MG/KG	0.64	0.16 U	0.15 U	1.2	3.5	0.16 U
Acetophenone	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Anthracene	100	100	1000	MG/KG	6.3	0.11 J	0.11 U	6.2	29	0.12 U
Benzo(A)Anthracene	**1**	1	1	MG/KG	**6.2**	0.14	0.11 U	**17**	**42**	0.12 U
Benzo(A)Pyrene	**1**	1	22	MG/KG	**5.4**	0.12 J	0.15 U	**13**	**30**	0.16 U
Benzo(B)Fluoranthene	**1**	1	1.7	MG/KG	**6.5**	0.14	0.11 U	**22**	**49**	0.12 U
Benzo(G,H,I)Perylene	100	100	1000	MG/KG	2.6	0.067 J	0.15 U	7.9	17	0.16 U
Benzo(K)Fluoranthene	**0.8**	3.9	1.7	MG/KG	**1.9**	0.05 J	0.11 U	**4.1**	**10**	0.12 U
Benzoic Acid	--	--	--	MG/KG	0.63 URV	0.64 URV	0.61 URV	1.2 URV	2.5 URV	0.66 URV
Benzyl Alcohol	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11
			Sample Date:	09/18/2017	09/18/2017	09/18/2017	09/29/2017	09/29/2017	09/29/2017
			Sample Depth (ft bls):	5 - 7	12 - 14	18 - 20	0 - 2	3 - 5	15 - 17
			Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.66	0.45 U	0.43 U	0.3 J	3	0.46 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.21 U	0.22 U	0.2 U	0.39 U	0.83 U	0.22 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.18 U	0.18 U	0.17 U	0.32 U	0.69 U	0.18 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.24 U	0.24 U	0.23 U	0.43 U	0.92 U	0.24 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Carbazole	--	--	--	MG/KG	2.5	0.05 J	0.19 U	2.2	13	0.2 U
Chrysene	**1**	3.9	1	MG/KG	**5.3**	0.13	0.11 U	**14**	**36**	0.12 U
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	**0.64**	0.12 U	0.11 U	**1.7**	**4**	0.12 U
Dibenzofuran	**7**	59	210	MG/KG	3.2	0.056 J	0.19 U	2	**15**	0.2 U
Diethyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Dimethyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Fluoranthene	100	100	1000	MG/KG	16	0.36	0.032 J	37	100	0.023 J
Fluorene	30	100	386	MG/KG	4.2	0.075 J	0.19 U	2.9	22	0.2 U
Hexachlorobenzene	0.33	1.2	3.2	MG/KG	0.12 U	0.12 U	0.11 U	0.21 U	0.46 U	0.12 U
Hexachlorobutadiene	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.56 U	0.57 U	0.54 U	1 U	2.2 U	0.58 U
Hexachloroethane	--	--	--	MG/KG	0.16 U	0.16 U	0.15 U	0.29 U	0.61 U	0.16 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	0.5	8.2	MG/KG	**2.9**	0.073 J	0.15 U	**8.6**	**19**	0.16 U
Isophorone	--	--	--	MG/KG	0.18 U	0.18 U	0.17 U	0.32 U	0.69 U	0.18 U
Naphthalene	**12**	100	12	MG/KG	6.8	0.11 J	0.19 U	0.95	**24**	0.2 U
Nitrobenzene	--	--	--	MG/KG	0.18 U	0.18 U	0.17 U	0.32 U	0.69 U	0.18 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.2 U	0.2 U	0.19 U	0.36 U	0.77 U	0.2 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.16 U	0.16 U	0.15 U	0.29 U	0.61 U	0.16 U
Pentachlorophenol	0.8	6.7	0.8	MG/KG	0.16 UJV	0.16 UJV	0.15 UJV	0.29 U	0.61 U	0.16 U
Phenanthrene	**100**	100	1000	MG/KG	21	0.43	0.043 J	29	**120**	0.12 U
Phenol	0.33	100	0.33	MG/KG	0.13 J	0.2 U	0.19 U	0.36 U	0.32 J	0.2 U
Pyrene	100	100	1000	MG/KG	12	0.3	0.027 J	34	88	0.02 J

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-12	SB-12	SB-2	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-3
			Sample Date:		09/29/2017	09/29/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		0 - 2	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.18 U	0.16 U	0.16 U	0.18 U	0.18 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.94 U	0.96 U	0.85 U	0.89 U	0.9 U	0.96 U	0.85 U	0.88 U	0.96 U	0.96 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2-Chloronaphthalene	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2-Chlorophenol	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2-Methylnaphthalene	--	--	--	MG/KG	0.23 U	0.24 U	0.058 J	0.22 U	0.23 U	0.24 U	0.12 J	0.22 U	0.24 U	0.24 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2-Nitroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
2-Nitrophenol	--	--	--	MG/KG	0.42 U	0.43 U	0.38 U	0.4 U	0.41 U	0.43 U	0.38 U	0.4 U	0.43 U	0.43 U
3- And 4- Methylphenol (Total)	**0.33**	100	0.33	MG/KG	0.28 U	0.29 U	0.26 U	0.27 U	0.27 U	0.29 U	0.26 U	0.26 U	0.29 U	0.29 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 UJV	0.2 UJV	0.2 UJV
3-Nitroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.51 U	0.52 U	0.46 U	0.48 U	0.49 U	0.52 U	0.46 U	0.48 U	0.52 U	0.52 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
4-Chloroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
4-Nitroaniline	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
4-Nitrophenol	--	--	--	MG/KG	0.27 U	0.28 U	0.25 U	0.26 U	0.26 U	0.28 U	0.25 U	0.26 U	0.28 U	0.28 U
Acenaphthene	20	100	98	MG/KG	0.16 U	0.16 U	0.079 J	0.15 U	0.15 U	0.16 U	0.21	0.15 U	0.16 U	0.16 U
Acenaphthylene	100	100	107	MG/KG	0.16 U	0.16 U	0.22	0.15 U	0.15 U	0.16 U	0.25	0.15 U	0.16 U	0.16 U
Acetophenone	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Anthracene	100	100	1000	MG/KG	0.12 U	0.12 U	0.23	0.11 U	0.11 U	0.12 U	0.5	0.11 U	0.12 U	0.12 U
Benzo(A)Anthracene	**1**	1	1	MG/KG	0.12 U	0.12 U	0.64	0.079 J	0.11 U	0.12 U	**1.1**	0.11 U	0.12 U	0.12 U
Benzo(A)Pyrene	**1**	1	22	MG/KG	0.16 U	0.16 U	0.61	0.064 J	0.15 U	0.16 U	0.83	0.15 U	0.16 U	0.16 U
Benzo(B)Fluoranthene	**1**	1	1.7	MG/KG	0.12 U	0.12 U	0.86	0.077 J	0.11 U	0.12 U	**1.3**	0.11 U	0.12 U	0.12 U
Benzo(G,H,I)Perylene	100	100	1000	MG/KG	0.16 U	0.16 U	0.42	0.035 J	0.15 U	0.16 U	0.57	0.15 U	0.16 U	0.16 U
Benzo(K)Fluoranthene	**0.8**	3.9	1.7	MG/KG	0.12 U	0.12 U	0.19	0.11 U	0.11 U	0.12 U	0.38	0.11 U	0.12 U	0.12 U
Benzoic Acid	--	--	--	MG/KG	0.63 URV	0.64 URV	0.57 U	0.6 U	0.61 U	0.65 URV	0.58 URV	0.6 UJV	0.65 UJV	0.65 UJV
Benzyl Alcohol	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-12	SB-12	SB-2	SB-2	SB-2	SB-2	SB-3	SB-3	SB-3	SB-3
				Sample Date:	09/29/2017	09/29/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
				Sample Depth (ft bls):	0 - 2	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.45 U	0.45 U	0.4 U	0.42 U	0.43 U	0.46 U	0.4 U	0.42 U	0.46 U	0.45 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.21 U	0.21 U	0.19 U	0.2 U	0.2 U	0.22 U	0.19 U	0.2 U	0.22 U	0.22 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.18 U	0.16 U	0.16 U	0.18 U	0.18 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.23 U	0.24 U	0.21 U	0.22 U	0.23 U	0.24 U	0.21 U	0.22 U	0.24 U	0.24 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.21 UV	0.2 UV	0.2 UV
Carbazole	--	--	--	MG/KG	0.2 U	0.2 U	0.069 J	0.18 U	0.19 U	0.2 U	0.18	0.18 U	0.2 U	0.2 U
Chrysene	**1**	3.9	1	MG/KG	0.12 U	0.12 U	0.63	0.07 J	0.11 U	0.12 U	**1.1**	0.11 U	0.12 U	0.12 U
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.12 U	0.12 U	0.086 J	0.11 U	0.11 U	0.12 U	0.13	0.11 U	0.12 U	0.12 U
Dibenzofuran	**7**	59	210	MG/KG	0.2 U	0.2 U	0.056 J	0.18 U	0.19 U	0.2 U	0.19	0.18 U	0.2 U	0.2 U
Diethyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Dimethyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Fluoranthene	100	100	1000	MG/KG	0.12 U	0.12 U	1.2	0.081 J	0.11 U	0.12 U	2.1	0.11 U	0.12 U	0.12 U
Fluorene	30	100	386	MG/KG	0.2 U	0.2 U	0.081 J	0.18 U	0.19 U	0.2 U	0.22	0.18 U	0.2 U	0.2 U
Hexachlorobenzene	0.33	1.2	3.2	MG/KG	0.12 U	0.12 U	0.11 U	0.11 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U
Hexachlorobutadiene	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.56 U	0.57 U	0.51 U	0.53 U	0.54 U	0.57 U	0.51 U	0.53 U	0.58 U	0.57 U
Hexachloroethane	--	--	--	MG/KG	0.16 U	0.16 U	0.14 U	0.15 U	0.15 U	0.16 U	0.14 U	0.15 U	0.16 U	0.16 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	0.5	8.2	MG/KG	0.16 U	0.16 U	0.45	0.04 J	0.15 U	0.16 U	**0.61**	0.15 U	0.16 U	0.16 U
Isophorone	--	--	--	MG/KG	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.18 U	0.16 U	0.16 U	0.18 U	0.18 U
Naphthalene	**12**	100	12	MG/KG	0.2 U	0.2 U	0.14 J	0.18 U	0.19 U	0.2 U	0.21	0.18 U	0.2 U	0.2 U
Nitrobenzene	--	--	--	MG/KG	0.18 U	0.18 U	0.16 U	0.17 U	0.17 U	0.18 U	0.16 U	0.16 U	0.18 U	0.18 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.16 U	0.16 U	0.14 U	0.15 U	0.15 U	0.16 U	0.14 U	0.15 U	0.16 U	0.16 U
Pentachlorophenol	0.8	6.7	0.8	MG/KG	0.16 U	0.16 U	0.14 U	0.15 U	0.15 U	0.16 U	0.14 UJV	0.15 U	0.16 U	0.16 U
Phenanthrene	**100**	100	1000	MG/KG	0.12 U	0.12 U	0.87	0.051 J	0.11 U	0.12 U	2	0.11 U	0.12 U	0.12 U
Phenol	0.33	100	0.33	MG/KG	0.2 U	0.2 U	0.18 U	0.18 U	0.19 U	0.2 U	0.18 U	0.18 U	0.2 U	0.2 U
Pyrene	100	100	1000	MG/KG	0.12 U	0.12 U	1.3	0.088 J	0.11 U	0.12 U	1.9	0.018 J	0.12 U	0.12 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Sample Designation:					SB-4	SB-4	SB-5	SB-5	SB-6	SB-6	SB-6	SB-6
Sample Date:					09/27/2017	09/27/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
Sample Depth (ft bls):					2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11	0 - 2	5 - 7	11.5 - 13.5	15 - 17
Normal or Field Duplicate:					N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit								
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.1 U	1.2 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.16 U	1.7 U	0.17 U	0.17 U	0.16 U	0.17 U	0.17 U	0.18 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.83 U	9.3 U	0.89 U	0.93 U	0.86 U	0.91 U	0.93 U	0.94 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Chloronaphthalene	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Chlorophenol	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Methylnaphthalene	--	--	--	MG/KG	0.19 J	1.2 J	0.069 J	0.23 U	0.21 U	0.23 U	0.23 U	0.24 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Nitroaniline	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Nitrophenol	--	--	--	MG/KG	0.37 U	4.2 U	0.4 U	0.42 U	0.38 U	0.41 U	0.42 U	0.42 U
3- And 4- Methylphenol (Total)	**0.33**	100	0.33	MG/KG	0.055 J	2.8 U	0.27 U	0.28 U	0.26 U	0.27 U	0.28 U	0.28 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 UJV	0.19 UJV	0.2 UJV
3-Nitroaniline	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.45 U	5 U	0.48 U	0.5 U	0.46 U	0.5 U	0.5 U	0.51 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Chloroaniline	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Nitroaniline	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Nitrophenol	--	--	--	MG/KG	0.24 U	2.7 U	0.26 U	0.27 U	0.25 U	0.27 U	0.27 U	0.28 U
Acenaphthene	20	100	98	MG/KG	0.33	1.7	0.1 J	0.15 U	0.026 J	0.15 U	0.16 U	0.16 U
Acenaphthylene	100	100	107	MG/KG	0.16	1.2 J	0.14 J	0.15 U	0.14 U	0.15 U	0.16 U	0.16 U
Acetophenone	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Anthracene	100	100	1000	MG/KG	0.54	15	0.33	0.12 U	0.06 J	0.11 U	0.12 U	0.12 U
Benzo(A)Anthracene	**1**	1	1	MG/KG	**1.3**	**42**	**1.2**	0.12 U	0.14	0.11 U	0.12 U	0.12 U
Benzo(A)Pyrene	**1**	1	22	MG/KG	**1.2**	**54**	**1.3**	0.15 U	0.12 J	0.15 U	0.16 U	0.16 U
Benzo(B)Fluoranthene	**1**	1	1.7	MG/KG	**1.5**	**57**	**1.6**	0.12 U	0.16	0.11 U	0.12 U	0.12 U
Benzo(G,H,I)Perylene	100	100	1000	MG/KG	0.7	28	0.82	0.15 U	0.081 J	0.15 U	0.16 U	0.16 U
Benzo(K)Fluoranthene	**0.8**	3.9	1.7	MG/KG	0.46	**17**	0.54	0.12 U	0.052 J	0.11 U	0.12 U	0.12 U
Benzoic Acid	--	--	--	MG/KG	0.56 URV	6.3 URV	0.6 URV	0.63 URV	0.58 URV	0.62 UJV	0.63 UJV	0.64 UJV
Benzyl Alcohol	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	3.7	0.19 U	0.19 U	0.2 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-4	SB-4	SB-5	SB-5	SB-6	SB-6	SB-6	SB-6
			Sample Date:		09/27/2017	09/27/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11	0 - 2	5 - 7	11.5 - 13.5	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit								
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.059 J	4.4 U	0.42 U	0.44 U	0.41 U	0.43 U	0.44 U	0.45 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.19 U	2.1 U	0.2 U	0.21 U	0.19 U	0.2 U	0.21 U	0.21 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.16 U	1.7 U	0.17 U	0.17 U	0.16 U	0.17 U	0.17 U	0.18 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.21 U	2.3 U	0.22 U	0.23 U	0.21 U	0.23 U	0.23 U	0.24 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.11 J	1.9 U	0.08 J	0.19 U	1.5	0.19 UV	0.19 UV	0.2 UV
Carbazole	--	--	--	MG/KG	0.32 J-V	4.5 J-V	0.13 J-V	0.19 UJV	0.028 J	0.19 U	0.19 U	0.2 U
Chrysene	**1**	3.9	1	MG/KG	**1.2**	**35**	**1.2**	0.12 U	0.13	0.11 U	0.12 U	0.12 U
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.14	**8.3**	0.17	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U
Dibenzofuran	**7**	59	210	MG/KG	0.27	3.2	0.064 J	0.19 U	0.021 J	0.19 U	0.19 U	0.2 U
Diethyl Phthalate	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Dimethyl Phthalate	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.17 U	1.9 U	0.099 J	0.19 U	0.74	0.19 U	0.19 U	0.2 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Fluoranthene	100	100	1000	MG/KG	3	46	2.3	0.12 U	0.3	0.11 U	0.12 U	0.12 U
Fluorene	30	100	386	MG/KG	0.28	5.6	0.1 J	0.19 U	0.032 J	0.19 U	0.19 U	0.2 U
Hexachlorobenzene	0.33	1.2	3.2	MG/KG	0.1 U	1.2 U	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U
Hexachlorobutadiene	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.5 U	5.5 U	0.53 U	0.55 U	0.51 U	0.54 U	0.56 U	0.56 U
Hexachloroethane	--	--	--	MG/KG	0.14 U	1.5 U	0.15 U	0.15 U	0.14 U	0.15 U	0.16 U	0.16 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	0.5	8.2	MG/KG	**0.75**	**36**	**0.9**	0.15 U	0.081 J	0.15 U	0.16 U	0.16 U
Isophorone	--	--	--	MG/KG	0.16 U	1.7 U	0.17 U	0.17 U	0.16 U	0.17 U	0.17 U	0.18 U
Naphthalene	**12**	100	12	MG/KG	0.47	1.7 J	0.083 J	0.19 U	0.051 J	0.19 U	0.19 U	0.2 U
Nitrobenzene	--	--	--	MG/KG	0.16 U	1.7 U	0.17 U	0.17 U	0.16 U	0.17 U	0.17 U	0.18 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.14 U	1.5 U	0.15 U	0.15 U	0.14 U	0.15 U	0.16 U	0.16 U
Pentachlorophenol	0.8	6.7	0.8	MG/KG	0.14 U	1.5 U	0.15 U	0.15 U	0.14 UJV	0.15 U	0.16 U	0.16 U
Phenanthrene	**100**	100	1000	MG/KG	2.8	38	1.3	0.12 U	0.28	0.11 U	0.12 U	0.12 U
Phenol	0.33	100	0.33	MG/KG	0.17 U	1.9 U	0.18 U	0.19 U	0.18 U	0.19 U	0.19 U	0.2 U
Pyrene	100	100	1000	MG/KG	2.6	38	2	0.12 U	0.28	0.11 U	0.12 U	0.12 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-7	SB-7	SB-8	SB-8	SB-8	SB-8	SB-9	SB-9	SB-9	SB-9
			Sample Date:		09/27/2017	09/27/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		2.5 - 4.5	10 - 12	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	8 - 10	10 - 12	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
1,2,4,5-Tetrachlorobenzene	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
1,2,4-Trichlorobenzene	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
1,2-Dichlorobenzene	1.1	100	1.1	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
1,3-Dichlorobenzene	2.4	49	2.4	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
1,4-Dichlorobenzene	1.8	13	1.8	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2,4,5-Trichlorophenol	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2,4,6-Trichlorophenol	--	--	--	MG/KG	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U	0.1 U	0.12 U	0.11 U	0.12 U
2,4-Dichlorophenol	--	--	--	MG/KG	0.17 U	0.17 U	0.16 U	0.17 U	0.18 U	0.19 U	0.16 U	0.17 U	0.17 U	0.18 U
2,4-Dimethylphenol	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2,4-Dinitrophenol	--	--	--	MG/KG	0.89 U	0.92 U	0.86 U	0.9 U	0.97 U	0.99 U	0.84 U	0.92 U	0.91 U	0.98 U
2,4-Dinitrotoluene	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2,6-Dinitrotoluene	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Chloronaphthalene	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Chlorophenol	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Methylnaphthalene	--	--	--	MG/KG	0.14 J	0.23 U	0.035 J	0.22 U	0.24 U	0.25 U	1.5	0.23 U	0.028 J	0.24 U
2-Methylphenol (O-Cresol)	0.33	100	0.33	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Nitroaniline	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
2-Nitrophenol	--	--	--	MG/KG	0.4 U	0.42 U	0.38 U	0.41 U	0.44 U	0.45 U	0.38 U	0.42 U	0.41 U	0.44 U
3- And 4- Methylphenol (Total)	**0.33**	100	0.33	MG/KG	0.27 U	0.28 U	0.26 U	0.27 U	0.29 U	0.3 U	0.065 J	0.28 U	0.27 U	0.29 U
3,3'-Dichlorobenzidine	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 UJV	0.19 UJV	0.2 UJV
3-Nitroaniline	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
4,6-Dinitro-2-Methylphenol	--	--	--	MG/KG	0.48 U	0.5 U	0.46 U	0.49 U	0.53 U	0.54 U	0.46 U	0.5 U	0.49 U	0.53 U
4-Bromophenyl Phenyl Ether	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Chloro-3-Methylphenol	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Chloroaniline	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Chlorophenyl Phenyl Ether	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Nitroaniline	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
4-Nitrophenol	--	--	--	MG/KG	0.26 U	0.27 U	0.25 U	0.26 U	0.28 U	0.29 U	0.25 U	0.27 U	0.27 U	0.28 U
Acenaphthene	20	100	98	MG/KG	0.068 J	0.15 U	0.074 J	0.15 U	0.16 U	0.16 U	2.5	0.15 U	0.086 J	0.16 U
Acenaphthylene	100	100	107	MG/KG	0.22	0.15 U	0.14	0.15 U	0.16 U	0.16 U	1.7	0.15 U	0.15 U	0.16 U
Acetophenone	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Anthracene	100	100	1000	MG/KG	0.28	0.12 U	0.22	0.11 U	0.12 U	0.12 U	6.5	0.12 U	0.27	0.12 U
Benzo(A)Anthracene	**1**	1	1	MG/KG	1	0.049 J	0.76	0.11 U	0.12 U	0.12 U	**10**	0.12 U	0.53	0.032 J
Benzo(A)Pyrene	**1**	1	22	MG/KG	1	0.15 U	0.77	0.15 U	0.16 U	0.16 U	**9.7**	0.15 U	0.44	0.16 U
Benzo(B)Fluoranthene	**1**	1	1.7	MG/KG	**1.3**	0.055 J	0.97	0.11 U	0.12 U	0.12 U	**12**	0.12 U	0.51	0.12 U
Benzo(G,H,I)Perylene	100	100	1000	MG/KG	0.6	0.15 U	0.59	0.15 U	0.16 U	0.16 U	5.6	0.15 U	0.24	0.16 U
Benzo(K)Fluoranthene	**0.8**	3.9	1.7	MG/KG	0.35	0.12 U	0.31	0.11 U	0.12 U	0.12 U	**3.3**	0.12 U	0.17	0.12 U
Benzoic Acid	--	--	--	MG/KG	0.6 URV	0.62 URV	0.58 U	0.61 U	0.66 U	0.67 U	0.57 URV	0.62 UJV	0.62 UJV	0.66 UJV
Benzyl Alcohol	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Benzyl Butyl Phthalate	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U

Table 2. Summary of Semivolatile Organic Compounds in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-7	SB-7	SB-8	SB-8	SB-8	SB-8	SB-9	SB-9	SB-9	SB-9
				Sample Date:	09/27/2017	09/27/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
				Sample Depth (ft bls):	2.5 - 4.5	10 - 12	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	8 - 10	10 - 12	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
Biphenyl (Diphenyl)	--	--	--	MG/KG	0.42 U	0.44 U	0.41 U	0.43 U	0.46 U	0.47 U	0.51	0.44 U	0.43 U	0.46 U
Bis(2-Chloroethoxy) Methane	--	--	--	MG/KG	0.2 U	0.21 U	0.19 U	0.2 U	0.22 U	0.22 U	0.19 U	0.21 U	0.2 U	0.22 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	--	--	--	MG/KG	0.17 U	0.17 U	0.16 U	0.17 U	0.18 U	0.19 U	0.16 U	0.17 U	0.17 U	0.18 U
Bis(2-Chloroisopropyl) Ether	--	--	--	MG/KG	0.22 U	0.23 U	0.21 U	0.22 U	0.24 U	0.25 U	0.21 U	0.23 U	0.23 U	0.24 U
Bis(2-Ethylhexyl) Phthalate	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.31	0.19 UV	0.19 UV	0.2 UV
Carbazole	--	--	--	MG/KG	0.06 J-V	0.19 UJV	0.079 J	0.19 U	0.2 U	0.21 U	2.7	0.19 U	0.078 J	0.2 U
Chrysene	**1**	3.9	1	MG/KG	1	0.043 J	0.73	0.11 U	0.12 U	0.12 U	**9.2**	0.12 U	0.45	0.021 J
Dibenz(A,H)Anthracene	**0.33**	0.33	1000	MG/KG	0.12	0.12 U	0.12	0.11 U	0.12 U	0.12 U	**1.2**	0.12 U	0.053 J	0.12 U
Dibenzofuran	**7**	59	210	MG/KG	0.058 J	0.19 U	0.053 J	0.19 U	0.2 U	0.21 U	2.8	0.19 U	0.065 J	0.2 U
Diethyl Phthalate	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Dimethyl Phthalate	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Di-N-Butyl Phthalate	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Di-N-Octylphthalate	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.071 J	0.2 U
Fluoranthene	100	100	1000	MG/KG	1.9	0.062 J	1.5	0.038 J	0.12 U	0.12 U	23	0.12 U	1.1	0.048 J
Fluorene	30	100	386	MG/KG	0.07 J	0.19 U	0.079 J	0.19 U	0.2 U	0.21 U	3.8	0.19 U	0.12 J	0.2 U
Hexachlorobenzene	0.33	1.2	3.2	MG/KG	0.11 U	0.12 U	0.11 U	0.11 U	0.12 U	0.12 U	0.1 U	0.12 U	0.11 U	0.12 U
Hexachlorobutadiene	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Hexachlorocyclopentadiene	--	--	--	MG/KG	0.53 U	0.55 U	0.51 U	0.54 U	0.58 U	0.59 U	0.5 U	0.55 U	0.54 U	0.58 U
Hexachloroethane	--	--	--	MG/KG	0.15 U	0.15 U	0.14 U	0.15 U	0.16 U	0.16 U	0.14 U	0.15 U	0.15 U	0.16 U
Indeno(1,2,3-C,D)Pyrene	**0.5**	0.5	8.2	MG/KG	**0.64**	0.15 U	**0.62**	0.15 U	0.16 U	0.16 U	**6.2**	0.15 U	0.25	0.16 U
Isophorone	--	--	--	MG/KG	0.17 U	0.17 U	0.16 U	0.17 U	0.18 U	0.19 U	0.16 U	0.17 U	0.17 U	0.18 U
Naphthalene	**12**	100	12	MG/KG	0.15 J	0.19 U	0.068 J	0.19 U	0.2 U	0.21 U	2.7	0.19 U	0.049 J	0.2 U
Nitrobenzene	--	--	--	MG/KG	0.17 U	0.17 U	0.16 U	0.17 U	0.18 U	0.19 U	0.16 U	0.17 U	0.17 U	0.18 U
N-Nitrosodi-N-Propylamine	--	--	--	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
N-Nitrosodiphenylamine	--	--	--	MG/KG	0.15 U	0.15 U	0.14 U	0.15 U	0.16 U	0.16 U	0.14 U	0.15 U	0.15 U	0.16 U
Pentachlorophenol	0.8	6.7	0.8	MG/KG	0.15 U	0.15 U	0.14 U	0.15 U	0.16 U	0.16 U	0.14 UJV	0.15 U	0.15 U	0.16 U
Phenanthrene	**100**	100	1000	MG/KG	1	0.12 U	0.89	0.036 J	0.12 U	0.12 U	24	0.12 U	1.2	0.042 J
Phenol	0.33	100	0.33	MG/KG	0.19 U	0.19 U	0.18 U	0.19 U	0.2 U	0.21 U	0.18 U	0.19 U	0.19 U	0.2 U
Pyrene	100	100	1000	MG/KG	2.1	0.066 J	1.4	0.032 J	0.12 U	0.12 U	19	0.12 U	1.1	0.044 J

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-1	MW-1	MW-2	MW-2	MW-2	MW-2
				Sample Date:	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
				Sample Depth (ft bls):	3 - 5	9 - 11	0 - 2	5 - 7	10 - 12	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	4780	6480	7510	7220	3560	3660
Antimony	--	--	--	MG/KG	4.07 U	4.88 U	4.57 U	4.49 U	4.74 U	4.8 U
Arsenic	**13**	16	16	MG/KG	3.43	1.69	9.58	**26.7**	1.89	0.96 UV
Barium	350	400	820	MG/KG	85.2	57.2	20.8	21.4	16.6	13.9
Beryllium	7.2	72	47	MG/KG	0.179 J	0.146 J	0.338 J	0.261 J	0.057 J	0.077 J
Cadmium	**2.5**	4.3	7.5	MG/KG	0.903	0.497 J	0.621 J	0.593 J	0.256 J	0.269 J
Calcium	--	--	--	MG/KG	3100	1940	2410	7020	694	223
Chromium, Total	**30**	180	--	MG/KG	14.4	13.9	18.4	24.1	6.77	7.73
Cobalt	--	--	--	MG/KG	4.36	6.08	7.06	6.33	3.14	2.36
Copper	**50**	270	1720	MG/KG	22.2	16.6	34.5	16.8	8.48	8.16
Iron	--	--	--	MG/KG	16500	10900	13800	13600	6100	6550
Lead	**63**	400	450	MG/KG	**152**	37.2	6.87	7.01	3.44 J	3.34 J
Magnesium	--	--	--	MG/KG	1400	2390	2810	2450	1460	1320
Manganese	1600	2000	2000	MG/KG	291	134	444	211	57.5	51.9
Mercury	**0.18**	0.81	0.73	MG/KG	0.12	0.1	0.02 J	0.08 U	0.08 U	0.08 U
Nickel	**30**	310	130	MG/KG	9.48	13.2	19.2	13.6	6.44	6.64
Potassium	--	--	--	MG/KG	576	1650	415	466	323	335
Selenium	3.9	180	4	MG/KG	1.63 U	1.95 U	1.83 U	1.8 U	1.9 U	1.92 U
Silver	2	180	8.3	MG/KG	0.814 U	0.975 U	0.913 U	0.899 U	0.948 U	0.96 U
Sodium	--	--	--	MG/KG	196 J-V	302 J-V	67.1 J-V	124 J-V	37.2 J-V	19 J-V
Thallium	--	--	--	MG/KG	1.63 U	1.95 U	0.292 J	1.8 U	1.9 U	1.92 U
Vanadium	--	--	--	MG/KG	21.1	18	14.6	15.2	8.53	11
Zinc	**109**	10000	2480	MG/KG	87.8	29.5	36.6	37.7	18.2	19.3

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-3	MW-3	MW-3	MW-3	MW-3	MW-4
				Sample Date:	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017	09/27/2017
				Sample Depth (ft bls):	0 - 2	5 - 7	12.5 - 14.5	15 - 17	5 - 7	2.5 - 4.5
				Normal or Field Duplicate:	N	N	N	N	FD	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	6540	2530	6770	6120	3970	3570
Antimony	--	--	--	MG/KG	4.17 U	4.63 U	4.44 U	5.26 U	4.63 U	3.96 U
Arsenic	**13**	16	16	MG/KG	5.64	0.49 J	1.68	1.15	0.981	6.48
Barium	350	400	820	MG/KG	45.1	26.3	31.7	38.6	26.3	65.1
Beryllium	7.2	72	47	MG/KG	0.225 J	0.12 J	0.213 J	0.2 J	0.176 J	0.158 J
Cadmium	**2.5**	4.3	7.5	MG/KG	0.667 J	0.342 J	0.613 J	0.526 J	0.389 J	0.696 J
Calcium	--	--	--	MG/KG	4050	1740	647	1460	2010	2070
Chromium, Total	**30**	180	--	MG/KG	14.2	6.5	17	11.4	7.34	15.5
Cobalt	--	--	--	MG/KG	4.74	3.05	5.24	5.74	3.73	4.3
Copper	**50**	270	1720	MG/KG	21.8	6.07	16.8	11.5	6.17	38.2
Iron	--	--	--	MG/KG	13100	7760	14400	12600	8880	10900
Lead	**63**	400	450	MG/KG	44.6	3.37 J	4.95	5.32	4.41 J	**137**
Magnesium	--	--	--	MG/KG	2510	1480	1830	2880	1680	1170
Manganese	1600	2000	2000	MG/KG	203	187	229	344	168	191
Mercury	**0.18**	0.81	0.73	MG/KG	**0.22**	0.03 J	0.08 U	0.08 U	0.02 J	**0.34**
Nickel	**30**	310	130	MG/KG	11.4	6.12	9.65	10.2	7.02	12.3
Potassium	--	--	--	MG/KG	787	511	861	903	474	504
Selenium	3.9	180	4	MG/KG	1.67 U	1.85 U	1.78 U	2.1 U	1.85 U	1.58 U
Silver	2	180	8.3	MG/KG	0.834 U	0.925 U	0.889 U	1.05 U	0.926 U	0.791 U
Sodium	--	--	--	MG/KG	316 J-V	69.9 J-V	85 J-V	102 J-V	61.7 J-V	364 J-V
Thallium	--	--	--	MG/KG	1.67 U	1.85 U	1.78 U	2.1 U	1.85 U	1.58 U
Vanadium	--	--	--	MG/KG	16.9	8.6	26.7	16.8	10.8	15
Zinc	**109**	10000	2480	MG/KG	57.2	11.9	20	24.3	14.3	**118**

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-4	MW-5	MW-5	MW-5	MW-5	SB-1
				Sample Date:	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017
				Sample Depth (ft bls):	8 - 10	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	4630	7650	7760	3140	3000	5420
Antimony	--	--	--	MG/KG	5.18 U	4.34 U	4.6 U	4.46 U	4.66 U	4.16 U
Arsenic	**13**	16	16	MG/KG	4.33	**31.2**	2.57	1.25 UV	1.3 UV	6.03
Barium	350	400	820	MG/KG	128	30	44	19.4	19.8	91.5
Beryllium	7.2	72	47	MG/KG	0.124 J	0.208 J	0.221 J	0.187 J	0.224 J	0.183 J
Cadmium	**2.5**	4.3	7.5	MG/KG	0.653 J	0.669 J	0.589 J	0.49 J	0.625 J	1.3
Calcium	--	--	--	MG/KG	2200	9360	132	537	555	5060
Chromium, Total	**30**	180	--	MG/KG	12.7	29	11.5	13.4	13.8	13.8
Cobalt	--	--	--	MG/KG	5.23	5.84	5.24	5.9	6.26	4.91
Copper	**50**	270	1720	MG/KG	36.7	20.5	16.7	12.2	14.8	**64**
Iron	--	--	--	MG/KG	13100	14700	14100	11500	14700	13400
Lead	**63**	400	450	MG/KG	**249**	10.5	6.64	6.51	6.9	**343**
Magnesium	--	--	--	MG/KG	1410	2590	2310	1080	1120	1750
Manganese	1600	2000	2000	MG/KG	196	214	99.1	153	196	222
Mercury	**0.18**	0.81	0.73	MG/KG	**0.19**	0.02 J	0.07 U	0.07 U	0.08 U	**0.47**
Nickel	**30**	310	130	MG/KG	11	13.5	11.2	6.82	7.9	12
Potassium	--	--	--	MG/KG	753	340	281	681	739	608
Selenium	3.9	180	4	MG/KG	2.07 U	1.74 U	1.84 U	1.78 U	1.86 U	1.66 U
Silver	2	180	8.3	MG/KG	1.04 U	0.869 U	0.921 U	0.892 U	0.932 U	0.831 U
Sodium	--	--	--	MG/KG	207 UV	70.7 J-V	18.6 J-V	107 J-V	125 J-V	378 J-V
Thallium	--	--	--	MG/KG	2.07 U	1.74 U	1.84 U	1.78 U	1.86 U	1.66 U
Vanadium	--	--	--	MG/KG	20.6	16.6	14.7	19.8	20.1	21.4
Zinc	**109**	10000	2480	MG/KG	85.5	38.1	31.4	20.4	22.1	**325**

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-1	SB-10	SB-10	SB-10	SB-10	SB-11
				Sample Date:	09/27/2017	09/18/2017	09/18/2017	09/18/2017	09/18/2017	09/29/2017
				Sample Depth (ft bls):	10 - 12	0 - 2	5 - 7	12 - 14	18 - 20	0 - 2
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	4040	4690	7620	3340	3920	7900
Antimony	--	--	--	MG/KG	5.22 U	4.29 U	4.59 U	4.75 U	4.55 U	4.25 U
Arsenic	**13**	16	16	MG/KG	**13.3**	**71.4**	4	**37.2**	1.03 UV	**34**
Barium	350	400	820	MG/KG	217	34.8	21.5	20.5	30.9	59.5
Beryllium	7.2	72	47	MG/KG	0.251 J	0.069 J	0.303 J	0.152 J	0.273 J	0.399 J
Cadmium	**2.5**	4.3	7.5	MG/KG	**4.15**	1.91	0.698 J	0.618 J	0.7 J	0.748 J
Calcium	--	--	--	MG/KG	16600	24500	723	10200	751	14300
Chromium, Total	**30**	180	--	MG/KG	8.74	**49.7**	10.9	**36.6**	14.8	**32.5**
Cobalt	--	--	--	MG/KG	4.18	4.39	5.69	4.29	7.88	6.14
Copper	**50**	270	1720	MG/KG	36.2	40.1	13.9	13.6	16.6	**50.3**
Iron	--	--	--	MG/KG	12400	33600	15000	13000	15300	19400
Lead	**63**	400	450	MG/KG	**2530**	**134**	11.2	8.64	6.16	**191**
Magnesium	--	--	--	MG/KG	1320	2130	2380	1500	1800	3250
Manganese	1600	2000	2000	MG/KG	246	160	156	138	141	308
Mercury	**0.18**	0.81	0.73	MG/KG	**2**	0.1	0.04 J	0.08 U	0.07 U	**0.48**
Nickel	**30**	310	130	MG/KG	9.9	11.8	11.4	9.01	12.9	15.3
Potassium	--	--	--	MG/KG	605	509	254	528	1420	577
Selenium	3.9	180	4	MG/KG	0.449 J	1.72 U	1.84 U	1.9 U	1.82 U	1.7 U
Silver	2	180	8.3	MG/KG	1.04 U	0.858 U	0.918 U	0.951 U	0.91 U	0.849 U
Sodium	--	--	--	MG/KG	247 J-V	322 J-V	32.8 J-V	137 J-V	63.1 J-V	238
Thallium	--	--	--	MG/KG	2.09 U	1.72 U	1.84 U	1.9 U	1.82 U	1.7 U
Vanadium	--	--	--	MG/KG	15.1	25.4	17.6	17	26.4	22
Zinc	**109**	10000	2480	MG/KG	**1610**	**162**	43.1	25.7	35	**117**

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-11	SB-11	SB-12	SB-12	SB-2	SB-2
				Sample Date:	09/29/2017	09/29/2017	09/29/2017	09/29/2017	09/20/2017	09/20/2017
				Sample Depth (ft bls):	3 - 5	15 - 17	0 - 2	15 - 17	0 - 2	5 - 7
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	7570	5380	10600	2940	6570	4770
Antimony	--	--	--	MG/KG	4.65 U	4.85 U	4.59 U	4.6 U	4.27 U	4.25 U
Arsenic	**13**	16	16	MG/KG	**32**	3.06	5.04	1.57	2.79	1.26
Barium	350	400	820	MG/KG	50.8	29.4	27.6	17.3	46.7	58.2
Beryllium	7.2	72	47	MG/KG	0.353 J	0.476 J	0.404 J	0.588	0.23 J	0.238 J
Cadmium	**2.5**	4.3	7.5	MG/KG	2.49	0.495 J	0.505 J	0.644 J	0.632 J	1.08
Calcium	--	--	--	MG/KG	34100	938	1260	964	3520	1970
Chromium, Total	**30**	180	--	MG/KG	**36.8**	17.2	17.8	17.3	13.8	15.3
Cobalt	--	--	--	MG/KG	8.44	6.92	8.56	6.9	4.71	6.11
Copper	**50**	270	1720	MG/KG	**107**	19.2	30.1	15.4	24.4	12.6
Iron	--	--	--	MG/KG	31900	19500	20100	25500	13000	24600
Lead	**63**	400	450	MG/KG	**187**	8.57	9.94	6.74	36.9	6.96
Magnesium	--	--	--	MG/KG	2290	2150	3210	1070	2930	2000
Manganese	1600	2000	2000	MG/KG	328	170	258	246	188	634
Mercury	**0.18**	0.81	0.73	MG/KG	**0.51**	0.04 J	0.03 J	0.02 J	0.13	0.07 U
Nickel	**30**	310	130	MG/KG	**33**	11.6	16.3	11.8	11	10.2
Potassium	--	--	--	MG/KG	809	1020	433	493	905	937
Selenium	3.9	180	4	MG/KG	1.86 U	1.94 U	1.84 U	1.84 U	1.71 U	1.7 U
Silver	2	180	8.3	MG/KG	0.93 U	0.971 U	0.918 U	0.92 U	0.853 U	0.849 U
Sodium	--	--	--	MG/KG	277	92.6 J	55.2 J	101 J	278 J-V	197 J-V
Thallium	--	--	--	MG/KG	1.86 U	1.94 U	1.84 U	1.84 U	1.71 U	0.433 J
Vanadium	--	--	--	MG/KG	26.7	24.2	20.9	28	17.3	24.6
Zinc	**109**	10000	2480	MG/KG	**504**	33.4	48.3	29.3	47	24.2

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-2	SB-2	SB-3	SB-3	SB-3	SB-3
				Sample Date:	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
				Sample Depth (ft bls):	10 - 12	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	3000	7120 JV	5340	5780	6340	3140
Antimony	--	--	--	MG/KG	4.44 U	4.87 UJV	4.3 U	4.5 U	4.76 U	4.68 U
Arsenic	**13**	16	16	MG/KG	0.311 J	1.77	**15**	2.86	3.41	3.13
Barium	350	400	820	MG/KG	11.5	36.3 JV	39.4	24.9	27.2	24.6
Beryllium	7.2	72	47	MG/KG	0.115 J	0.253 J	0.189 J	0.243 J	0.228 J	0.337 J
Cadmium	**2.5**	4.3	7.5	MG/KG	**8.61**	0.847 J	0.55 J	0.521 J	0.618 J	0.74 J
Calcium	--	--	--	MG/KG	700	1050 JV	13000	427	289	253
Chromium, Total	**30**	180	--	MG/KG	7.32	16.6 JV	**34.9**	7.87	9.83	10.4
Cobalt	--	--	--	MG/KG	6.54	6.83 JV	5.94	5.91	7.98	4.41
Copper	**50**	270	1720	MG/KG	12.3	15 JV	20.8	9.77	12	10.6
Iron	--	--	--	MG/KG	9260	19300 JV	10400	12100	14300	17300
Lead	**63**	400	450	MG/KG	8.35	4.9 JV	23.5	5.66	5.67	3.83 J
Magnesium	--	--	--	MG/KG	1420	2740 JV	3300	2040	2330	978
Manganese	1600	2000	2000	MG/KG	92	551 JV	254	422	434	317
Mercury	**0.18**	0.81	0.73	MG/KG	0.07 U	0.08 U	0.05 J	0.07 U	0.08 U	0.08 U
Nickel	**30**	310	130	MG/KG	10.8	13.7 JV	20.1	11.4	11.9	9.25
Potassium	--	--	--	MG/KG	520	1370 JV	629	370	390	367
Selenium	3.9	180	4	MG/KG	1.78 U	1.95 UJV	1.72 U	1.8 U	1.9 U	1.87 U
Silver	2	180	8.3	MG/KG	0.888 U	0.973 UJV	0.859 U	0.899 U	0.952 U	0.936 U
Sodium	--	--	--	MG/KG	65.6 J-V	103 J-V	115 J-V	37.6 J-V	25.3 J-V	44.6 J-V
Thallium	--	--	--	MG/KG	1.78 U	1.95 UJV	1.72 U	1.8 U	1.9 U	1.87 U
Vanadium	--	--	--	MG/KG	13.2	25.7 JV	14	11.3	12.6	15.7
Zinc	**109**	10000	2480	MG/KG	89.5	27.4 JV	41	38.9	40.3	22

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-4	SB-4	SB-5	SB-5	SB-6	SB-6
				Sample Date:	09/27/2017	09/27/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017
				Sample Depth (ft bls):	2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11	0 - 2	5 - 7
				Normal or Field Duplicate:	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit						
Aluminum	--	--	--	MG/KG	5120	7880	5260	10300	6460	8050
Antimony	--	--	--	MG/KG	4.22 U	4.6 U	0.774 J	4.55 U	4.25 U	4.51 U
Arsenic	**13**	16	16	MG/KG	2.51	1.31	9.76	1.64	11.6	3.59
Barium	350	400	820	MG/KG	63.6	77.3	145	102	41.6	20.3
Beryllium	7.2	72	47	MG/KG	0.135 J	0.046 J	0.189 J	0.455 U	0.238 J	0.252 J
Cadmium	**2.5**	4.3	7.5	MG/KG	0.625 J	0.772 J	2.24	0.974	0.587 J	0.676 J
Calcium	--	--	--	MG/KG	4440	2870	8290	1230	10000	178
Chromium, Total	**30**	180	--	MG/KG	11.9	15.9	25.2	28.4	19.1	11.4
Cobalt	--	--	--	MG/KG	4.62	9.38	5.7	11.5	8.03	7.17
Copper	**50**	270	1720	MG/KG	24.2	19.7	**108**	22.2	17.1	20.7
Iron	--	--	--	MG/KG	11100	16400	22600	16400	12000	16100
Lead	**63**	400	450	MG/KG	**186**	23.8	**1090**	24.4	23.3	7.16
Magnesium	--	--	--	MG/KG	1850	3230	1780	5290	2730	2600
Manganese	1600	2000	2000	MG/KG	205	261	361	292	390	264
Mercury	**0.18**	0.81	0.73	MG/KG	**0.41**	0.05 J	**0.76**	0.1	0.05 J	0.08 U
Nickel	**30**	310	130	MG/KG	9.99	15.3	17.2	20	15.1	11.4
Potassium	--	--	--	MG/KG	719	3620	662	6000	656	332
Selenium	3.9	180	4	MG/KG	1.69 U	1.84 U	1.72 U	1.82 U	1.7 U	1.8 U
Silver	2	180	8.3	MG/KG	0.844 U	0.919 U	0.86 U	0.91 U	0.298 J	0.901 U
Sodium	--	--	--	MG/KG	251 J-V	184 UV	362 J-V	182 UV	223 J-V	45.4 J-V
Thallium	--	--	--	MG/KG	1.69 U	1.84 U	1.72 U	1.82 U	1.7 U	1.8 U
Vanadium	--	--	--	MG/KG	14.7	25.7	22.1	41.9	16	15.1
Zinc	**109**	10000	2480	MG/KG	69	40.8	**358**	51.1	37.6	36

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation: SB-6	SB-6	SB-7	SB-7	SB-8	SB-8
					Sample Date: 09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/20/2017	09/20/2017
					Sample Depth (ft bls): 11.5 - 13.5	15 - 17	2.5 - 4.5	10 - 12	0 - 2	5 - 7
					Normal or Field Duplicate: N	N	N	N	N	N
Aluminum	--	--	--	MG/KG	8800	4590	3450	6720	6170	7380
Antimony	--	--	--	MG/KG	4.68 U	4.64 U	0.852 J	4.68 U	4.16 U	4.48 U
Arsenic	**13**	16	16	MG/KG	1.71	1.02 UV	10.5	7.31	**23.3**	2.18
Barium	350	400	820	MG/KG	103	41.1	61.5	64.1	61	39.4
Beryllium	7.2	72	47	MG/KG	0.468 U	0.037 J	0.148 J	0.178 J	0.258 J	0.26 J
Cadmium	**2.5**	4.3	7.5	MG/KG	0.59 J	0.334 J	2.13	0.618 J	1.22	0.708 J
Calcium	--	--	--	MG/KG	506	303	3650	1680	3890	23400
Chromium, Total	**30**	180	--	MG/KG	14.9	9.2	**42.4**	14.2	13	19.1
Cobalt	--	--	--	MG/KG	8.65	4.79	6.21	6.67	4.91	4.49
Copper	**50**	270	1720	MG/KG	20.8	12	**1590**	17	**72**	16.1
Iron	--	--	--	MG/KG	14400	8060	26200	13300	12900	15800
Lead	**63**	400	450	MG/KG	4.2 J	2.97 J	**300**	47.2	**136**	16.3
Magnesium	--	--	--	MG/KG	3300	1770	842	2290	2230	5010
Manganese	1600	2000	2000	MG/KG	240	117	225	327	210	262
Mercury	**0.18**	0.81	0.73	MG/KG	0.08 U	0.08 U	**1.4**	**0.26**	**1**	0.09
Nickel	**30**	310	130	MG/KG	11.6	7.27	**40.2**	13.8	11.3	9.03
Potassium	--	--	--	MG/KG	4210	1560	474	1950	694	794
Selenium	3.9	180	4	MG/KG	1.87 U	1.86 U	1.74 U	1.87 U	1.66 U	1.79 U
Silver	2	180	8.3	MG/KG	0.937 U	0.928 U	0.869 U	0.936 U	0.832 U	0.897 U
Sodium	--	--	--	MG/KG	58 J-V	40.2 J-V	449 J-V	299 J-V	257 J-V	234 J-V
Thallium	--	--	--	MG/KG	1.87 U	1.86 U	1.74 U	1.87 U	0.333 J	1.79 U
Vanadium	--	--	--	MG/KG	23.8	12.8	15.2	20.1	21.3	25.2
Zinc	**109**	10000	2480	MG/KG	43.2	23.5	**645**	32.6	**130**	33.1

Table 3. Summary of Metals in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit	Sample Designation:	SB-8	SB-9	SB-9	SB-9	SB-9
					Sample Date:	09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017
					Sample Depth (ft bls):	10 - 12	15 - 17	0 - 2	8 - 10	10 - 12	15 - 17
					Normal or Field Duplicate:	N	N	N	N	N	N
Aluminum	--	--	--	MG/KG		11800	5110	5000	7020	5730	2380
Antimony	--	--	--	MG/KG		4.97 U	5 U	4.07 U	4.64 U	4.58 U	4.82 U
Arsenic	**13**	16	16	MG/KG		2.08	0.96 J	**24.6**	3.16	**16.1**	2.49
Barium	350	400	820	MG/KG		35.2	15.2	59.5	47.8	35.6	20.1
Beryllium	7.2	72	47	MG/KG		0.348 J	0.16 J	0.196 J	0.408 J	0.146 J	0.164 J
Cadmium	**2.5**	4.3	7.5	MG/KG		0.726 J	0.48 J	0.831	0.946	0.449 J	0.53 J
Calcium	--	--	--	MG/KG		788	386	20200	603	6960	4930
Chromium, Total	**30**	180	--	MG/KG		16.3	8.33	23.1	22.6	22.3	11.2
Cobalt	--	--	--	MG/KG		7.05	5.37	5.52	9.16	4.41	5.12
Copper	**50**	270	1720	MG/KG		12.9	7.2	33.8	22.5	13.4	12.5
Iron	--	--	--	MG/KG		17900	11100	11800	21800	9970	12700
Lead	**63**	400	450	MG/KG		12.5	6.64	**151**	7.52	9.03	5.29
Magnesium	--	--	--	MG/KG		2550	1870	2490	1950	2090	922
Manganese	1600	2000	2000	MG/KG		484	113	219	222	399	189
Mercury	**0.18**	0.81	0.73	MG/KG		0.04 J	0.08 U	**0.29**	0.07 U	0.04 J	0.08 U
Nickel	**30**	310	130	MG/KG		12.3	9.58	13.3	12.5	11.2	6.48
Potassium	--	--	--	MG/KG		523	347	652	1180	502	392
Selenium	3.9	180	4	MG/KG		1.99 U	2 U	1.63 U	1.86 U	1.83 U	1.93 U
Silver	2	180	8.3	MG/KG		0.994 U	1 U	0.815 U	0.928 U	0.916 U	0.963 U
Sodium	--	--	--	MG/KG		89.5 J-V	49.8 J-V	250 J-V	47.3 J-V	112 J-V	57.5 J-V
Thallium	--	--	--	MG/KG		0.378 J	2 U	1.63 U	1.86 U	1.83 U	1.93 U
Vanadium	--	--	--	MG/KG		20.8	12.3	17.1	33.8	14.3	15.5
Zinc	**109**	10000	2480	MG/KG		32.1	21	81	36.6	27.2	15.7

Table 4. Summary of Polychlorinated Biphenyls in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-3	MW-3	MW-3	MW-3
			Sample Date:		09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		3 - 5	9 - 11	0 - 2	5 - 7	10 - 12	15 - 17	0 - 2	5 - 7	12.5 - 14.5	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0039 J	0.0388 U	0.0383 U	0.0438 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0355 U	0.0388 U	0.0383 U	0.0438 U
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	MG/KG	0.0352 U	0.0388 U	0.037 U	0.0376 U	0.0392 U	0.0396 U	0.0039 J	0.0388 U	0.0383 U	0.0438 U

Table 4. Summary of Polychlorinated Biphenyls in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-3	MW-4	MW-4	MW-5	MW-5	MW-5	MW-5	SB-1	SB-1	SB-10
			Sample Date:		09/20/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/18/2017
			Sample Depth (ft bls):		5 - 7	2.5 - 4.5	8 - 10	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5	10 - 12	0 - 2
			Normal or Field Duplicate:		FD	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0161 JV	0.0442 U	0.0344 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0352 U	0.0442 U	0.0344 U
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	MG/KG	0.0397 U	0.0331 U	0.0431 U	0.0352 U	0.0382 U	0.0376 U	0.0398 U	0.0161 JV	0.0442 U	0.0344 U

Table 4. Summary of Polychlorinated Biphenyls in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-2	SB-2
			Sample Date:		09/18/2017	09/18/2017	09/18/2017	09/29/2017	09/29/2017	09/29/2017	09/29/2017	09/29/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		5 - 7	12 - 14	18 - 20	0 - 2	3 - 5	15 - 17	0 - 2	15 - 17	0 - 2	5 - 7
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	MG/KG	0.0384 U	0.038 U	0.0386 U	0.0351 U	0.0375 UJV	0.04 U	0.0383 U	0.0393 U	0.0363 U	0.0369 U

Table 4. Summary of Polychlorinated Biphenyls in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-2	SB-2	SB-3	SB-3	SB-3	SB-3	SB-4	SB-4	SB-5	SB-5
			Sample Date:		09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/27/2017	09/27/2017
			Sample Depth (ft bls):		10 - 12	15 - 17	0 - 2	5 - 7	10 - 12	15 - 17	2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0216 J	0.0376 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.00568 JV	0.039 U	0.0422	0.0376 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.0335 U	0.039 U	0.0367 U	0.0376 U
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	MG/KG	0.037 U	0.0389 U	0.0357 U	0.037 U	0.0397 U	0.0388 U	0.00568 JV	0.039 U	0.0638 J	0.0376 U

Table 4. Summary of Polychlorinated Biphenyls in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-6	SB-6	SB-6	SB-6	SB-7	SB-7	SB-8	SB-8	SB-8	SB-8
			Sample Date:		09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		0 - 2	5 - 7	11.5 - 13.5	15 - 17	2.5 - 4.5	10 - 12	0 - 2	5 - 7	10 - 12	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit										
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	MG/KG	0.0341 U	0.0378 U	0.0382 U	0.0384 U	0.0374 U	0.0387 U	0.036 U	0.0378 U	0.0398 U	0.0399 U

Table 4. Summary of Polychlorinated Biphenyls in Soil, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-9	SB-9	SB-9	SB-9
			Sample Date:		09/18/2017	09/19/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		0 - 2	8 - 10	10 - 12	15 - 17
			Normal or Field Duplicate:		N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit				
PCB-1016 (Aroclor 1016)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1221 (Aroclor 1221)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1232 (Aroclor 1232)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1242 (Aroclor 1242)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1248 (Aroclor 1248)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1254 (Aroclor 1254)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1260 (Aroclor 1260)	--	--	--	MG/KG	0.00401 JV	0.0382 U	0.0381 U	0.0399 U
PCB-1262 (Aroclor 1262)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
PCB-1268 (Aroclor 1268)	--	--	--	MG/KG	0.0349 U	0.0382 U	0.0381 U	0.0399 U
Polychlorinated Biphenyl (PCBs)	0.1	1	3.2	MG/KG	0.00401 J	0.0382 U	0.0381 U	0.0399 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-1	MW-1	MW-2	MW-2	MW-2
			Sample Date:		09/27/2017	09/27/2017	09/18/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		3 - 5	9 - 11	0 - 2	5 - 7	10 - 12
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000691 U	0.000791 U	0.000745 U	0.000746 U	0.000788 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
Beta Endosulfan	2.4	24	102	MG/KG	0.0019 UV	0.0019 U	0.00179 U	0.00179 U	0.00189 U
Chlordane	--	--	--	MG/KG	0.0135 U	0.0154 U	0.0145 U	0.0145 U	0.0154 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00207 U	0.00237 U	0.00224 U	0.00224 U	0.00236 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00104 U	0.00119 U	0.00112 U	0.00112 U	0.00118 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000691 U	0.000791 U	0.000745 U	0.000746 U	0.000788 U
Endrin	0.014	11	0.06	MG/KG	0.000691 U	0.000791 U	0.000745 U	0.000746 U	0.000788 U
Endrin Aldehyde	--	--	--	MG/KG	0.00207 U	0.00237 U	0.00224 U	0.00224 U	0.00236 U
Endrin Ketone	--	--	--	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000691 U	0.000791 U	0.000745 U	0.000746 U	0.000788 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000829 U	0.000949 U	0.000894 U	0.000895 U	0.000946 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00311 U	0.00356 U	0.00335 U	0.00336 U	0.00355 U
Methoxychlor	--	--	--	MG/KG	0.00311 U	0.00356 U	0.00335 U	0.00336 U	0.00355 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00166 U	0.0019 U	0.00179 U	0.00179 U	0.00189 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00311 U	0.00356 U	0.00335 U	0.00336 U	0.00355 U
Toxaphene	--	--	--	MG/KG	0.0311 U	0.0356 U	0.0335 U	0.0336 U	0.0355 U
trans-Chlordane	--	--	--	MG/KG	0.00207 UV	0.00237 U	0.00224 U	0.00224 U	0.00236 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-2	MW-3	MW-3	MW-3	MW-3
			Sample Date:		09/19/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
			Sample Depth (ft bls):		15 - 17	0 - 2	5 - 7	12.5 - 14.5	15 - 17
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.00081 U	0.00071 U	0.000765 U	0.000761 U	0.000872 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
Chlordane	--	--	--	MG/KG	0.0158 U	0.0138 U	0.0149 U	0.0148 U	0.017 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00243 U	0.00213 U	0.00229 U	0.00228 U	0.00262 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00121 U	0.00156 UV	0.00115 U	0.00114 U	0.00131 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.00081 U	0.00071 U	0.000765 U	0.000761 U	0.000872 U
Endrin	0.014	11	0.06	MG/KG	0.00081 U	0.00071 U	0.000765 U	0.000761 U	0.000872 U
Endrin Aldehyde	--	--	--	MG/KG	0.00243 U	0.00213 U	0.00229 U	0.00228 U	0.00262 U
Endrin Ketone	--	--	--	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.00081 U	0.00071 U	0.000765 U	0.000761 U	0.000872 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000972 U	0.000852 U	0.000918 U	0.000914 U	0.00105 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00364 U	0.0032 U	0.00344 U	0.00343 U	0.00393 U
Methoxychlor	--	--	--	MG/KG	0.00364 U	0.0032 U	0.00344 U	0.00343 U	0.00393 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00194 U	0.0017 U	0.00184 U	0.00183 U	0.00209 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00194 U	0.00163 JV	0.00184 U	0.00183 U	0.00209 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00364 U	0.0032 U	0.00344 U	0.00343 U	0.00393 U
Toxaphene	--	--	--	MG/KG	0.0364 U	0.032 U	0.0344 U	0.0343 U	0.0393 U
trans-Chlordane	--	--	--	MG/KG	0.00243 U	0.00213 UV	0.00229 U	0.00228 U	0.00262 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-3	MW-4	MW-4	MW-5	MW-5
			Sample Date:		09/20/2017	09/27/2017	09/27/2017	09/18/2017	09/19/2017
			Sample Depth (ft bls):		5 - 7	2.5 - 4.5	8 - 10	0 - 2	5 - 7
			Normal or Field Duplicate:		FD	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00189 U	0.0016 U	0.00207 U	0.00175 U	0.00185 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000788 U	0.000667 U	0.000863 U	0.00073 U	0.000772 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00189 U	0.0016 U	0.00207 U	0.00175 U	0.00185 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00189 U	0.0016 U	0.00207 U	0.00175 U	0.00185 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00189 U	0.0016 U	0.00207 U	0.00175 U	0.00185 U
Chlordane	--	--	--	MG/KG	0.0154 U	0.013 U	0.0168 U	0.0142 U	0.015 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00236 U	0.002 U	0.00259 U	0.00219 U	0.00232 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00189 U	0.0016 U	0.0015 JV	0.00175 UV	0.00185 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00118 U	0.001 U	0.0013 U	0.00109 U	0.00116 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000788 U	0.000667 U	0.000863 U	0.00073 U	0.000772 U
Endrin	0.014	11	0.06	MG/KG	0.000788 U	0.000667 U	0.000863 U	0.000541 J	0.000772 U
Endrin Aldehyde	--	--	--	MG/KG	0.00236 U	0.002 U	0.00259 U	0.00219 U	0.00232 U
Endrin Ketone	--	--	--	MG/KG	0.00189 U	0.0016 U	0.00207 U	0.00175 U	0.00185 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000788 U	0.000667 U	0.000863 U	0.00073 U	0.000772 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000946 U	0.0008 U	0.00104 U	0.000876 U	0.000926 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00355 U	0.003 U	0.00388 U	0.00328 UV	0.00347 U
Methoxychlor	--	--	--	MG/KG	0.00355 U	0.003 U	0.00388 U	0.00328 U	0.00347 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00189 U	0.0016 U	0.00207 U	0.000879 J	0.00185 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00189 U	0.0016 UV	0.00207 U	0.00175 UV	0.00185 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00355 U	0.00585 UV	0.00388 U	0.00333 UV	0.00347 U
Toxaphene	--	--	--	MG/KG	0.0355 U	0.03 U	0.0388 U	0.0328 U	0.0347 U
trans-Chlordane	--	--	--	MG/KG	0.00236 U	0.002 UV	0.00259 U	0.00219 U	0.00232 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		MW-5	MW-5	SB-1	SB-1	SB-10
			Sample Date:		09/19/2017	09/19/2017	09/27/2017	09/27/2017	09/18/2017
			Sample Depth (ft bls):		10 - 12	15 - 17	2.5 - 4.5	10 - 12	0 - 2
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00184 U	0.00186 U	0.00174 U	0.00207 U	0.00173 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000769 U	0.000777 U	0.000724 U	0.000862 U	0.000721 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00184 U	0.00186 U	0.00174 U	0.00207 U	0.00173 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00184 U	0.00186 U	0.00174 U	0.00207 U	0.00173 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00184 U	0.00186 U	0.00174 U	0.00207 U	0.00173 U
Chlordane	--	--	--	MG/KG	0.015 U	0.0151 U	0.0141 U	0.0168 U	0.0141 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.0023 U	0.00233 U	0.000899 JV	0.00258 U	0.00216 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00184 U	0.00186 U	0.00174 U	0.000809 J	0.00173 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00115 U	0.00116 U	0.00109 UV	0.00129 U	0.00108 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000769 U	0.000777 U	0.00328 JV	0.000862 U	0.000721 U
Endrin	0.014	11	0.06	MG/KG	0.000769 U	0.000777 U	0.000724 U	0.000862 U	0.000721 U
Endrin Aldehyde	--	--	--	MG/KG	0.0023 U	0.00233 U	0.00217 U	0.00258 U	0.00216 U
Endrin Ketone	--	--	--	MG/KG	0.00184 U	0.00186 U	0.00174 U	0.00207 U	0.00173 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000769 U	0.000777 U	0.000724 U	0.000862 U	0.000721 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000922 U	0.000932 U	0.000869 U	0.00103 U	0.000866 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00346 U	0.0035 U	0.00326 U	0.00388 U	0.00325 U
Methoxychlor	--	--	--	MG/KG	0.00346 U	0.0035 U	0.00326 U	0.00388 U	0.00325 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00184 U	0.00186 U	**0.00732**	0.00207 U	0.00173 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00184 U	0.00186 U	**0.021**	0.00207 U	0.00173 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00346 U	0.0035 U	**0.0423 JV**	0.00388 U	0.00325 U
Toxaphene	--	--	--	MG/KG	0.0346 U	0.035 U	0.0326 U	0.0388 U	0.0325 U
trans-Chlordane	--	--	--	MG/KG	0.0023 U	0.00233 U	0.00217 UV	0.00258 U	0.00216 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-10	SB-10	SB-10	SB-11	SB-11
			Sample Date:		09/18/2017	09/18/2017	09/18/2017	09/29/2017	09/29/2017
			Sample Depth (ft bls):		5 - 7	12 - 14	18 - 20	0 - 2	3 - 5
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00185 U	0.00186 U	0.00177 U	0.00173 U	0.00937 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000771 U	0.000776 U	0.000736 U	0.00072 U	0.0039 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00185 U	0.00186 U	0.00177 U	0.00173 U	0.00937 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00185 U	0.00186 U	0.00177 U	0.00173 U	0.00937 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00156 JPI	0.00186 U	0.00177 U	0.00173 U	0.00937 U
Chlordane	--	--	--	MG/KG	0.015 U	0.0151 U	0.0144 U	0.014 U	0.0761 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00231 U	0.00233 U	0.00221 U	0.00216 U	0.0117 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00185 U	0.00186 U	0.00177 U	0.00173 U	0.00937 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00116 U	0.00116 U	0.0011 U	0.00108 U	0.00586 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000771 U	0.000776 U	0.000736 U	0.00072 U	0.0039 U
Endrin	0.014	11	0.06	MG/KG	0.000771 U	0.000776 U	0.000736 U	0.00072 U	0.0039 U
Endrin Aldehyde	--	--	--	MG/KG	0.00231 U	0.00233 U	0.00221 U	0.00216 U	0.0117 U
Endrin Ketone	--	--	--	MG/KG	0.00185 U	0.00186 U	0.00177 U	0.00173 U	0.00937 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000771 U	0.000776 U	0.000736 U	0.00072 U	0.0039 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000925 U	0.000931 U	0.000883 U	0.000864 U	0.00468 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00347 U	0.00349 U	0.00331 U	0.00324 U	0.0176 U
Methoxychlor	--	--	--	MG/KG	0.00347 U	0.00349 U	0.00331 U	0.00324 U	0.0176 U
P,P'-DDD	**0.0033**	13	14	MG/KG	**0.00425**	0.00186 U	0.00177 U	0.00173 U	0.00937 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00185 U	0.00186 U	0.00177 U	0.00173 UV	0.00937 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00347 U	0.00349 U	0.00331 U	0.00324 U	0.0176 U
Toxaphene	--	--	--	MG/KG	0.0347 U	0.0349 U	0.0331 U	0.0324 U	0.176 U
trans-Chlordane	--	--	--	MG/KG	0.00231 U	0.00233 U	0.00221 U	0.00216 U	0.0117 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-11	SB-12	SB-12	SB-2	SB-2
				Sample Date:	09/29/2017	09/29/2017	09/29/2017	09/20/2017	09/20/2017
				Sample Depth (ft bls):	15 - 17	0 - 2	15 - 17	0 - 2	5 - 7
				Normal or Field Duplicate:	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000804 U	0.000761 U	0.000764 U	0.000714 U	0.000708 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
Chlordane	--	--	--	MG/KG	0.0157 U	0.0148 U	0.0149 U	0.0139 U	0.0138 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00241 U	0.00228 U	0.00229 U	0.00113 JV	0.00212 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.0012 U	0.00114 U	0.00115 U	0.00107 U	0.00106 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000804 U	0.000761 U	0.000764 U	0.000714 U	0.000708 U
Endrin	0.014	11	0.06	MG/KG	0.000804 U	0.000761 U	0.000764 U	0.000714 U	0.000708 U
Endrin Aldehyde	--	--	--	MG/KG	0.00241 U	0.00228 U	0.00229 U	0.00214 U	0.00212 U
Endrin Ketone	--	--	--	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000804 U	0.000761 U	0.000764 U	0.000714 U	0.000708 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000964 U	0.000913 U	0.000917 U	0.000857 U	0.00085 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00362 U	0.00342 U	0.00344 U	0.00321 U	0.00318 U
Methoxychlor	--	--	--	MG/KG	0.00362 U	0.00342 U	0.00344 U	0.00321 U	0.00318 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00193 U	0.00183 U	0.00183 U	0.00171 U	0.0017 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00362 U	0.00342 U	0.00344 U	0.00321 UV	0.00318 U
Toxaphene	--	--	--	MG/KG	0.0362 U	0.0342 U	0.0344 U	0.0321 U	0.0318 U
trans-Chlordane	--	--	--	MG/KG	0.00241 U	0.00228 U	0.00229 U	0.00214 UV	0.00212 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-2	SB-2	SB-3	SB-3	SB-3
			Sample Date:		09/20/2017	09/20/2017	09/18/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		10 - 12	15 - 17	0 - 2	5 - 7	10 - 12
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000738 U	0.000383 J	0.000683 U	0.000713 U	0.00081 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
Chlordane	--	--	--	MG/KG	0.0144 U	0.0158 U	0.0133 U	0.0139 U	0.0158 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00221 U	0.00244 U	0.00205 U	0.00214 U	0.00243 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00111 U	0.00122 U	0.00102 U	0.00107 U	0.00121 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000738 U	0.000812 U	0.000683 U	0.000713 U	0.00081 U
Endrin	0.014	11	0.06	MG/KG	0.000738 U	0.000812 U	0.000683 U	0.000713 U	0.00081 U
Endrin Aldehyde	--	--	--	MG/KG	0.00221 U	0.00244 U	0.00205 U	0.00214 U	0.00243 U
Endrin Ketone	--	--	--	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000738 U	0.000812 U	0.000683 U	0.000713 U	0.00081 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000886 U	0.000974 U	0.00082 U	0.000856 U	0.000971 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00332 U	0.00365 U	0.00307 U	0.00321 U	0.00364 U
Methoxychlor	--	--	--	MG/KG	0.00332 U	0.00365 U	0.00307 U	0.00321 U	0.00364 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00177 U	0.00195 U	0.00164 U	0.00171 U	0.00194 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00332 U	0.00365 U	0.00307 U	0.00321 U	0.00364 U
Toxaphene	--	--	--	MG/KG	0.0332 U	0.0365 U	0.0307 U	0.0321 U	0.0364 U
trans-Chlordane	--	--	--	MG/KG	0.00221 U	0.00244 U	0.00205 U	0.00214 U	0.00243 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-3	SB-4	SB-4	SB-5	SB-5
			Sample Date:		09/19/2017	09/27/2017	09/27/2017	09/27/2017	09/27/2017
			Sample Depth (ft bls):		15 - 17	2.5 - 4.5	8 - 10	2.5 - 4.5	9 - 11
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00186 U	0.00163 U	0.00187 U	0.00177 U	0.00188 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000774 U	0.000679 U	0.00078 U	0.000739 U	0.000785 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00186 U	0.00163 U	0.00187 U	0.00177 U	0.00188 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00186 U	0.00163 U	0.00187 U	0.00177 U	0.00188 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00186 U	0.00163 U	0.00187 U	0.00177 U	0.00188 U
Chlordane	--	--	--	MG/KG	0.0151 U	0.0132 U	0.0152 U	0.0144 U	0.0153 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00232 U	0.00219	0.00234 U	0.00222 U	0.00235 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00186 U	0.00163 U	0.0012 J	0.00177 U	0.00122 NJV
Dieldrin	0.005	0.2	0.1	MG/KG	0.00116 U	0.00189	0.00117 U	0.00204	0.00118 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000774 U	0.000679 U	0.00078 U	0.000739 U	0.000785 U
Endrin	0.014	11	0.06	MG/KG	0.000774 U	0.000679 U	0.00078 U	0.000739 U	0.000785 U
Endrin Aldehyde	--	--	--	MG/KG	0.00232 U	0.00204 U	0.00234 U	0.00222 U	0.00235 U
Endrin Ketone	--	--	--	MG/KG	0.00186 U	0.00163 U	0.00187 U	0.00177 U	0.00188 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000774 U	0.000679 U	0.00078 U	0.000739 U	0.000785 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000929 U	0.000815 U	0.000936 U	0.000886 U	0.000942 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00348 U	0.00306 U	0.00351 U	0.00332 U	0.00353 U
Methoxychlor	--	--	--	MG/KG	0.00348 U	0.00306 U	0.00351 U	0.00332 U	0.00353 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00186 U	**0.00403**	0.00187 U	0.00128 J	0.00188 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00186 U	**0.0424**	0.00187 U	**0.0271**	0.00188 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00348 U	**0.187**	0.00351 U	**0.0459**	0.00353 U
Toxaphene	--	--	--	MG/KG	0.0348 U	0.0306 U	0.0351 U	0.0332 U	0.0353 U
trans-Chlordane	--	--	--	MG/KG	0.00232 U	0.00212 UV	0.00234 U	0.00222 UV	0.00235 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-6	SB-6	SB-6	SB-6	SB-7
			Sample Date:		09/18/2017	09/19/2017	09/19/2017	09/19/2017	09/27/2017
			Sample Depth (ft bls):		0 - 2	5 - 7	11.5 - 13.5	15 - 17	2.5 - 4.5
			Normal or Field Duplicate:		N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00176 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000712 U	0.000749 U	0.00079 U	0.00079 U	0.000731 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00176 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00176 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00176 U
Chlordane	--	--	--	MG/KG	0.0139 U	0.0146 U	0.0154 U	0.0154 U	0.0142 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.0009 J	0.00225 U	0.00237 U	0.00237 U	0.00219 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00176 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00107 U	0.00112 U	0.00118 U	0.00118 U	0.0011 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000712 U	0.000749 U	0.00079 U	0.00079 U	0.000731 U
Endrin	0.014	11	0.06	MG/KG	0.000712 U	0.000749 U	0.00079 U	0.00079 U	0.000731 U
Endrin Aldehyde	--	--	--	MG/KG	0.00213 U	0.00225 U	0.00237 U	0.00237 U	0.00219 U
Endrin Ketone	--	--	--	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00176 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000712 U	0.000749 U	0.00079 U	0.00079 U	0.000731 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000854 U	0.000899 U	0.000948 U	0.000948 U	0.000878 U
Heptachlor Epoxide	--	--	--	MG/KG	0.0032 U	0.00337 U	0.00356 U	0.00355 U	0.00329 U
Methoxychlor	--	--	--	MG/KG	0.0032 U	0.00337 U	0.00356 U	0.00355 U	0.00329 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00171 U	0.0018 U	0.0019 U	0.0019 U	0.00131 J
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00133 J	0.0018 U	0.0019 U	0.0019 U	**0.0199**
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00184 J	0.00337 U	0.00356 U	0.00355 U	**0.0455 JV**
Toxaphene	--	--	--	MG/KG	0.032 U	0.0337 U	0.0356 U	0.0355 U	0.0329 U
trans-Chlordane	--	--	--	MG/KG	0.00213 U	0.00225 U	0.00237 U	0.00237 U	0.00219 UV

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	SB-7	SB-8	SB-8	SB-8	SB-8
				Sample Date:	09/27/2017	09/20/2017	09/20/2017	09/20/2017	09/20/2017
				Sample Depth (ft bls):	10 - 12	0 - 2	5 - 7	10 - 12	15 - 17
				Normal or Field Duplicate:	N	N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit					
Aldrin	0.005	0.097	0.19	MG/KG	0.00186 U	0.00168 U	0.00178 U	0.00191 U	0.00194 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000774 U	0.000702 U	0.000743 U	0.000797 U	0.00081 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00186 U	0.00168 U	0.00178 U	0.00191 U	0.00194 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00186 U	0.00168 U	0.00178 U	0.00191 U	0.00194 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00186 U	0.00214	0.00178 U	0.00191 U	0.00194 U
Chlordane	--	--	--	MG/KG	0.0151 U	0.0137 U	0.0145 U	0.0155 U	0.0158 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00232 U	0.00211 U	0.00223 U	0.00239 U	0.00243 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00122 NJV	0.00168 U	0.00178 U	0.00191 U	0.00194 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00116 U	0.00131 UV	0.00111 U	0.0012 U	0.00121 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000774 U	0.000702 U	0.000743 U	0.000797 U	0.00081 U
Endrin	0.014	11	0.06	MG/KG	0.000774 U	0.000702 U	0.000743 U	0.000797 U	0.00081 U
Endrin Aldehyde	--	--	--	MG/KG	0.00232 U	0.00211 U	0.00223 U	0.00239 U	0.00243 U
Endrin Ketone	--	--	--	MG/KG	0.00186 U	0.00168 U	0.00178 U	0.00191 U	0.00194 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000774 U	0.000702 U	0.000743 U	0.000797 U	0.00081 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.000929 U	0.000843 U	0.000892 U	0.000956 U	0.000972 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00348 U	0.00316 U	0.00334 U	0.00359 U	0.00364 U
Methoxychlor	--	--	--	MG/KG	0.00348 U	0.00316 U	0.00334 U	0.00359 U	0.00364 U
P,P'-DDD	**0.0033**	13	14	MG/KG	0.00186 U	0.00168 U	0.00178 U	0.00191 U	0.00194 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00186 U	0.00168 U	0.00178 U	0.00191 U	0.00194 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00348 U	0.00316 U	0.00334 U	0.00359 U	0.00364 U
Toxaphene	--	--	--	MG/KG	0.0348 U	0.0316 U	0.0334 U	0.0359 U	0.0364 U
trans-Chlordane	--	--	--	MG/KG	0.00232 U	0.00211 U	0.00223 U	0.00239 U	0.00243 U

Table 5. Summary of Pesticides in Soil,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:		SB-9	SB-9	SB-9	SB-9
			Sample Date:		09/18/2017	09/19/2017	09/19/2017	09/19/2017
			Sample Depth (ft bls):		0 - 2	8 - 10	10 - 12	15 - 17
			Normal or Field Duplicate:		N	N	N	N
Parameter	NYSDEC Part 375 Unrestricted Use SCO	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO	Unit				
Aldrin	0.005	0.097	0.19	MG/KG	0.00164 U	0.00177 U	0.00173 U	0.00192 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	0.02	0.48	0.02	MG/KG	0.000683 U	0.000739 U	0.000722 U	0.000799 U
Alpha Endosulfan	2.4	24	102	MG/KG	0.00164 U	0.00177 U	0.00173 U	0.00192 U
Beta Bhc (Beta Hexachlorocyclohexane)	0.036	0.36	0.09	MG/KG	0.00164 U	0.00177 U	0.00173 U	0.00192 U
Beta Endosulfan	2.4	24	102	MG/KG	0.00164 U	0.00177 U	0.00173 U	0.00192 U
Chlordane	--	--	--	MG/KG	0.0133 U	0.0144 U	0.0141 U	0.0156 U
cis-Chlordane	0.094	4.2	2.9	MG/KG	0.00205 U	0.00222 U	0.00216 U	0.0024 U
Delta BHC (Delta Hexachlorocyclohexane)	0.04	100	0.25	MG/KG	0.00164 U	0.00177 U	0.00173 U	0.00192 U
Dieldrin	0.005	0.2	0.1	MG/KG	0.00102 U	0.00111 U	0.00108 U	0.0012 U
Endosulfan Sulfate	2.4	24	1000	MG/KG	0.000683 U	0.000739 U	0.000722 U	0.000799 U
Endrin	0.014	11	0.06	MG/KG	0.000683 U	0.000739 U	0.000722 U	0.000799 U
Endrin Aldehyde	--	--	--	MG/KG	0.00205 U	0.00222 U	0.00216 U	0.0024 U
Endrin Ketone	--	--	--	MG/KG	0.00164 U	0.00177 U	0.00173 U	0.00192 U
Gamma Bhc (Lindane)	0.1	1.3	0.1	MG/KG	0.000683 U	0.000739 U	0.000722 U	0.000799 U
Heptachlor	0.042	2.1	0.38	MG/KG	0.00082 U	0.000887 U	0.000866 U	0.000958 U
Heptachlor Epoxide	--	--	--	MG/KG	0.00307 U	0.00333 U	0.00325 U	0.00359 U
Methoxychlor	--	--	--	MG/KG	0.00307 U	0.00333 U	0.00325 U	0.00359 U
P,P'-DDD	**0.0033**	13	14	MG/KG	**0.00883**	0.00177 U	0.00173 U	0.00192 U
P,P'-DDE	**0.0033**	8.9	17	MG/KG	0.00117 JPI	0.00177 U	0.00173 U	0.00192 U
P,P'-DDT	**0.0033**	7.9	136	MG/KG	0.00307 U	0.00333 U	0.00325 U	0.00359 U
Toxaphene	--	--	--	MG/KG	0.0307 U	0.0333 U	0.0325 U	0.0359 U
trans-Chlordane	--	--	--	MG/KG	0.00205 U	0.00222 U	0.00216 U	0.0024 U

Table 6. Summary of Volatile Organic Compounds in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
1,1,1,2-Tetrachloroethane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1,1-Trichloroethane (TCA)	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1,2,2-Tetrachloroethane	5	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	1	--	UG/L	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
1,1-Dichloroethane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,1-Dichloroethene	5	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichlorobenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,3-Trichloropropane	0.04	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,4,5-Tetramethylbenzene	5	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-Trichlorobenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2,4-Trimethylbenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromo-3-Chloropropane	0.04	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dibromoethane (Ethylene Dibromide)	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
1,2-Dichlorobenzene	3	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethane	0.6	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	1	--	UG/L	1 U	1 U	1 U	1 U	1 U	1 U
1,3,5-Trimethylbenzene (Mesitylene)	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichlorobenzene	3	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichloropropane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene	3	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Diethyl Benzene	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
1,4-Dioxane (P-Dioxane)	--	--	UG/L	250 URV	250 URV	250 URV	250 URV	250 URV	250 URV
2,2-Dichloropropane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Chlorotoluene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
2-Hexanone	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorotoluene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
4-Ethyltoluene	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Acetone	--	50	UG/L	5 UV	5 U	5 U	5 UV	5 UV	5 U
Acrylonitrile	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	1	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table 6. Summary of Volatile Organic Compounds in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
Bromobenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromochloromethane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Bromodichloromethane	--	50	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	--	50	UG/L	2 UJV	2 UJV	2 UJV	2 UJV	2 UJV	2 UJV
Bromomethane	5	--	UG/L	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV
Carbon Disulfide	--	60	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroethane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Chloroform	7	--	UG/L	2.5 U	5.6	1 J	0.76 J	2.5 U	2.5 U
Chloromethane	--	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cis-1,2-Dichloroethylene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Cis-1,3-Dichloropropene	--	5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cymene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Dibromochloromethane	--	50	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Dichlorodifluoromethane	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Dichloroethylenes	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Diethyl Ether (Ethyl Ether)	--	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Ethylbenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Hexachlorobutadiene	0.5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Isopropylbenzene (Cumene)	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
m,p-Xylene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl Ethyl Ketone (2-Butanone)	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Methylene Chloride	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Naphthalene	--	10	UG/L	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV
N-Butylbenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
N-Propylbenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
O-Xylene (1,2-Dimethylbenzene)	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Sec-Butylbenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

Table 6. Summary of Volatile Organic Compounds in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
Styrene	5	--	UG/L	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV
T-Butylbenzene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Tert-Butyl Methyl Ether	--	10	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Tetrachloroethylene (PCE)	5	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Total, 1,3-Dichloropropene (Cis And Trans)	0.4	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Trans-1,3-Dichloropropene	--	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,4-Dichloro-2-Butene	--	--	UG/L	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV	2.5 UJV
Trichloroethylene (TCE)	5	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Vinyl Acetate	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Chloride	2	--	UG/L	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	5	--	UG/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U

Table 7. Summary of Semivolatile Organic Compounds in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
1,2,4,5-Tetrachlorobenzene	--	--	UG/L	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichlorobenzene	3	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
1,3-Dichlorobenzene	3	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
1,4-Dichlorobenzene	3	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
2,4,5-Trichlorophenol	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2,4,6-Trichlorophenol	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	--	10	UG/L	20 U	20 U	20 U	20 U	20 U	20 U
2,4-Dinitrotoluene	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	--	10	UG/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-Chlorophenol	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
2-Methylnaphthalene	--	--	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
2-Methylphenol (O-Cresol)	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitroaniline	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
2-Nitrophenol	--	--	UG/L	10 U	10 U	10 U	10 U	10 U	10 U
3- And 4- Methylphenol (Total)	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
3-Nitroaniline	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
4,6-Dinitro-2-Methylphenol	--	--	UG/L	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl Phenyl Ether	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
4-Chloro-3-Methylphenol	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
4-Chloroaniline	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
4-Chlorophenyl Phenyl Ether	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
4-Nitroaniline	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
4-Nitrophenol	--	--	UG/L	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	--	20	UG/L	0.07 J	0.1 U	0.1 U	0.1 U	0.12	0.1 U
Acenaphthylene	--	20	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Acetophenone	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Anthracene	--	50	UG/L	0.04 J	0.1 U	0.1 U	0.1 U	0.04 J	0.1 U

Table 7. Summary of Semivolatile Organic Compounds in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

				Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
				Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
				Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit							
Benzo(A)Anthracene	--	**0.002**	UG/L	**0.02 J**	0.1 U	0.1 U	0.1 U	**0.04 J**	**0.02 J**
Benzo(A)Pyrene	**0**	--	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	**0.06 J**	0.1 U
Benzo(B)Fluoranthene	--	**0.002**	UG/L	**0.02 J**	0.1 U	0.1 U	0.1 U	**0.03 J**	0.1 U
Benzo(G,H,I)Perylene	--	--	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzo(K)Fluoranthene	--	0.002	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Benzoic Acid	--	--	UG/L	50 U	50 U	50 U	50 U	50 U	50 U
Benzyl Alcohol	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Benzyl Butyl Phthalate	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Biphenyl (Diphenyl)	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Bis(2-Chloroethoxy) Methane	5	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	1	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Bis(2-Chloroisopropyl) Ether	5	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Bis(2-Ethylhexyl) Phthalate	5	--	UG/L	3 U	3 U	3 U	3 U	3 U	3 U
Carbazole	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Chrysene	--	0.002	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibenz(A,H)Anthracene	--	--	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Dibenzofuran	--	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Diethyl Phthalate	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Dimethyl Phthalate	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Butyl Phthalate	50	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Di-N-Octylphthalate	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Fluoranthene	--	50	UG/L	0.09 J	0.1 U	0.1 U	0.1 U	0.08 J	0.1 U
Fluorene	--	50	UG/L	0.06 J	0.1 U	0.1 U	0.1 U	0.05 J	0.1 U
Hexachlorobenzene	0.04	--	UG/L	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Hexachlorobutadiene	0.5	--	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorocyclopentadiene	5	--	UG/L	20 U	20 U	20 U	20 U	20 U	20 U
Hexachloroethane	5	--	UG/L	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Indeno(1,2,3-C,D)Pyrene	--	**0.002**	UG/L	0.1 U	0.1 U	0.1 U	0.1 U	**0.06 J**	0.1 U
Isophorone	--	50	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Naphthalene	--	10	UG/L	0.1 UV	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nitrobenzene	0.4	--	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
N-Nitrosodi-N-Propylamine	--	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U

Table 7. Summary of Semivolatile Organic Compounds in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
N-Nitrosodiphenylamine	--	50	UG/L	2 U	2 U	2 U	2 U	2 U	2 U
Pentachlorophenol	1	--	UG/L	0.8 UJV	0.8 UJV	0.8 UJV	0.8 UJV	0.8 UJV	0.8 UJV
Phenanthrene	--	50	UG/L	0.16	0.02 J	0.03 J	0.03 J	0.14	0.04 J
Phenol	1	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U
Pyrene	--	50	UG/L	0.08 J	0.1 U	0.1 U	0.1 U	0.07 J	0.15

Table 8. Summary of Metals in Groundwater,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	MW-3
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	N	N	N	FD
				Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit							
Aluminum	--	--	UG/L	3.86 J	128	11.3	1070	7.32 J	55.6	7.94 J
Antimony	**3**	--	UG/L	4 U	4 U	0.51 J	4 U	4 U	4 U	4 U
Arsenic	25	--	UG/L	5	5.58	0.61	0.94	0.52	0.59	0.5
Barium	1000	--	UG/L	577	577.4	126.1	135.4	100.8	96.39	101.4
Beryllium	--	3	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cadmium	5	--	UG/L	0.2 U	0.2 U	0.18 J	0.23	0.2 U	0.2 U	0.2 U
Calcium	--	--	UG/L	283000	277000	32400	30400	67000	61300	66600
Chromium, Total	50	--	UG/L	0.74 J	1 UV	0.26 J	3.78	0.31 J	1 UV	0.32 J
Cobalt	--	--	UG/L	1.3	1.14	9.21	10.52	3.7	3.66	3.69
Copper	200	--	UG/L	1 U	0.85 J	1.88	4.83	0.89 J	0.82 J	0.7 J
Iron	**300**	--	UG/L	**35400**	**34800**	126	**1850**	**332**	**421**	**365**
Lead	25	--	UG/L	1 U	2.18	1 U	1.42	1 U	1 U	1 U
Magnesium	--	**35000**	UG/L	**103000**	**104000**	7660	7440	**36800**	34200	**36100**
Manganese	**300**	--	UG/L	**2153**	**1992**	**3039**	**2848**	**4574**	**4220**	**4555**
Mercury	0.7	--	UG/L	0.2 U	0.2 U	0.2 U	0.2 UV	0.2 U	0.2 U	0.2 U
Nickel	100	--	UG/L	4.89	5.08	8.93	10.18	2.81	2.53	2.5
Potassium	--	--	UG/L	62900	63700	10700	10500	8560	7640	8240
Selenium	10	--	UG/L	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Silver	50	--	UG/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	**20000**	--	UG/L	**986000**	**978000**	**47300**	**50000**	**79300**	**72800**	**76900**
Thallium	--	0.5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vanadium	--	--	UG/L	1.83 J	2.27 J	5 U	3.72 J	5 U	5 U	5 U
Zinc	--	2000	UG/L	4.22 J	3.72 J	10.64	20.67	10 U	10 U	10 U

Table 8. Summary of Metals in Groundwater,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-3	MW-4	MW-4	MW-5	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	FD	N	N	N	N
				Total	Dissolved	Total	Dissolved	Total
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit					
Aluminum	--	--	UG/L	57.2	6.86 J	1450	21.7	300
Antimony	**3**	--	UG/L	4 U	4 U	4 U	2.14 J	**4.11**
Arsenic	25	--	UG/L	0.62	7.38	9.63	0.38 J	0.55
Barium	1000	--	UG/L	101.2	391.9	400.9	103.2	110.7
Beryllium	--	3	UG/L	0.5 U	0.5 U	0.14 J	0.5 U	0.5 U
Cadmium	5	--	UG/L	0.2 U	0.2 U	0.2 U	0.06 J	0.2 U
Calcium	--	--	UG/L	64000	184000	172000	53100	53900
Chromium, Total	50	--	UG/L	1 UV	0.33 J	4.11	0.29 J	1.22
Cobalt	--	--	UG/L	3.86	1.56	3.19	1.13	1.44
Copper	200	--	UG/L	0.7 J	1 U	9.47	1.46	1.79
Iron	**300**	--	UG/L	**435**	**12600**	**14700**	34.5 J	**690**
Lead	25	--	UG/L	1 U	1 U	20.24	1 U	0.95 J
Magnesium	--	**35000**	UG/L	**35700**	**86800**	**83300**	12200	13000
Manganese	**300**	--	UG/L	**4270**	**1158**	**1077**	**1297**	**1383**
Mercury	0.7	--	UG/L	0.2 U	0.2 U	0.2 UV	0.2 U	0.2 UV
Nickel	100	--	UG/L	2.35	4.6	7.4	1.44 J	1.62 J
Potassium	--	--	UG/L	8150	33900	32500	3810	3870
Selenium	10	--	UG/L	5 U	5 U	5 U	5 U	5 U
Silver	50	--	UG/L	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Sodium	**20000**	--	UG/L	**74900**	**642000**	**604000**	**140000**	**146000**
Thallium	--	0.5	UG/L	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vanadium	--	--	UG/L	5 U	5 U	6.75	5 U	2.26 J
Zinc	--	2000	UG/L	10 U	18.49	42.64	10 U	10 U

Table 9. Summary of Polychlorinated Biphenyls in Groundwater, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
PCB-1016 (Aroclor 1016)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1221 (Aroclor 1221)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1232 (Aroclor 1232)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1242 (Aroclor 1242)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1248 (Aroclor 1248)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1254 (Aroclor 1254)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1260 (Aroclor 1260)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1262 (Aroclor 1262)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
PCB-1268 (Aroclor 1268)	--	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U
Polychlorinated Biphenyl (PCBs)	0.09	--	UG/L	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U	0.083 U

Table 10. Summary of Pesticides in Groundwater,
Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

			Sample Designation:	MW-1	MW-2	MW-3	MW-3	MW-4	MW-5
			Sample Date:	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017	10/05/2017
			Normal or Field Duplicate:	N	N	N	FD	N	N
Parameter	NYSDEC Ambient Water-Quality Standards	NYSDEC Ambient Water-Quality Guidance Values	Unit						
Aldrin	0	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Alpha Bhc (Alpha Hexachlorocyclohexane)	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Alpha Endosulfan	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Beta Bhc (Beta Hexachlorocyclohexane)	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Beta Endosulfan	--	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Chlordane	0.05	--	UG/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-Chlordane	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Delta BHC (Delta Hexachlorocyclohexane)	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Dieldrin	0.004	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endosulfan Sulfate	--	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin	0	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Aldehyde	5	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Endrin Ketone	--	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Gamma Bhc (Lindane)	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Heptachlor	0.04	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Heptachlor Epoxide	0.03	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Methoxychlor	35	--	UG/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
P,P'-DDD	0.3	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
P,P'-DDE	0.2	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
P,P'-DDT	0.2	--	UG/L	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Toxaphene	0.06	--	UG/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-Chlordane	--	--	UG/L	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U

Table 11. Summary of Volatile Organic Compounds in Soil Vapor, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Sample Designation:		SV-1	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7	SV-8
Sample Date:		09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017
Normal or Field Duplicate:		N	N	N	N	N	N	N	N
Parameter	Units								
1,1,1-Trichloroethane (TCA)	UG/M3	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	**1.36**
1,1,2,2-Tetrachloroethane	UG/M3	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U	1.37 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/M3	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U	1.53 U
1,1,2-Trichloroethane	UG/M3	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U	1.09 U
1,1-Dichloroethane	UG/M3	0.809 U	0.809 U	**2.24**	0.809 U	**4.53**	0.809 U	0.809 U	0.809 U
1,1-Dichloroethene	UG/M3	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U
1,2,4-Trichlorobenzene	UG/M3	1.48 U	1.48 U	1.48 U	1.48 U	1.48 U	**2**	1.48 U	1.48 U
1,2,4-Trimethylbenzene	UG/M3	**1.1**	**1.12**	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	**1.25**
1,2-Dibromoethane (Ethylene Dibromide)	UG/M3	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U	1.54 U
1,2-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,2-Dichloroethane	UG/M3	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U	0.809 U
1,2-Dichloropropane	UG/M3	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U	0.924 U
1,2-Dichlorotetrafluoroethane	UG/M3	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U
1,3-Butadiene	UG/M3	0.442 U	0.442 U	0.442 U	0.442 U	0.442 U	0.442 U	0.442 U	0.442 U
1,3-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	UG/M3	**2.54**	**2.53**	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	**1.7**
1,4-Dioxane (P-Dioxane)	UG/M3	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U
2,2,4-Trimethylpentane	UG/M3	0.934 U	0.934 U	0.934 U	0.934 U	0.934 U	0.934 U	0.934 U	0.934 U
2-Hexanone	UG/M3	0.82 U	0.82 U	**5.61**	**3.03**	**3.37**	**1.84**	**1.95**	0.82 U
4-Ethyltoluene	UG/M3	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U	0.983 U
Acetone	UG/M3	**17.9**	**22**	**5.96**	**4.85**	2.38 U	**3.71**	**3.37**	2.38 U
Allyl Chloride (3-Chloropropene)	UG/M3	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U	0.626 U
Benzene	UG/M3	0.639 U	**0.952**	0.639 U	0.639 U	0.639 U	0.639 U	0.639 U	**1.76**
Benzyl Chloride	UG/M3	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U	1.04 U
Bromodichloromethane	UG/M3	1.34 U	**15.3**	1.34 U	1.34 U	1.34 U	1.34 U	1.34 U	1.34 U
Bromoform	UG/M3	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U	2.07 U
Bromomethane	UG/M3	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U	0.777 U
Carbon Disulfide	UG/M3	0.623 U	**4.33**	**1.49**	**0.657**	**1.11**	0.623 U	**1.15**	**6.63**
Carbon Tetrachloride	UG/M3	1.26 U	1.26 U	1.26 U	1.26 U	1.26 U	1.26 U	1.26 U	1.26 U
Chlorobenzene	UG/M3	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U	0.921 U
Chloroethane	UG/M3	0.528 U	0.528 U	0.528 U	0.528 U	0.528 U	0.528 U	0.528 U	0.528 U
Chloroform	UG/M3	**40**	**237**	**27.9**	**5.13**	**8.79**	**1.41**	0.977 U	**16**
Chloromethane	UG/M3	0.413 U	**1.2**	**2.13**	0.413 U	**0.956**	0.413 U	0.413 U	**0.475**
Cis-1,2-Dichloroethylene	UG/M3	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U

Table 11. Summary of Volatile Organic Compounds in Soil Vapor, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Sample Designation:		SV-1	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7	SV-8
Sample Date:		09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017	09/28/2017
Normal or Field Duplicate:		N	N	N	N	N	N	N	N
Parameter	Units								
Cis-1,3-Dichloropropene	UG/M3	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U
Cyclohexane	UG/M3	0.688 U	0.688 U	0.688 U	0.688 U	0.688 U	0.688 U	0.688 U	**0.826**
Dibromochloromethane	UG/M3	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Dichlorodifluoromethane	UG/M3	0.989 U	**1.08**	**1.13**	**1.35**	0.989 U	**2.56**	**1.77**	**1.63**
Ethanol	UG/M3	9.42 U	**10.6**	9.42 U	9.42 U	9.42 U	9.42 U	9.42 U	9.42 U
Ethyl Acetate	UG/M3	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Ethylbenzene	UG/M3	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	0.869 U	**2.34**	0.869 U
Hexachlorobutadiene	UG/M3	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U	2.13 U
Isopropanol	UG/M3	**20.3**	**14**	1.23 U	1.23 U	1.23 U	1.23 U	1.23 U	**7.87**
m,p-Xylene	UG/M3	1.74 U	1.74 U	1.74 U	**1.82**	1.74 U	**2.82**	**10**	**2.2**
Methyl Ethyl Ketone (2-Butanone)	UG/M3	**2.26**	**3.24**	**7.08**	**3.27**	**4.63**	**3.92**	**3.04**	**2.16**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UG/M3	2.05 U	2.05 U	2.05 U	2.05 U	2.05 U	2.05 U	2.05 U	2.05 U
Methylene Chloride	UG/M3	1.74 U	**2.2**	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U
N-Heptane	UG/M3	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
N-Hexane	UG/M3	**0.952**	0.705 U	0.705 U	0.705 U	0.705 U	0.705 U	0.705 U	**2.05**
O-Xylene (1,2-Dimethylbenzene)	UG/M3	0.869 U	**1.02**	**0.916**	**1.01**	0.869 U	**1.46**	**4.25**	**1.18**
Styrene	UG/M3	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U	0.852 U
Tert-Butyl Alcohol	UG/M3	**13.2**	**19.1**	1.52 U	1.52 U	1.52 U	1.52 U	1.52 U	**5.82**
Tert-Butyl Methyl Ether	UG/M3	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U	0.721 U
Tetrachloroethylene (PCE)	UG/M3	**2.79**	**195**	**26.5**	**69.2**	**22.8**	**52.4**	**99**	**11.3**
Tetrahydrofuran	UG/M3	1.47 U	1.47 U	1.47 U	1.47 U	1.47 U	1.47 U	1.47 U	1.47 U
Toluene	UG/M3	**2.53**	**2.2**	**1.79**	**3.35**	**0.984**	**2.58**	**1.12**	**2.53**
Trans-1,2-Dichloroethene	UG/M3	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U
Trans-1,3-Dichloropropene	UG/M3	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U	0.908 U
Trichloroethylene (TCE)	UG/M3	**13.6**	**9.83**	1.07 U	1.07 U	1.07 U	1.07 U	1.07 U	**1.35**
Trichlorofluoromethane	UG/M3	**52.7**	**30.6**	**26.9**	**17.8**	**23.8**	**16.6**	**20.3**	**41.8**
Vinyl Bromide	UG/M3	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U	0.874 U
Vinyl Chloride	UG/M3	0.511 U	0.511 U	0.511 U	0.511 U	0.511 U	0.511 U	0.511 U	0.511 U

Table 11. Summary of Volatile Organic Compounds in Soil Vapor, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Sample Designation:		SV-9	SV-10	SV-10
Sample Date:		09/28/2017	09/28/2017	09/28/2017
Normal or Field Duplicate:		N	N	FD
Parameter	Units			
1,1,1-Trichloroethane (TCA)	UG/M3	**12.7**	1.09 UJV	**47.6 JV**
1,1,2,2-Tetrachloroethane	UG/M3	1.37 U	1.37 U	1.37 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	UG/M3	1.53 U	1.53 U	1.53 U
1,1,2-Trichloroethane	UG/M3	1.09 U	1.09 U	1.09 U
1,1-Dichloroethane	UG/M3	0.809 U	0.809 UJV	**13.4 JV**
1,1-Dichloroethene	UG/M3	0.793 U	0.793 U	**2.87**
1,2,4-Trichlorobenzene	UG/M3	1.48 U	1.48 U	1.48 U
1,2,4-Trimethylbenzene	UG/M3	0.983 U	0.983 U	0.983 U
1,2-Dibromoethane (Ethylene Dibromide)	UG/M3	1.54 U	1.54 U	1.54 U
1,2-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U
1,2-Dichloroethane	UG/M3	0.809 U	0.809 U	0.809 U
1,2-Dichloropropane	UG/M3	0.924 U	0.924 U	0.924 U
1,2-Dichlorotetrafluoroethane	UG/M3	1.4 U	1.4 U	1.4 U
1,3,5-Trimethylbenzene (Mesitylene)	UG/M3	0.983 U	0.983 U	0.983 U
1,3-Butadiene	UG/M3	0.442 U	0.442 U	0.442 U
1,3-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U
1,4-Dichlorobenzene	UG/M3	1.2 U	1.2 U	1.2 U
1,4-Dioxane (P-Dioxane)	UG/M3	0.721 U	0.721 U	**1.12**
2,2,4-Trimethylpentane	UG/M3	0.934 U	0.934 U	0.934 U
2-Hexanone	UG/M3	**14.4**	**10.7 JV**	**6.02 JV**
4-Ethyltoluene	UG/M3	0.983 U	0.983 U	0.983 U
Acetone	UG/M3	**5.06**	**4.8**	**5.49**
Allyl Chloride (3-Chloropropene)	UG/M3	0.626 U	0.626 U	0.626 U
Benzene	UG/M3	0.639 U	0.639 U	0.639 U
Benzyl Chloride	UG/M3	1.04 U	1.04 U	1.04 U
Bromodichloromethane	UG/M3	1.34 U	1.34 U	1.34 U
Bromoform	UG/M3	2.07 U	2.07 U	2.07 U
Bromomethane	UG/M3	0.777 U	0.777 U	0.777 U
Carbon Disulfide	UG/M3	0.623 U	**1.68**	**1.27**
Carbon Tetrachloride	UG/M3	1.26 U	1.26 U	1.26 U
Chlorobenzene	UG/M3	0.921 U	0.921 U	0.921 U
Chloroethane	UG/M3	0.528 U	0.528 UJV	**1.24 JV**
Chloroform	UG/M3	**10**	**1.38**	0.977 U
Chloromethane	UG/M3	0.413 U	0.413 U	0.413 U
Cis-1,2-Dichloroethylene	UG/M3	0.793 U	0.793 UJV	**116 JV**

Table 11. Summary of Volatile Organic Compounds in Soil Vapor, Greenpoint Ferry Site, Greenpoint, Brooklyn, New York

Sample Designation:		SV-9	SV-10	SV-10
Sample Date:		09/28/2017	09/28/2017	09/28/2017
Normal or Field Duplicate:		N	N	FD
Parameter	Units			
Cis-1,3-Dichloropropene	UG/M3	0.908 U	0.908 U	0.908 U
Cyclohexane	UG/M3	0.688 U	0.688 U	0.688 U
Dibromochloromethane	UG/M3	1.7 U	1.7 U	1.7 U
Dichlorodifluoromethane	UG/M3	**1.48**	**1.74 JV**	**3.52 JV**
Ethanol	UG/M3	9.42 U	9.42 U	9.42 U
Ethyl Acetate	UG/M3	1.8 U	1.8 U	1.8 U
Ethylbenzene	UG/M3	0.869 U	0.869 U	**0.947**
Hexachlorobutadiene	UG/M3	2.13 U	2.13 U	2.13 U
Isopropanol	UG/M3	1.23 U	1.23 UJV	**2.51 JV**
m,p-Xylene	UG/M3	**1.8**	**2.13**	**3.76**
Methyl Ethyl Ketone (2-Butanone)	UG/M3	**24.9**	**19.5**	**11.7**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	UG/M3	2.05 U	2.05 U	2.05 U
Methylene Chloride	UG/M3	1.74 U	1.74 U	1.74 U
N-Heptane	UG/M3	0.82 U	0.82 U	0.82 U
N-Hexane	UG/M3	0.705 U	0.705 U	0.705 U
O-Xylene (1,2-Dimethylbenzene)	UG/M3	**0.964**	**1.12**	**1.74**
Styrene	UG/M3	0.852 U	0.852 U	0.852 U
Tert-Butyl Alcohol	UG/M3	1.52 U	1.52 U	1.52 U
Tert-Butyl Methyl Ether	UG/M3	0.721 U	0.721 U	0.721 U
Tetrachloroethylene (PCE)	UG/M3	**90.2**	**2.9 JV**	**304 JV**
Tetrahydrofuran	UG/M3	1.47 U	1.47 U	1.47 U
Toluene	UG/M3	**1.78**	**2.89**	**2.58**
Trans-1,2-Dichloroethene	UG/M3	0.793 U	0.793 U	0.793 U
Trans-1,3-Dichloropropene	UG/M3	0.908 U	0.908 U	0.908 U
Trichloroethylene (TCE)	UG/M3	**3.96**	1.07 UJV	**14.1 JV**
Trichlorofluoromethane	UG/M3	**14.2**	**19.4**	**18.2**
Vinyl Bromide	UG/M3	0.874 U	0.874 U	0.874 U
Vinyl Chloride	UG/M3	0.511 U	0.511 UJV	**1.55 JV**

FIGURES

1. Site Location Map
2. Site Plan Showing Proposed Demolition and Geotechnical Components
3. Site Plan with Remedial Investigation Sampling Locations
4. Soil Exceedances of Unrestricted Use Soil Cleanup Objectives
5. Soil Exceedances of Protection of Groundwater and Restricted Residential Soil Cleanup Objectives
6. Groundwater Sample Exceedances of AWQSGVs
7. Soil Vapor Detections

QUADRANGLE LOCATION

SOURCE:
USGS; 2016, Brooklyn, NY
7.5 Minute Topographic Quadrangle

N

0 2000'

Title:

SITE LOCATION MAP

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA OWNER LLC

ROUX

Compiled by: E.B.	Date: 15MAR21
Prepared by: B.H.C.	Scale: AS SHOWN
Project Mgr: J.W.	Project: 3583.0001Y000
File: 3583.0001Y110.01.CDR	

FIGURE 1

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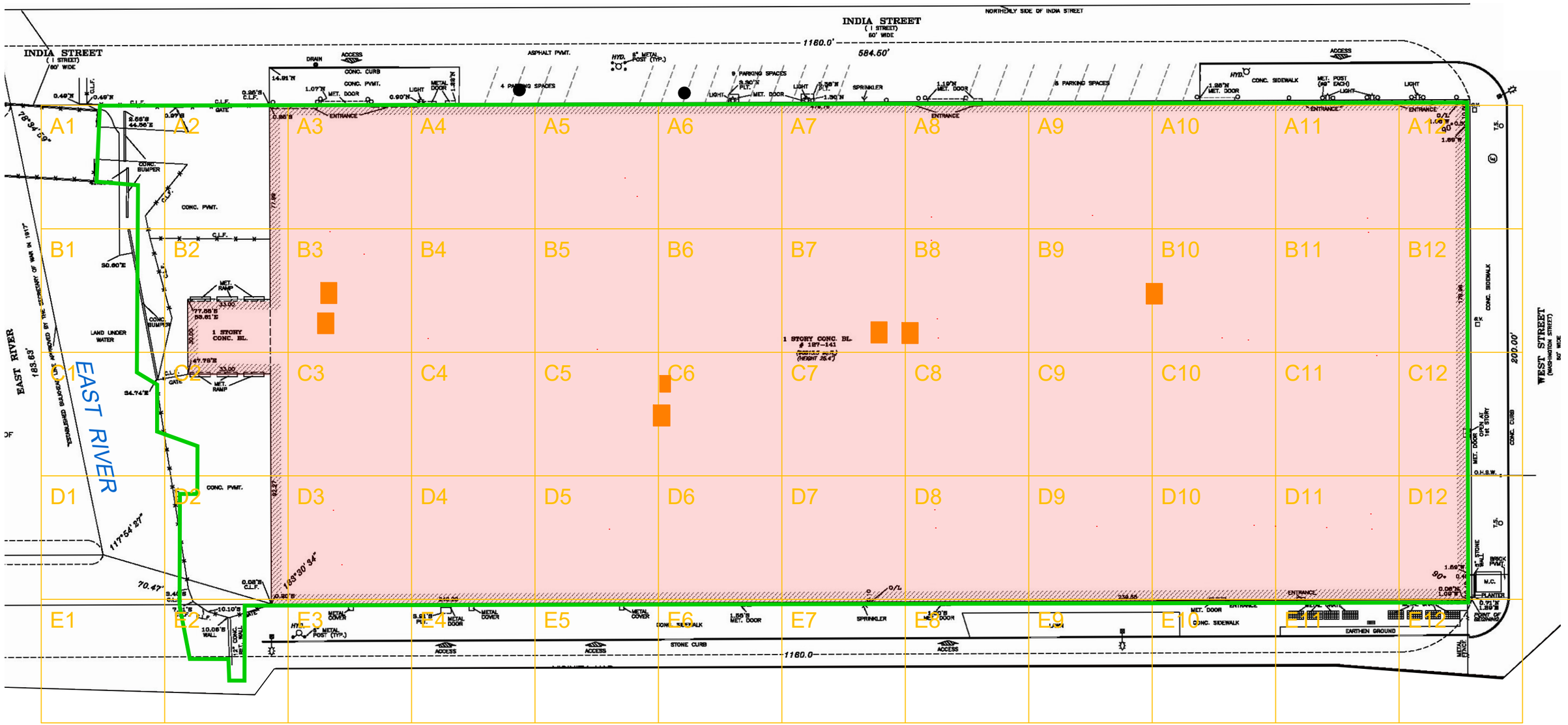

LEGEND

- BCP SITE BOUNDARY
- PROPOSED TEST PIT
- STRUCTURE TO BE DEMOLISHED
- 50 FT ALPHANUMERIC GRID

NOTE

1. BCP – BROWNFIELD CLEANUP PROGRAM
2. ABOVE GRADE BUILDING STRUCTURES WILL BE DEMOLISHED AS PART OF THIS IRM (SLAB AND BELOW GRADE STRUCTURE WILL REMAIN)

40' 0 40'

Title:

SITE PLAN SHOWING PROPOSED DEMOLITION AND GEOTECHNICAL COMPONENTS

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA OWNER LLC

ROUX

Compiled by: E.B.	Date: 24MAR21	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	
Project Mgr: J.W.	Project: 3583.0001Y000	2
File: 3583.0001Y110.02.DWG		

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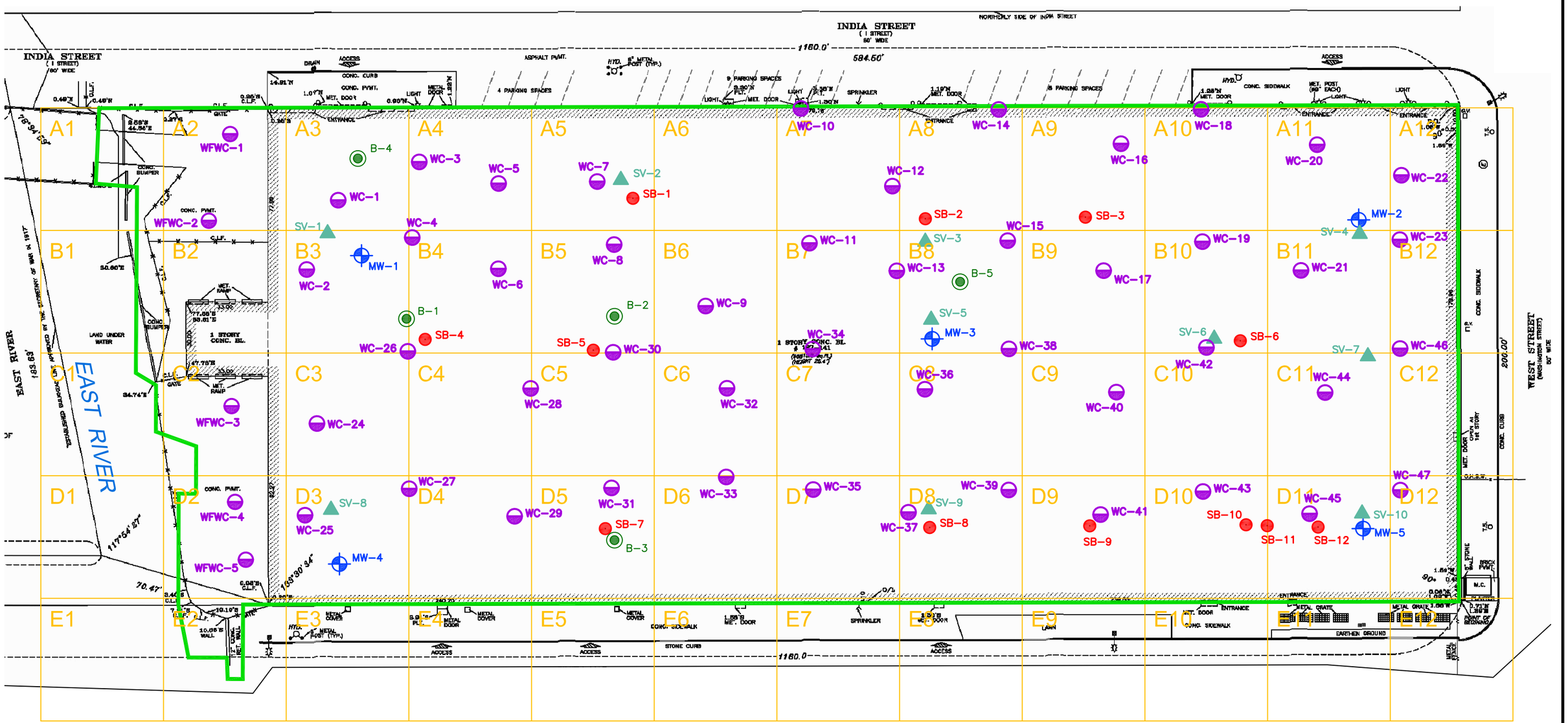

LEGEND

- BCP SITE BOUNDARY
- SB-1 — LOCATION AND DESIGNATION OF SOIL BORING
- MW-1 — LOCATION AND DESIGNATION OF MONITORING WELL
- SV-1 — LOCATION AND DESIGNATION OF SOIL VAPOR MONITORING POINT
- WC-1 — LOCATION AND DESIGNATION OF WASTE CHARACTERIZATION SOIL BORING
- B-1 — LOCATION AND DESIGNATION OF HISTORIC SOIL BORING COMPLETED BY ENVIRONMENTAL WASTE MANAGEMENT ASSOCIATES (EWMA)
- 50 FT ALPHANUMERIC GRID

NOTE

1. SEE APPENDIX C OF RI/RAWP FOR COMPLETE WASTE CHARACTERIZATION REPORT
2. BCP – BROWNFIELD CLEANUP PROGRAM
3. RI/RAWP – REMEDIAL INVESTIGATION/REMEDIAL ACTION WORK PLAN

40' 0 40'

Title:

SITE PLAN WITH REMEDIAL INVESTIGATION SAMPLE LOCATIONS

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA OWNER LLC

ROUX

Compiled by: E.B.	Date: 15MAR21
Prepared by: B.H.C.	Scale: AS SHOWN
Project Mgr: J.W.	Project: 3583.0001Y000
File: 3583.0001Y110.03.DWG	

FIGURE 3

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MW-1	9/27/17	9/27/17
Depth (ft bls)	3 - 5	9 - 11
VOCs	NE	NE
SVOCs		
Benzo(A)Anthracene	**1.3**	NE
Benzo(A)Pyrene	**1.2**	NE
Benzo(B)Fluoranthene	**1.5**	NE
Chrysene	**1.3**	NE
Indeno(1,2,3-C,D)Pyrene	**0.72**	NE
Metals		
Lead	**152**	NE

SB-5	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	9-11
VOCs	NE	NE
SVOCs		
Benzo(A)Anthracene	**1.2**	ND
Benzo(A)Pyrene	**1.3**	ND
Benzo(B)Fluoranthene	**1.6**	ND
Chrysene	**1.2**	ND
Indeno(1,2,3-C,D)Pyrene	**0.9**	ND
Metals		
Copper	**108**	NE
Lead	**1090**	NE
Mercury	**0.76**	NE
Zinc	**358**	NE

SB-1	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	10-12
VOCs		
Acetone	NE	**0.064**
SVOCs		
3- And 4- Methylphenol (Total)	ND	**0.41**
Benzo(A)Anthracene	**1.6**	**1.9**
Benzo(A)Pyrene	**1.6**	**2.2**
Benzo(B)Fluoranthene	**2.3**	**2.5**
Chrysene	**1.6**	**1.6**
Indeno(1,2,3-C,D)Pyrene	**1.1**	**1.3**
Metals		
Cadmium	NE	**4.15**
Copper	**64**	NE
Lead	**343**	**2530**
Mercury	**0.47**	**2**
Zinc	NE	**1610**

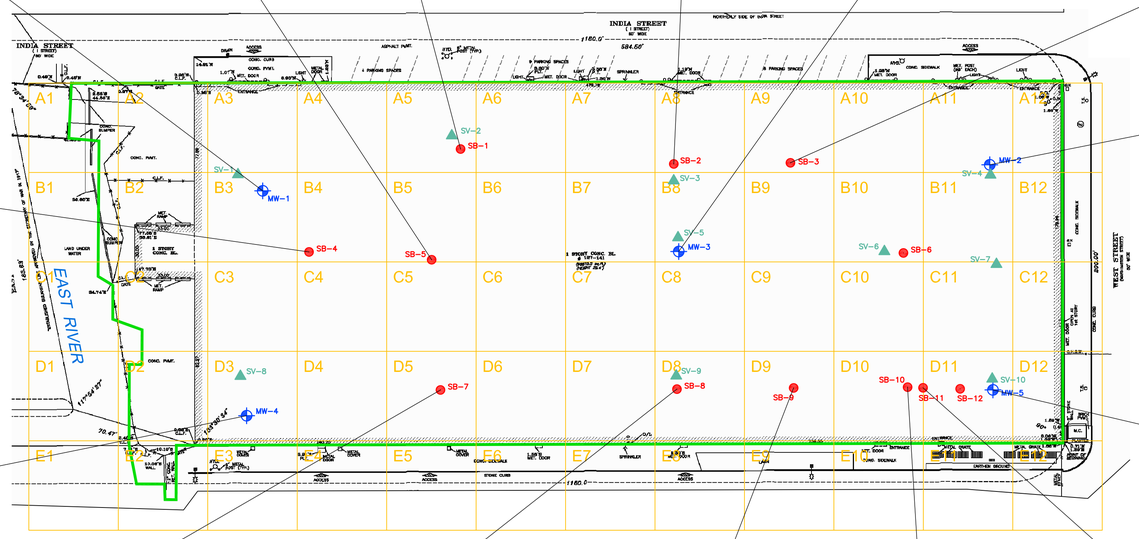
SB-2	9/20/17	9/20/17	9/20/17	9/20/17
Depth (ft bls)	0-2	5-7	10-12	15-17
VOCs	ND	ND	NE	NE
SVOCs	NE	NE	ND	ND
Metals				
Cadmium	NE	NE	**8.61**	NE

MW-3	9/20/17	9/20/17	9/20/17	9/20/17	9/20/17
Depth (ft bls)	0 - 2	5 - 7	5 - 7 DUP	12.5 - 14.5	15 - 17
VOCs	ND	ND	ND	NE	ND
SVOCs					
Benzo(B)Fluoranthene	**1.3**	ND	ND	ND	ND
Indeno(1,2,3-C,D)Pyrene	**0.67**	ND	ND	ND	ND
Metals					
Mercury	**0.22**	NE	NE	ND	ND

SB-3	9/18/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0 - 2	5-7	10-12	15-17
VOCs	NE	NE	NE	NE
SVOCs				
Benzo(A)Anthracene	**1.1**	NE	NE	NE
Benzo(B)Fluoranthene	**1.3**	NE	NE	NE
Chrysene	**1.1**	NE	NE	NE
Indeno(1,2,3-C,D)Pyrene	**0.61**	NE	NE	NE
Metals				
Chromium	**34.9**	NE	NE	NE

MW-2	9/19/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0 - 2	5 - 7	10 - 12	15 - 17
VOCs	NE	ND	ND	ND
SVOCs	NE	ND	NE	NE
Metals				
Arsenic	NE	**26.7**	NE	NE

SB-4	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	8-10
VOCs		
Acetone	NE	**0.06**
SVOCs		
Benzo(A)Anthracene	**1.3**	**42**
Benzo(A)Pyrene	**1.2**	**54**
Benzo(B)Fluoranthene	**1.5**	**57**
Benzo(K)Fluoranthene	NE	**17**
Chrysene	**1.2**	**35**
Dibenz(A,H)Anthracene	NE	**8.3**
Indeno(1,2,3-C,D)Pyrene	**0.75**	**36**
Metals		
Lead	**186**	NE
Mercury	**0.41**	NE



MW-4	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	8-10
VOCs		
Acetone	ND	**0.12**
SVOCs		
Benzo(A)Anthracene	**1.1**	**2.4**
Benzo(A)Pyrene	**1.1**	**2**
Benzo(B)Fluoranthene	**1.4**	**2.5**
Chrysene	NE	**2**
Indeno(1,2,3-C,D)Pyrene	**0.66**	**1**
Metals		
Lead	**137**	**249**
Mercury	**0.34**	**0.19**

MW-5	9/18/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0-2	5 - 7	10 - 12	15 - 17
VOCs	NE	ND	NE	NE
SVOCs	NE	NE	NE	ND
Metals				
Arsenic	**31.2**	NE	NE	NE

SB-7	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	10-12
VOCs		
Acetone	NE	**0.055**
SVOCs		
Benzo(B)Fluoranthene	**1.3**	NE
Indeno(1,2,3-C,D)Pyrene	**0.64**	ND
Metals		
Chromium	**42.4**	NE
Copper	**1590**	NE
Lead	**300**	NE
Mercury	**1.4**	**0.26**
Nickel	**40.2**	NE

SB-8	9/20/17	9/20/17	9/20/17	9/20/17
Depth (ft bls)	0-2	5-7	10-12	15-17
VOCs	NE	ND	NE	NE
SVOCs				
Indeno(1,2,3-C,D)Pyrene	**0.62**	NE	ND	ND
Metals				
Arsenic	**23.3**	NE	NE	NE
Copper	**72**	NE	NE	NE
Lead	**136**	NE	NE	NE
Mercury	**1**	NE	NE	ND
Zinc	**130**	NE	NE	NE

SB-9	9/18/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0-2	8-10	10-12	15-17
VOCs	NE	NE	NE	NE
SVOCs				
Benzo(A)Anthracene	**10**	ND	NE	NE
Benzo(A)Pyrene	**9.7**	ND	NE	ND
Benzo(B)Fluoranthene	**12**	ND	NE	ND
Benzo(K)Fluoranthene	**3.3**	ND	NE	ND
Chrysene	**9.2**	ND	NE	NE
Dibenz(A,H)Anthracene	**1.2**	ND	NE	ND
Indeno(1,2,3-C,D)Pyrene	**6.2**	ND	NE	ND
Metals				
Arsenic	**24.6**	NE	**16.1**	NE
Lead	**151**	NE	NE	NE
Mercury	**0.29**	ND	NE	ND

SB-10	9/18/17	9/18/17	9/18/17	9/18/17
Depth (ft bls)	0-2	5-7	12-14	18-20
VOCs	NE	NE	NE	NE
SVOCs				
3- And 4- Methylphenol (Total)	**.480 J**	NE	ND	ND
Benzo(A)Anthracene	**31**	**6.2**	NE	ND
Benzo(A)Pyrene	**28**	**5.4**	NE	ND
Benzo(B)Fluoranthene	**35**	**6.5**	NE	ND
Benzo(K)Fluoranthene	**11**	**1.9**	NE	ND
Chrysene	**29**	**5.3**	NE	ND
Dibenz(A,H)Anthracene	**3.4**	**0.64**	ND	ND
Dibenzofuran	**11**	NE	NE	ND
Indeno(1,2,3-C,D)Pyrene	**17**	**2.9**	NE	ND
Naphthalene	**23**	NE	NE	ND
Metals				
Arsenic	**71.4**	NE	**37.2**	NE
Chromium	**49.7**	NE	**36.6**	NE
Lead	**134**	NE	NE	NE
Zinc	**162**	NE	NE	NE

SB-11	9/29/17	9/29/17	9/29/17
Depth (ft bls)	0-2	3-5	15-17
VOCs	NE	NE	NE
SVOCs			
3- And 4- Methylphenol (Total)	NE	**.870 J**	ND
Benzo(A)Anthracene	**17**	**42**	ND
Benzo(A)Pyrene	**13**	**30**	ND
Benzo(B)Fluoranthene	**22**	**49**	ND
Benzo(K)Fluoranthene	**4.1**	**10**	ND
Chrysene	**14**	**36**	ND
Dibenz(A,H)Anthracene	**1.7**	**4**	ND
Dibenzofuran	NE	**15**	ND
Indeno(1,2,3-C,D)Pyrene	**8.6**	**19**	ND
Naphthalene	NE	**24**	ND
Phenanthrene	NE	**120**	ND
Metals			
Arsenic	**34**	**32**	NE
Chromium	**32.5**	**36.8**	NE
Copper	**50.3**	**107**	NE
Lead	**191**	**187**	NE
Mercury	**0.48**	**0.51**	NE
Nickel	NE	**33**	NE
Zinc	**117**	**504**	NE

LEGEND

- BCP SITE BOUNDARY
- SB-1 — LOCATION AND DESIGNATION OF SOIL BORING
- MW-1 — LOCATION AND DESIGNATION OF MONITORING WELL
- SV-1 — LOCATION AND DESIGNATION OF SOIL VAPOR MONITORING POINT
- 50 FT ALPHANUMERIC GRID
- BCP BROWNFIELD CLEANUP PROGRAM

TYPICAL DATA BOX INFORMATION

SAMPLE ID# → MW-1	9/27/17	9/27/17	← SAMPLE DATE
Depth (ft bls)	3 - 5	9 - 11	← SAMPLE DEPTH (FT BLS)
VOCs	NE	NE	
SVOCs			
ANALYTES → Benzo(A)Anthracene	**1.3**	NE	← CONCENTRATION (mg/kg)
Benzo(A)Pyrene	**1.2**	NE	
Benzo(B)Fluoranthene	**1.5**	NE	
Chrysene	**1.3**	NE	
Indeno(1,2,3-C,D)Pyrene	**0.72**	NE	
Metals			
Lead	**152**	NE	

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Unrestricted Use SCO
VOCs	
Acetone	**0.05**
SVOCs	
3- And 4- Methylphenol (Total)	**0.33**
Benzo(A)Anthracene	**1**
Benzo(A)Pyrene	**1**
Benzo(B)Fluoranthene	**1**
Benzo(K)Fluoranthene	**0.8**
Chrysene	**1**
Dibenz(A,H)Anthracene	**0.33**
Dibenzofuran	**7**
Indeno(1,2,3-C,D)Pyrene	**0.5**
Naphthalene	**12**
Phenanthrene	**100**
Metals	
Arsenic	**13**
Cadmium	**2.5**
Chromium	**30**
Copper	**50**
Lead	**63**
Mercury	**0.18**
Nickel	**30**
Zinc	**109**

J - Estimated value
V - Value altered or qualifier added during data validation
mg/kg - Milligrams per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
SCO - Soil Cleanup Objectives
-- - No SCO available
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
NE - No exceedance
ND - No detection

Bold data indicates that parameter was detected above the NYSDEC Part 375 Unrestricted Use SCO

NOTE

THERE WERE NO EXCEEDANCES OF THE UNRESTRICTED USE SCO IDENTIFIED IN BORINGS SB-6 AND SB-12.

N

40' 0 40'

Title:

SOIL SAMPLE EXCEEDANCES OF UNRESTRICTED USE SOIL CLEANUP OBJECTIVES

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA OWNER LLC

ROUX

Compiled by: E.B.	Date: 03MAR21	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	4
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583.0001Y110.06.DWG		

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LEGEND

- BCP SITE BOUNDARY
- SB-1 — LOCATION AND DESIGNATION OF SOIL BORING
- MW-1 — LOCATION AND DESIGNATION OF MONITORING WELL
- SV-1 — LOCATION AND DESIGNATION OF SOIL VAPOR MONITORING POINT
- 50 FT ALPHANUMERIC GRID
- BCP BROWNFIELD CLEANUP PROGRAM

TYPICAL DATA BOX INFORMATION

MW-4	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	8-10
VOCs		
Acetone	ND	0.12
SVOCs		
Benzo(A)Anthracene	**1.1**	**2.4**
Benzo(A)Pyrene	**1.1**	**2**
Benzo(B)Fluoranthene	**1.4**	**2.5**
Chrysene	NE	2
Indeno(1,2,3-C,D)Pyrene	**0.66**	**1**
Metals	NE	NE

SAMPLE ID# — SAMPLE DATE — SAMPLE DEPTH (FT BLS) — ANALYTES — CONCENTRATION (mg/kg)

MW-1	9/27/17	9/27/17
Depth (ft bls)	3 - 5	9 -11
VOCs	NE	NE
SVOCs		
Benzo(A)Anthracene	**1.3**	NE
Benzo(A)Pyrene	**1.2**	NE
Benzo(B)Fluoranthene	**1.5**	NE
Chrysene	1.3	NE
Indeno(1,2,3-C,D)Pyrene	**0.72**	NE
Metals	NE	NE

SB-5	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	9-11
VOCs	NE	NE
SVOCs		
Benzo(A)Anthracene	**1.2**	ND
Benzo(A)Pyrene	**1.3**	ND
Benzo(B)Fluoranthene	**1.6**	ND
Chrysene	1.2	ND
Indeno(1,2,3-C,D)Pyrene	**0.9**	ND
Metals		
Lead	**1090**	NE
Mercury	0.76	NE

SB-1	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	10-12
VOCs		
Acetone	NE	0.064
SVOCs		
3- And 4- Methylphenol (Total)	ND	0.41
Benzo(A)Anthracene	**1.6**	**1.9**
Benzo(A)Pyrene	**1.6**	**2.2**
Benzo(B)Fluoranthene	**2.3**	**2.5**
Chrysene	1.6	1.6
Indeno(1,2,3-C,D)Pyrene	**1.1**	**1.3**
Metals		
Lead	343	**2530**
Mercury	0.47	**2**

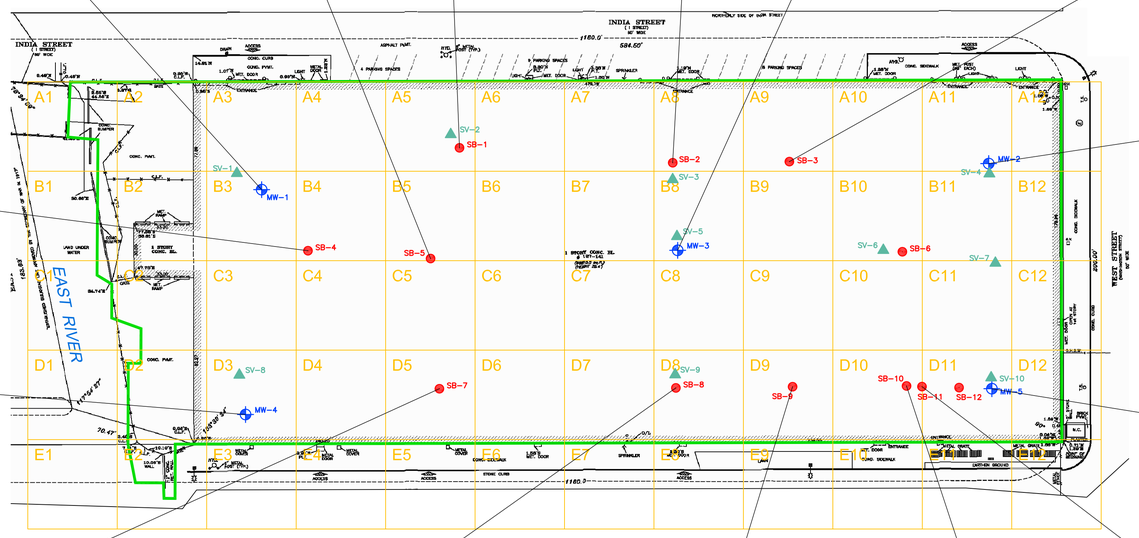
SB-2	9/20/17	9/20/17	9/20/17	9/20/17
Depth (ft bls)	0-2	5-7	10-12	15-17
VOCs	ND	ND	NE	NE
SVOCs	NE	NE	ND	ND
Metals				
Cadmium	NE	NE	**8.61**	NE

MW-3	9/20/17	9/20/17	9/20/17	9/20/17	9/20/17
Depth (ft bls)	0 - 2	5 - 7	5 - 7 DUP	12.5 - 14.5	15 - 17
VOCs	ND	ND	ND	NE	ND
SVOCs					
Benzo(B)Fluoranthene	**1.3**	ND	ND	ND	ND
Indeno(1,2,3-C,D)Pyrene	**0.67**	ND	ND	ND	ND
Metals	NE	NE	NE	ND	ND

SB-3	9/18/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0 - 2	5-7	10-12	15-17
VOCs	NE	NE	NE	NE
SVOCs				
Benzo(A)Anthracene	**1.1**	NE	NE	NE
Benzo(B)Fluoranthene	**1.3**	NE	NE	NE
Chrysene	1.1	NE	NE	NE
Indeno(1,2,3-C,D)Pyrene	**0.61**	NE	NE	NE
Metals	NE	NE	NE	NE

MW-2	9/19/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0 - 2	5 - 7	10 - 12	15 - 17
VOCs	NE	ND	ND	ND
SVOCs	NE	ND	NE	NE
Metals				
Arsenic	NE	**26.7**	NE	NE

SB-4	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	8-10
VOCs		
Acetone	NE	0.06
SVOCs		
Benzo(A)Anthracene	**1.3**	**42**
Benzo(A)Pyrene	**1.2**	**54**
Benzo(B)Fluoranthene	**1.5**	**57**
Benzo(K)Fluoranthene	NE	**17**
Chrysene	1.2	**35**
Dibenz(A,H)Anthracene	NE	**8.3**
Indeno(1,2,3-C,D)Pyrene	**0.75**	**36**
Metals	NE	NE



MW-4	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	8-10
VOCs		
Acetone	ND	0.12
SVOCs		
Benzo(A)Anthracene	**1.1**	**2.4**
Benzo(A)Pyrene	**1.1**	**2**
Benzo(B)Fluoranthene	**1.4**	**2.5**
Chrysene	NE	2
Indeno(1,2,3-C,D)Pyrene	**0.66**	**1**
Metals	NE	NE

MW-5	9/18/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0-2	5 - 7	10 - 12	15 - 17
VOCs	NE	ND	NE	NE
SVOCs	NE	NE	NE	ND
Metals				
Arsenic	**31.2**	NE	NE	NE

SB-7	9/27/17	9/27/17
Depth (ft bls)	2.5 - 4.5	10-12
VOCs		
Acetone	NE	0.055
SVOCs		
Benzo(B)Fluoranthene	**1.3**	NE
Indeno(1,2,3-C,D)Pyrene	**0.64**	ND
Metals		
Copper	**1590**	NE
Mercury	**1.4**	0.26

SB-8	9/20/17	9/20/17	9/20/17	9/20/17
Depth (ft bls)	0-2	5-7	10-12	15-17
VOCs	NE	ND	NE	NE
SVOCs				
Indeno(1,2,3-C,D)Pyrene	**0.62**	NE	ND	ND
Metals				
Arsenic	**23.3**	NE	NE	NE
Mercury	**1**	NE	NE	ND

SB-9	9/18/17	9/19/17	9/19/17	9/19/17
Depth (ft bls)	0-2	8-10	10-12	15-17
VOCs	NE	NE	NE	NE
SVOCs				
Benzo(A)Anthracene	**10**	ND	NE	NE
Benzo(A)Pyrene	**9.7**	ND	NE	ND
Benzo(B)Fluoranthene	**12**	ND	NE	ND
Benzo(K)Fluoranthene	3.3	ND	NE	ND
Chrysene	**9.2**	ND	NE	ND
Dibenz(A,H)Anthracene	**1.2**	ND	NE	ND
Indeno(1,2,3-C,D)Pyrene	**6.2**	ND	NE	ND
Metals				
Arsenic	**24.6**	NE	**16.1**	NE

SB-10	9/18/17	9/18/17	9/18/17	9/18/17
Depth (ft bls)	0-2	5-7	12-14	18-20
VOCs				
Naphthalene	23	**120**	NE	NE
SVOCs				
3- And 4- Methylphenol (Total)	.480 J	NE	ND	ND
Benzo(A)Anthracene	**31**	**6.2**	NE	ND
Benzo(A)Pyrene	**28**	**5.4**	NE	ND
Benzo(B)Fluoranthene	**35**	**6.5**	NE	ND
Benzo(K)Fluoranthene	**11**	1.9	NE	ND
Chrysene	**29**	**5.3**	NE	ND
Dibenz(A,H)Anthracene	**3.4**	**0.64**	ND	ND
Indeno(1,2,3-C,D)Pyrene	**17**	**2.9**	NE	ND
Naphthalene	23	NE	NE	ND
Metals				
Arsenic	**71.4**	NE	**37.2**	NE

SB-11	9/29/17	9/29/17	9/29/17
Depth (ft bls)	0-2	3-5	15-17
VOCs			
Naphthalene	NE	**140 JV**	NE
SVOCs			
3- And 4- Methylphenol (Total)	NE	0.870 J	ND
Benzo(A)Anthracene	**17**	**42**	ND
Benzo(A)Pyrene	**13**	**30**	ND
Benzo(B)Fluoranthene	**22**	**49**	ND
Benzo(K)Fluoranthene	**4.1**	**10**	ND
Chrysene	**14**	**36**	ND
Dibenz(A,H)Anthracene	**1.7**	**4**	ND
Indeno(1,2,3-C,D)Pyrene	**8.6**	**19**	ND
Naphthalene	NE	24	ND
Phenanthrene	NE	**120**	ND
Metals			
Arsenic	**34**	**32**	NE

Parameter (Concentrations in mg/kg)	NYSDEC Part 375 Restricted Residential SCO	NYSDEC Part 375 Protection of Groundwater SCO
VOCs		
Acetone	**100**	0.05
Naphthalene	**100**	12
SVOCs		
3- And 4- Methylphenol (Total)	**100**	0.33
Benzo(A)Anthracene	**1**	1
Benzo(A)Pyrene	**1**	22
Benzo(B)Fluoranthene	**1**	1.7
Benzo(K)Fluoranthene	**3.9**	1.7
Chrysene	**3.9**	1
Dibenz(A,H)Anthracene	**0.33**	1000
Dibenzofuran	**59**	210
Indeno(1,2,3-C,D)Pyrene	**0.5**	8.2
Naphthalene	**100**	12
Phenanthrene	**100**	1000
Metals		
Arsenic	**16**	16
Cadmium	**4.3**	7.5
Chromium	**180**	-
Copper	**270**	1720
Lead	**400**	450
Mercury	**0.81**	0.73
Nickel	**310**	130
Zinc	**10000**	2480

J - Estimated value
V - Value altered or qualifier added during data validation
mg/kg - Milligrams per kilogram
ft bls - Feet below land surface
NYSDEC - New York State Department of Environmental Conservation
SCO - Soil Cleanup Objectives
-- - No SCO available
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
NE - No exceedance
ND - No detection

Bold data indicates that parameter was detected above the NYSDEC Part 375 Restricted Residential SCO
Shaded data indicates that parameter was detected above the NYSDEC Part 375 Protection of Groundwater SCO

NOTE

THERE WERE NO EXCEEDANCES OF THE RESTRICTED RESIDENTIAL SCO OR PROTECTION OF GROUNDWATER SCO IDENTIFIED IN BORINGS SB-6 AND SB-12.

N

40' 0 40'

Title:

SOIL SAMPLE EXCEEDANCES OF PROTECTION OF GROUNDWATER AND RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA STREET OWNER LLC

ROUX

Compiled by: E.B.	Date: 15MAR21	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	5
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583,0001Y110,05.DWG		

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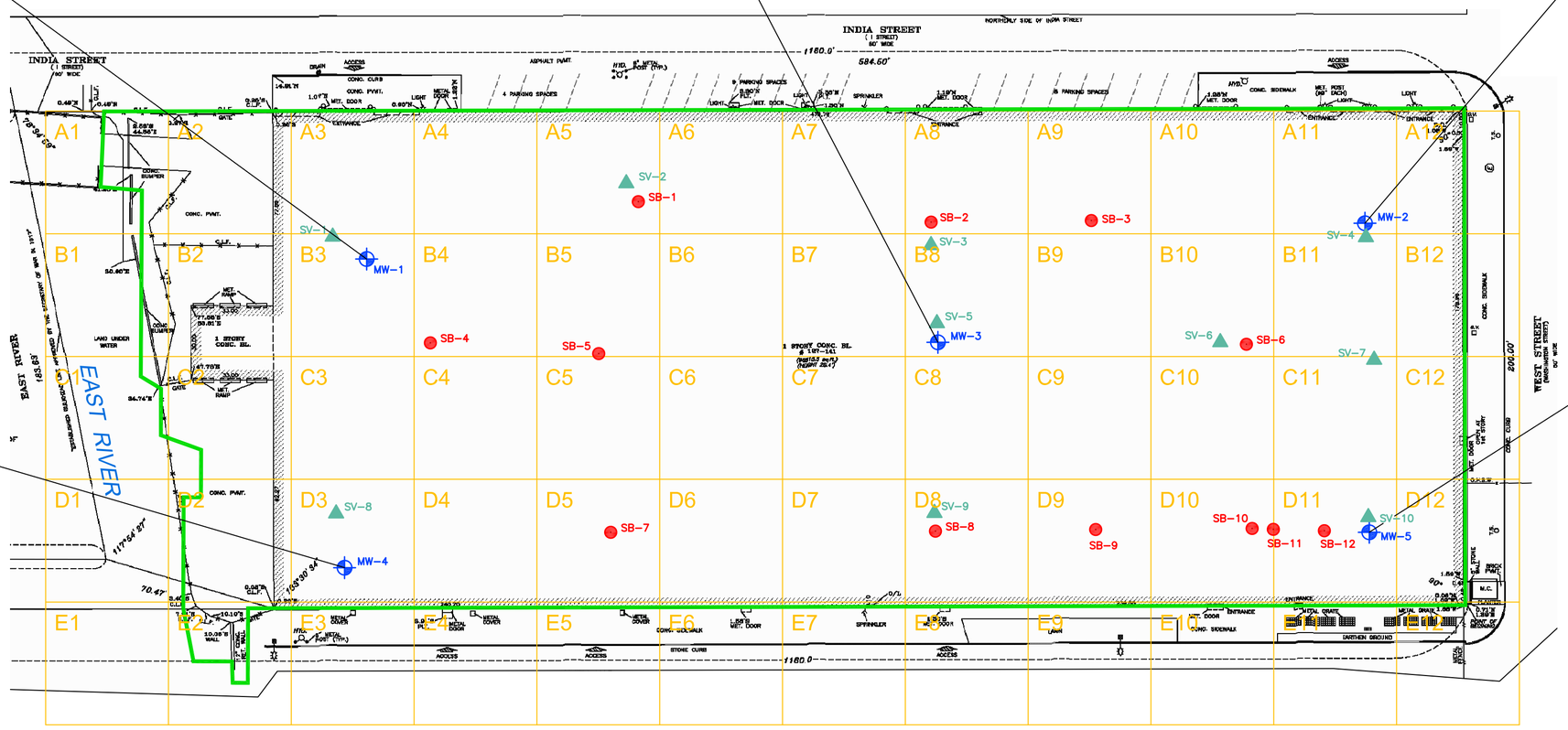
MW-3	10/5/17	DUP100517
Analyte		
VOCs	NE	NE
SVOCs	NE	NE
Metals (Total)		
Iron	**421**	**435**
Magnesium	NE	**35700**
Manganese	**4220**	**4270**
Sodium	**72800**	**74900**
Metals (Dissolved)		
Iron	**332**	**365**
Magnesium	**36800**	**36100**
Manganese	**4574**	**4555**
Sodium	**79300**	**76900**

MW-1	10/5/17
Analyte	
VOCs	NE
SVOCs	
Benzo(A)Anthracene	**0.02 J**
Benzo(B)Fluoranthene	**0.02 J**
Metals (Total)	
Iron	**34800**
Magnesium	**104000**
Manganese	**1992**
Sodium	**978000**
Metals (Dissolved)	
Iron	**35400**
Magnesium	**103000**
Manganese	**2153**
Sodium	**986000**

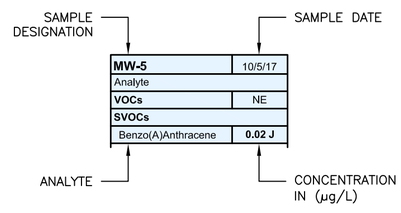
MW-2	10/5/17
Analyte	
VOCs	NE
SVOCs	NE
Metals (Total)	
Iron	**1850**
Manganese	**2848**
Sodium	**50000**
Metals (Dissolved)	
Iron	**3039**
Sodium	**47300**



MW-4	10/5/17
Analyte	
VOCs	NE
SVOCs	
Benzo(A)Anthracene	**0.04 J**
Benzo(A)Pyrene	**0.06 J**
Benzo(B)Fluoranthene	**0.03 J**
Indeno(1,2,3-C,D)Pyrene	**0.06 J**
Metals (Total)	
Iron	**14700**
Magnesium	**83300**
Manganese	**1077**
Sodium	**604000**
Metals (Dissolved)	
Iron	**12600**
Magnesium	**86800**
Manganese	**1158**
Sodium	**642000**

MW-5	10/5/17
Analyte	
VOCs	NE
SVOCs	
Benzo(A)Anthracene	**0.02 J**
Metals (Total)	
Antimony	**4.11**
Iron	**690**
Manganese	**1383**
Sodium	**146000**
Metals (Dissolved)	
Manganese	**1297**
Sodium	**140000**

TYPICAL DATA BOX INFORMATION



LEGEND

- BCP SITE BOUNDARY
- SB-1 — LOCATION AND DESIGNATION OF SOIL BORING
- MW-1 — LOCATION AND DESIGNATION OF MONITORING WELL
- SV-1 — LOCATION AND DESIGNATION OF SOIL VAPOR MONITORING POINT
- 50 FT ALPHANUMERIC GRID
- BCP BROWNFIELD CLEANUP PROGRAM

Parameter (Concentrations in µg/L)	NYSDEC Ambient Water-Quality Standards (ug/L)	NYSDEC Ambient Water-Quality Guidance Values (ug/L)
VOCs		
SVOCs		
Benzo(A)Anthracene	--	**0.002**
Benzo(A)Pyrene	**0**	--
Benzo(B)Fluoranthene	--	**0.002**
Indeno(1,2,3-C,D)Pyrene	--	**0.002**
Metals		
Antimony	**3**	--
Iron	**300**	--
Magnesium	--	**35000**
Manganese	**300**	--
Sodium	**20000**	--

µg/L – MICROGRAMS PER LITER

NYSDEC – NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

AWQSGVs – AMBIENT WATER-QUALITY STANDARDS AND GUIDANCE VALUES

VOCS – VOLATILE ORGANIC COMPOUNDS

SVOCS – SEMIVOLATILE ORGANIC COMPOUNDS

DUP – DUPLICATE SAMPLE

– – NO AVAILABLE STANDARD

NE – NO EXCEEDANCE

ND – NO DETECTION

40' 0 40'

Title:

GROUNDWATER SAMPLE EXCEEDANCES OF AWQSGVs

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA OWNER LLC

ROUX

Compiled by: E.B.	Date: 15MAR21	FIGURE 6
Prepared by: B.H.C.	Scale: AS SHOWN	
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583.0001Y110.03.DWG		

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SV-1	9/28/17
VOCs	
1,2,4-Trimethylbenzene	**1.1**
1,4-Dichlorobenzene	**2.54**
Acetone	**17.9**
Chloroform	**40**
Isopropanol	**20.3**
Methyl Ethyl Ketone (2-Butanone)	**2.26**
N-Hexane	**0.952**
Tert-Butyl Alcohol	**13.2**
Tetrachloroethylene (PCE)	**2.79**
Toluene	**2.53**
Trichloroethylene (TCE)	**13.6**
Trichlorofluoromethane	**52.7**

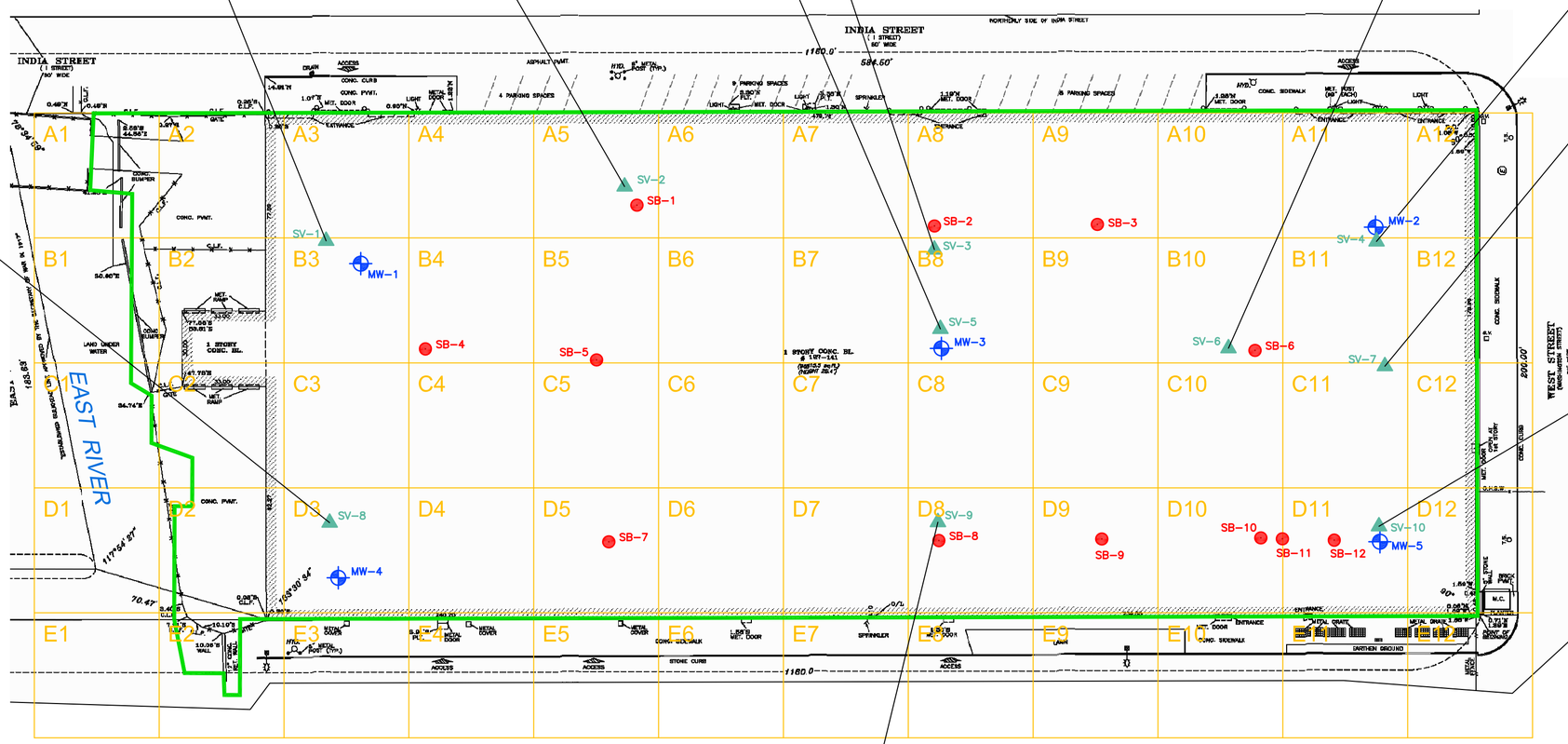
SV-2	9/28/17
VOCs	
1,2,4-Trimethylbenzene	**1.12**
1,4-Dichlorobenzene	**2.53**
Acetone	**22**
Benzene	**0.952**
Bromodichloromethane	**15.3**
Carbon Disulfide	**4.33**
Chloroform	**237**
Chloromethane	**1.2**
Dichlorodifluoromethane	**1.08**
Ethanol	**10.6**
Isopropanol	**14**
Methyl Ethyl Ketone (2-Butanone)	**3.24**
Methylene Chloride	**2.2**
O-Xylene (1,2-Dimethylbenzene)	**1.02**
Tert-Butyl Alcohol	**19.1**
Tetrachloroethylene (PCE)	**195**
Toluene	**2.2**
Trichloroethylene (TCE)	**9.83**
Trichlorofluoromethane	**30.6**

SV-5	9/28/17
VOCs	
1,1-Dichloroethane	**4.53**
2-Hexanone	**3.37**
Carbon Disulfide	**1.11**
Chloroform	**8.79**
Chloromethane	**0.956**
Methyl Ethyl Ketone (2-Butanone)	**4.63**
Tetrachloroethylene (PCE)	**22.8**
Toluene	**0.984**
Trichlorofluoromethane	**23.8**

SV-3	9/28/17
VOCs	
1,1-Dichloroethane	**2.24**
2-Hexanone	**5.61**
Acetone	**5.96**
Carbon Disulfide	**1.49**
Chloroform	**27.9**
Chloromethane	**2.13**
Dichlorodifluoromethane	**1.13**
Methyl Ethyl Ketone (2-Butanone)	**7.08**
O-Xylene (1,2-Dimethylbenzene)	**0.916**
Tetrachloroethylene (PCE)	**26.5**
Toluene	**1.79**
Trichlorofluoromethane	**26.9**

SV-6	9/28/17
VOCs	
1,2,4-Trichlorobenzene	**2**
2-Hexanone	**1.84**
Acetone	**3.71**
Chloroform	**1.41**
Dichlorodifluoromethane	**2.56**
m,p-Xylene	**2.82**
Methyl Ethyl Ketone (2-Butanone)	**3.92**
O-Xylene (1,2-Dimethylbenzene)	**1.46**
Tetrachloroethylene (PCE)	**52.4**
Toluene	**2.58**
Trichlorofluoromethane	**16.6**

SV-4	9/28/17
VOCs	
2-Hexanone	**3.03**
Acetone	**4.85**
Carbon Disulfide	**0.657**
Chloroform	**5.13**
Dichlorodifluoromethane	**1.35**
m,p-Xylene	**1.82**
Methyl Ethyl Ketone (2-Butanone)	**3.27**
O-Xylene (1,2-Dimethylbenzene)	**1.01**
Tetrachloroethylene (PCE)	**69.2**
Toluene	**3.35**
Trichlorofluoromethane	**17.8**



SV-7	9/28/17
VOCs	
2-Hexanone	**1.95**
Acetone	**3.37**
Carbon Disulfide	**1.15**
Dichlorodifluoromethane	**1.77**
Ethylbenzene	**2.34**
m,p-Xylene	**10**
Methyl Ethyl Ketone (2-Butanone)	**3.04**
O-Xylene (1,2-Dimethylbenzene)	**4.25**
Tetrachloroethylene (PCE)	**99**
Toluene	**1.12**
Trichlorofluoromethane	**20.3**

SV-8	9/28/17
VOCs	
1,1,1-Trichloroethane	**1.36**
1,2,4-Trimethylbenzene	**1.25**
1,4-Dichlorobenzene	**1.7**
Benzene	**1.76**
Carbon Disulfide	**6.63**
Chloroform	**16**
Chloromethane	**0.475**
Cyclohexane	**0.826**
Dichlorodifluoromethane	**1.63**
Isopropanol	**7.87**
m,p-Xylene	**2.2**
Methyl Ethyl Ketone (2-Butanone)	**2.16**
N-Hexane	**2.05**
O-Xylene (1,2-Dimethylbenzene)	**1.18**
Tert-Butyl Alcohol	**5.82**
Tetrachloroethylene (PCE)	**11.3**
Toluene	**2.53**
Trichloroethylene (TCE)	**1.35**
Trichlorofluoromethane	**41.8**

SV-10	9/28/17	DUP092817
VOCs		
1,1,1-Trichloroethane	ND	**47.6**
1,1-Dichloroethane	ND	**13.4 JV**
1,1-Dichloroethene	ND	**2.87**
1,4-Dioxane (P-Dioxane)	ND	**1.12**
2-Hexanone	**10.7**	**6.02 JV**
Acetone	**4.8**	**5.49**
Carbon Disulfide	**1.68**	**1.27**
Chloroethane	ND	**1.24 JV**
Chloroform	**1.38**	ND
Cis-1,2-Dichloroethylene	ND	**116 JV**
Dichlorodifluoromethane	**1.74 JV**	**3.52 JV**
Ethylbenzene	ND	**0.947**
Isopropanol	ND	**2.51 JV**
m,p-Xylene	**2.13**	**3.76**
Methyl Ethyl Ketone (2-Butanone)	**19.5**	**11.7**
O-Xylene (1,2-Dimethylbenzene)	**1.12**	**1.74**
Tetrachloroethylene (PCE)	**2.9 JV**	**304 JV**
Toluene	**2.89**	**2.58**
Trichloroethylene (TCE)	ND	**14.1 JV**
Trichlorofluoromethane	**19.4**	**18.2**
Vinyl Chloride	ND	**1.55 JV**

SV-9	9/28/17
VOCs	
1,1,1-Trichloroethane	**12.7**
2-Hexanone	**14.4**
Acetone	**5.06**
Chloroform	**10**
Dichlorodifluoromethane	**1.48**
m,p-Xylene	**1.8**
Methyl Ethyl Ketone (2-Butanone)	**24.9**
O-Xylene (1,2-Dimethylbenzene)	**0.964**
Tetrachloroethylene (PCE)	**90.2**
Toluene	**1.78**
Trichloroethylene (TCE)	**3.96**
Trichlorofluoromethane	**14.2**

40' 0 40'

LEGEND

- SB–1 — BCP SITE BOUNDARY
- SB–1 — LOCATION AND DESIGNATION OF SOIL BORING
- MW–1 — LOCATION AND DESIGNATION OF MONITORING WELL
- SV–1 — LOCATION AND DESIGNATION OF SOIL VAPOR MONITORING POINT
- 50 FT ALPHANUMERIC GRID
- BCP BROWNFIELD CLEANUP PROGRAM

TYPICAL DATA BOX INFORMATION

SAMPLE DESIGNATION — SAMPLE DATE

SV-5	9/28/17
VOCs	
1,1-Dichloroethane	**4.53**
2-Hexanone	**3.37**
Carbon Disulfide	**1.11**
Chloroform	**8.79**
Chloromethane	**0.956**
Methyl Ethyl Ketone (2-Butanone)	**4.63**
Tetrachloroethylene (PCE)	**22.8**
Toluene	**0.984**
Trichlorofluoromethane	**23.8**

ANALYTE — CONCENTRATION IN ($\mu g/m^3$)

ug/m^3 - Micrograms per cubic meter
DUP - Duplicate Sample
Bold data indicates that parameter was detected

N

Title:

SOIL VAPOR SAMPLE DETECTIONS

1 JAVA STREET/GREENPOINT FERRY SITE

Prepared for:

1 JAVA OWNER LLC

ROUX

Compiled by: E.B.	Date: 15MAR21	FIGURE
Prepared by: B.H.C.	Scale: AS SHOWN	7
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583.0001Y110.03.DWG		

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APPENDICES

A. Site-Specific Health and Safety Plan

B. Community Air Monitoring Plan

APPENDIX A

Site-Specific Health and Safety Plan

Site-Specific Health and Safety Plan

1 Java Street
(aka 127-141 West Street and
14-28 India Street)
Brooklyn, New York

March 23, 2021

Prepared for:

Lendlease Development Inc.
200 Park Avenue, 9th Floor
New York, New York 10166

Prepared by:

Roux Environmental Engineering and Geology, D.P.C..
209 Shafter Street
Islandia, New York 11749

3583.0001Y104/CV

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Tables

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Appendices

Site-Specific Emergency Information

Emergency Phone Numbers

Most emergency services can be obtained by calling **911**. Where 911 service is not available, use the telephone numbers provided in the below table. The following is a master emergency phone list for use by the project management personnel. A more condensed version of the emergency numbers listed below will be posted throughout project work areas. Emergencies encountered on the site will be responded to by a combination of off-site emergency services and on-Site personnel.

Emergency Contact Information			
Site Personnel			
Title	**Contact**		**Telephone**
Office Manager (OM)	Michael Ritorto, P.G.		(631) 445-4576
Project Principal (PP)	Robert Kovacs		(516) 250-0359
Project Manager (PM)	Emily Butler		(719) 494-6722
Project Manager (PM)	Jeffrey Wills		(516) 637-0213
Site Supervisor (SS)	Vanessa Ricigliano		(516) 633-9317
Site Health and Site Safety Officer (SHSO)	Vanessa Ricigliano		(516) 633-9317
Office Health and Safety Manager (OHSM)	Kristina DeLuca		(516) 830-1189
Corporate Health and Safety Manager (CHSM)	Brian Hobbs, CIH, CSP		(631) 807-0193
AllOne Health	Occupational Health Care Management Provider		(800) 350-4511
Client Emergency Contact	Erik Tinkhauser		(646) 532-9619
Construction Superintendent	Nicholas Mach		(347) 860-0922
Outside Assistance			
Agency	**Contact**	**Telephone**	**Address/Location**
Ambulance/emergency medical services (EMS)	CityMD Greenpoint Urgent Care	(718) 489-3549	795 Manhattan Avenue Brooklyn, NY 11222
Hospital	NYU Langone Medical Center	(212) 263-7300	550 1st Avenue New York, NY 10016
Police	New York City Police Department – 94th Precinct	(718) 383-3879	100 Meserole Avenue Brooklyn, NY 11222
Fire	FDNY Engine 238 & Ladder 106	(718) 999-2000	205 Greenpoint Avenue Brooklyn, NY 11222
Site Address	1 Java Street (aka 127-141 West Street and 14-28 India Street), Brooklyn, NY 11222		

CityMD Greenpoint Urgent Care:

- Head east on Java Street toward West Street
- Turn left at the 1st cross street onto West Street
- Turn right at the first cross street onto India Street
- Turn right onto Manhattan Avenue/Sgt. Nicholas Aleman Way
- Destination will be on the right

NYU Langone Medical Center:

- Head east on Java Street toward West Street
- Turn left at the 1st cross street onto West Street
- Turn right at the 3rd cross street onto Green Street
- Turn left onto McGuinness Boulevard
- Keep left to continue on Pulaski Bridge
- Slight right toward 49th Avenue
- Turn right onto 49th Avenue
- Turn right onto 11th Place
- Turn right onto 50th Avenue
- Turn left onto the I-495 W ramp
- Continue onto Queens Midtown Tunnel
- Use the left 2 lanes to turn left onto E 35th Street
- Turn right at the 1st cross street onto 2nd Avenue
- Turn left onto E 30th Street
- Turn left onto 1st Avenue
- Destination will be on the right

1. Introduction

This Site-specific Health and Safety Plan (HASP) has been prepared by Roux Environmental Engineering and Geology, D.P.C. (Roux) for use during the soil sampling and well abandonment activities at the 1 Java Street Site on behalf of Lendlease Development, Inc. (Lendlease) located in Brooklyn, NY (**Figure 1**). These activities fall within the scope of operations covered by the Occupational Safety and Health Administration (OSHA) standards promulgated at 29 CFR 1910.120 and 29 CFR 1926.65, both commonly referred to as the Hazardous Waste Operations and Emergency Response (HAZWOPER) Standard. In accordance with the HAZWOPER Standard, this Site-specific HASP was prepared to address the safety and health hazards associated with the soil sampling activities being performed at the Site by Roux and to provide requirements and procedures for the protection of Roux employees, subcontractor personnel, government oversight personnel, Site personnel, and the general public. It also addresses client- and Site-specific requirements for health and safety. Additionally, subcontractors may be required to submit their own HASP as it relates to their specific work activities and will be kept onsite during such work.

Implementation of this HASP is the joint responsibility of the Project Manager (PM), the Site Health and Safety Officer (SHSO), and all field staff, with assistance from the Project Principal (PP), Office Health and Safety Manager (OHSM), and Corporate Health and Safety Manager (CHSM). The PMs for this project are Jeffrey Wills and Emily Butler. The Site Supervisor (SS) and Site Health and Safety Officer (SHSO) is Vanessa Ricigliano.

This HASP will be introduced to, reviewed, and signed off on by all Roux personnel through a formal training session prior to commencing work. A copy of the HASP will be kept at the Site at all times. The Roux SHSO or PM will be responsible for posting any changes, amendments, memos, etc. to the HASP. Any revisions to this HASP will be signed by appropriate personnel, which can include Roux's PP, CHSM, and SS. Any changes will be announced to all workers at the next safety meeting.

1.1 Roles and Responsibilities

Overall Roles and Responsibilities (R&Rs) of Roux personnel are provided in Roux's Policies and Procedures Manual. Only those R&Rs specific to HASP requirements are listed below.

Project Manager (PM)

The PM has responsibility and authority to direct all work operations. The PM coordinates safety and health functions with the Site Health and Safety Officer (SHSO), has the authority to oversee and monitor the performance of the SHSO, and bears ultimate responsibility for the proper implementation of this HASP. The specific duties of the PM are:

- Preparing and coordinating the Site work plan;
- Providing Site supervisor(s) with work assignments and overseeing their performance; Coordinating safety and health efforts with the SSHO;
- Ensuring effective emergency response through coordination with the Emergency Response Coordinator (ERC); and
- Serving as primary Site liaison with public agencies and officials and Site contractors.

Site Health and Safety Officer (SHSO)

The SHSO has the full responsibility and authority to develop and implement this HASP and to verify compliance. The SHSO reports to the Project Manager. The SHSO is on Site or readily accessible to the Site during all work operations and has the authority to halt Site work if unsafe conditions are detected. The specific responsibilities of the SHSO include:

- Managing the safety and health functions on this Site;
- Serving as the Site's point of contact for safety and health matters;
- Ensuring Site monitoring, worker training, and effective selection and use of PPE;
- Assessing Site conditions for unsafe acts and conditions and providing corrective action;
- Assisting the preparation and review of this HASP;
- Maintaining effective safety and health records as described in this HASP; and
- Coordinating with the Site Supervisor(s) and others as necessary for safety and health efforts.

Site Supervisor

The Site Supervisor is responsible for field operations and reports to the Project Manager (PM). The Site Supervisor ensures the implementation of the HASP requirements and procedures in the field. The specific responsibilities of the Site Supervisor include:

- Executing the work plan and schedule as detailed by the PM;
- Coordination with the SHSO on safety and health; and
- Ensuring Site work compliance with the requirements of this HASP.

Employees

All Roux employees are responsible for reading and following all provisions of the Corporate Health and Safety Manual, including this HASP. Employees report to the SS at the project Site. Each employee is also responsible for the following:

- Wearing all appropriate PPE as outlined within this HASP;
- Attending all safety meetings;
- Inspecting tools and equipment prior to use, and taking any defective tools or equipment out of service;
- Appropriately documenting field events as they occur within a logbook or equivalent;
- Properly operating machinery and/or equipment only if trained to do so;
- Stopping work operations if unsafe conditions exist;
- Identifying and mitigating hazards when observed;
- Reporting all incidents and near misses to the Roux SHSO and SS immediately; and
- Knowing where emergency equipment is located (e.g., first aid kit, fire extinguisher).

Subcontractors and Visitors

Subcontractors and visitors are responsible for complying with the same health and safety requirements. It is the responsibility of all to make sure subcontractors and visitors comply and uphold the HASP. Subcontractors and visitors have the following additional responsibilities:

- Designating a qualified safety representative for the project that can make the necessary changes in work practices, as necessary;

- Attending all safety meetings while participating in Roux Site work activities;
- Reporting all incidents and near misses to Roux SHSO and SS immediately;
- Conducting initial and periodic equipment inspections in accordance with manufacturer and regulatory guidelines; and
- Providing copies of all Safety Data Sheets (SDS) to Roux SHSO for materials brought to the Site.

2. Background

Relevant background information is provided below, including a general description of the Site; a brief review of the Site's history with respect to hazardous material use, handling, and/or storage; and a review of known and potential releases of hazardous substances at the Site.

2.1 Site Description

The Site consists of two vacant warehouse-style buildings which do not have any active tenants. There is also an active New York City East River ferry terminal on the western portion of the property that will remain as part of the proposed Site development. The planned redevelopment of the Sites entails the construction of two towers for residential use. The Site is currently enrolled into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (Site #C224272). Data from previous investigations completed by Roux indicate that there is a layer of fill across the Site with elevated levels of polycyclic aromatic hydrocarbons (PAHs) and metals in exceedance of the NYSDEC Part 375 Restricted Residential Soil Cleanup Objectives (RRSCOs), which is the applicable SCOs for the anticipated future use of the Site.

2.2 Site History

This section of Brooklyn has an industrial past that has caused subsurface impacts in the surrounding area. The Site was developed sometime prior to 1887, with the current Site buildings constructed by circa 1942. Historical Site uses include lumber storage (including the presence of a drying kiln) and planning mill between 1887 until the 1940s (western portion of the Site) and 1952 (eastern portion of the Site); an Independent Energy Plant (IEP); a sash, door and blind factory; sheet metal works; truck repair; gasoline tank and pumps for fueling; bottling plant warehouse; plastics manufacturer; cargo storage; and parking. A machine shop and sawmill are noted south and east of the property in the late 1800s, a brass foundry is noted to the southeast from 1905 to at least 1928, and a garage utilizing gasoline tanks is noted from 1942 to 2007.

2.3 Known and Potential Releases of Hazardous Substances at the Site

The results of previous investigations show the presence of a fill layer across the Site containing elevated levels of PAHs and metals in exceedance of the NYSDEC Part 375 RRSCOs. Groundwater data indicates metals were identified in concentrations above the applicable standards however, groundwater is not anticipated on being encountered during soil characterization work or redevelopment of the Site.

3. Scope of Work

The scope of work for the IRM consists of the following tasks:

- Site mobilization and Site preparation, including installation of the perimeter construction fence;
- Demolition of building structures on the Site;
- Completion of geotechnical test pits to evaluate the efficacy of the proposed foundation elements; and
- Documentation and preparation of CRR.

Roux will implement a community air monitoring plan (CAMP) during all construction ground intrusive activities. If there are any changes with the scope or work a revision of the HASP will be required to address any new hazards.

4. Site Control

This Site control program is designed to reduce the spread of hazardous substances from contaminated areas to clean areas, to identify and isolate contaminated areas of the Site, to facilitate emergency evacuation and medical care, to prevent unauthorized entry to the Site, and to deter vandalism and theft.

4.1 Site Map

A map of this Site, showing Site boundaries, designated work zones, and points of entry and exit is provided in **Figure 2**.

4.2 Site Access

Access to the work areas at the Site is restricted to reduce the potential for exposure to its safety and health hazards. The properties are vacant, and it is Roux's understanding that Site entry and exit is authorized/controlled by locked rollup doors on India Street when no activity is occurring onsite.

4.3 Buddy System

This section may not applicable for all components of the SOW described in Section 3. Some limited Site activities as described in Section 3, if required, may be completed by a single Roux employee alone, accompanied by Roux subcontractor personnel, or accompanied by the Site caretaker/other representatives from the Client. Any time Roux is on-Site, the Client will be made aware and communications with the Client and the Roux PM will be maintained via cellular phone.

While working in the Exclusion Zone, Site workers use the buddy system. The buddy system means that personnel work in pairs and stay in close visual contact to be able to observe one another and summon rapid assistance in case of an emergency. The responsibilities of workers using the buddy system include:

- Remaining in close visual contact with partner;
- Providing partner with assistance as needed or requested;
- Observing partner for signs of heat stress or other difficulties;
- Periodically checking the integrity of partner's PPE; and
- Notifying the Site manager or other Site personnel if emergency assistance is needed.

4.4 Site Communications

The following communication equipment is used to support on-Site communication: Roux and subcontractor personnel cellular phones and visual hand signals.

As applicable, hand signals will be used according to the following:

Hand Signals

SIGNAL	MEANING
Hand gripping throat	Out of air, can't breathe
Grip partner's wrist	Leave area immediately

Hand Signals

SIGNAL	MEANING
Hands on top of head	Need assistance
Thumbs up	I'm all right, okay
Thumbs down	No, negative

A current list of emergency contact numbers is included in the Site-Specific Emergency Information at the beginning of this HASP.

4.5 Site Work Zones

The SOW does not require the implementation of work zones aside from temporary Exclusion Zones in the immediate vicinity of each soil boring; however, should the need arise, this section provides details for the proper execution of work zones at this Site.

This Site is divided into three (3) major zones, described below. These zones are characterized by the likely presence or absence of biological, chemical, or physical hazards and the activities performed within them. Zone boundaries are clearly marked at all times and the flow of personnel among the zones is controlled. The Site is monitored for changing conditions that may warrant adjustment of zone boundaries. Zone boundaries are adjusted as necessary to protect personnel and clean areas. Whenever boundaries are adjusted, zone markings are also changed and workers are immediately notified of the change.

Exclusion Zone

The area where contamination exists is the Exclusion Zone (EZ). All areas where excavation and handling of contaminated materials take place are considered part of the EZ. This zone will be clearly delineated by chain link fencing, caution tape, cones or other effective barriers, as necessary. Safety tape may be used as a secondary delineation within the EZ. The zone delineation markings may be opened in areas for varying lengths of time to accommodate equipment operation or specific construction activities. The SHSO may establish more than one EZ where different levels of protection may be employed or where different hazards exist. Personnel are not allowed in the EZ without:

- A buddy (co-worker);
- Required minimum level PPE;
- Medical authorization;
- Training certification; and
- Requirement to be in the zone.

Contamination Reduction Zone

A Contamination Reduction Zone (CRZ) is established between the exclusion zone and the support zone. The CRZ contains the Contamination Reduction Corridor (CRC) and provides an area for decontamination of personnel and equipment. The CRZ will be used for general Site entry and egress in addition to access for heavy equipment and emergency support services. Personnel are not allowed in the CRZ without:

- A buddy (co-worker)

- Appropriate PPE
- Medical authorization
- Training certification
- Requirement to be in the zone

Support Zone

The Support Zone (SZ) is an uncontaminated area that will be the field support area for the Site operations. The SZ will contain, if required, temporary project trailers and provisions for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment will be located in this zone. Potentially contaminated personnel or materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

5. Job Hazard Evaluation

Roux's work at the Site is expected to entail a variety of physical, chemical, and biological hazards, all of which must be sufficiently managed to allow the work to be performed safely. Some of the hazards are Site-specific (i.e., they are associated with the nature, physical characteristics, and/or routine operation of the Site itself), while others are activity-specific (i.e., they are associated with [or arise from] the particular activity being performed). The various hazards can be grouped into the following categories:

- **Caught/Crushed** – the potential to become caught in, under, between, or by an object or parts of an object, such as equipment with parts that open and close or move up and down ("pinch points") or equipment that rotates, and the accompanying potential to have body parts cut, mangled, or crushed thereby.
- **Contact** – the potential to be struck by or against moving or stationary objects that can cause physical injury, such as heavy machinery, overhead piping, moving vehicles, falling objects, and equipment (including tools and hand-held equipment) or infrastructure with the ability to cut or impale.
- **Energy Sources** – the potential for bodily harm associated with energy sources, most notably electricity, but also including latent energy sources such as compressed air and equipment under tension (which when released could cause injurious contact or a fall).
- **Ergonomics** – the potential for musculoskeletal injury associated with lifting/carrying, pushing/pulling, bending, reaching, and other physical activity attributable to poor body position/mechanics, repetitive motion, and/or vibration.
- **Exposure** – the potential for injury/illness due to physical, chemical, or biological exposures in the work environment, including but not limited to temperature extremes, solar radiation, and noise (physical), chemical splashes and hazardous atmospheres (chemical), and animal/insect bites and poisonous plants (biological).
- **Falls** – the potential to slip or trip and thus fall or drop a load, resulting in bodily injury to oneself or others.

The foregoing is intended to provide Roux employees with a general awareness of the hazards involved with Site work. A more detailed review of the potential hazards associated with each specific activity planned for the Site (or on-going activity, as the case may be) is provided in the activity-specific Job Safety Analysis (JSA) forms in **Appendix A**. As can be seen in the JSA forms, the hazards are identified by category per the above, and specific measures designed to mitigate/manage those hazards are also identified. In preparing the JSA forms, all categories of hazards were considered, and all anticipated potential hazards were identified to the extent possible based on the experience of the personnel preparing and reviewing the JSA forms. However, there is always the possibility for an unanticipated hazard to arise, potentially as condition change over the course of the workday. Roux personnel must maintain a continual awareness of potential hazards in the work zone, regardless of whether the hazard is identified in the JSA form. Particular attention should be paid to hazards associated with exposure to hazardous substances (see **Table 1** for a listing of the hazardous substances most likely to be encountered in environmental media at the Site) and to Site personnel being located "in the line of fire" with respect to moving equipment, pinch points, and latent energy (e.g., being located or having body parts located within the swing radius of an excavator, between two sections of pipe being connected, below a piece of suspended equipment, or adjacent to a compressed air line). Job hazards will be reviewed before activities take place during the day during the safety tailgate meeting and attendance and key points of the tailgate will be logged using the tailgate form in **Appendix B**.

5.1 Hazard Communication and Overall Site Information Program

The information in the JSAs and safety data sheets is made available to all employees and subcontractors who could be affected by it prior to the time they begin their work activities. Modifications to JSAs are communicated during routine pre-work briefings.

The information in the JSAs and Safety Data Sheets (SDSs) is made available to all employees and subcontractors who could be affected by an exposure to the hazards covered in them prior to the time they begin their work activities. Modifications to JSAs are communicated during routine pre-work briefings, and periodically updated as needed in the HASP. SDSs will be maintained by the SHSO/SS for new chemicals brought on-Site as needed. Copies of SDSs can be found in **Appendix C**.

5.2 Noise

Noise is associated with the operation of heavy equipment, power tools, pumps, and generators. Noise is also a potential hazard when working near operating equipment such as excavators, drill rigs or pole drivers. High noise (i.e., < 85 dBA) operations may be evaluated by the SHSO utilizing a type 2 handheld sound level meter (SLM) operating on the "A"-weighted scale with slow response because this scale most closely resembles human response to noise and complies with OSHA 29 CFR 1910.95. Hearing protection is required in areas with noise exposure greater than 85 dBA. Double hearing protection (ear plugs and earmuffs) are required in areas where the noise exposure is more than 95 dBA. Noise exposure will be controlled by hearing protection as described above or by maintaining set-backs from high-noise equipment, as warranted. Personnel handling heavy equipment and using power tools that produce noise levels exceeding those described levels above are required by OSHA 29 CFR 1910.95 to wear the appropriate Noise Reduction Rating (NRR) level of hearing protection. Appropriate hearing protection will be evaluated by the SHSO as necessary in consultation with the OHSM and CHSM.

5.3 Biological Hazards

Biological hazards that may potentially be present at a Site, include poisonous plants, insects (ticks, spiders, bees), animals (snakes, dogs), etc. Information on biological hazards can be found within Roux's Biological Hazard Awareness Management Program located within Roux's Corporate Health and Safety Manual. There is also potential for transmission and/or exposure to SARS-CoV-2, the virus that causes COVID-19. Prior to beginning work, on-Site protocols shall be established by the project team, including subcontractors, in accordance with federal, state, county, city, and/or other guidance, as applicable and consistent with **Appendix D**. Government guidance/orders generally consist of implementation of the following protocols/procedures (or some variation thereof):

- Self-monitoring for symptoms;
- Fitness check for work each day;
- Limiting businesses to "essential" operations;
- Social distancing (generally 6 feet);
- Cloth face masks/ coverings;
- Hand washing/ disinfectant use; and
- Care/ awareness of surroundings (public spaces, equipment, hotel rooms, rental cars).

Additional guidance on minimizing potential exposure to SARS-CoV-2, including a JSA, are included in **Appendix D**.

6. Emergency Response Plan

This emergency response plan details actions to be taken in the event of Site emergencies. The PM and SHSO is responsible for the implementation of emergency response procedures onsite. The SHSO/PM provides specific direction for emergency action based upon information available regarding the incident and response capabilities and initiates emergency procedures and notification of appropriate authorities. In the event of an emergency, Site personnel are evacuated and do not participate in emergency response activities, response is facilitated through external emergency services.

6.1 Emergency Response

The SHSO, after investigating the incident and relevant information, shall determine the level of response required for containment, rescue and medical care. Limited on-Site emergency response activities could occur therefore the SHSO is responsible for notifying external emergency response agencies. The SHSO provides relevant information to the responding organizations, including but not limited to the hazards associated with the emergency incident, potential containment problems, and missing Site personnel.

6.2 Emergency Alerting and Evacuation

If evacuation notice is given, Site workers leave the worksite, if possible, by way of the nearest exit. Appropriate primary and alternate evacuation routes and assembly areas have been identified and are shown on the Site Plan with Emergency Muster Area (**Figure 2**). The routes and assembly area will be determined by conditions at the time of the evacuation based on wind direction, the location of the hazard source, and other factors as determined by SHSO/PM.

Personnel exiting the Site gather at a designated assembly point. To determine that everyone has successfully exited the Site, personnel will be accounted for at the assembly point. If any worker cannot be accounted for, notification is given to the SHSO, PM, and any arriving response authorities so that appropriate action can be initiated. Subcontractors on this Site have coordinated their emergency response plans to ensure that these plans are compatible and potential emergencies are recognized, alarm systems are clearly understood, and evacuation routes are accessible to all personnel relying upon them.

6.3 Emergency Medical Treatment and First Aid

In the event of a work-related injury or illness, employees are required to follow the procedures outlined below. All work-place injury and illness situations require Roux's Project and Corporate Management Team to be notified when an injury/illness incident occurs, and communication with the contracted Occupational Health Care Management Provider, AllOne Health (AOH), is initiated. The Injury/Illness Notification Flowchart is provided below and within Roux's Incident Investigation and Reporting program included within Roux's Corporate Health and Safety Manual.

If on-Site personnel require any medical treatment, the following steps will be taken:

a. Notify Roux's Project and Corporate Management Team for any work-related injury and/or illness occurrence, and communicate with the contracted Occupational Health Care Management Provider, AOH, immediately following the notifications provided above.

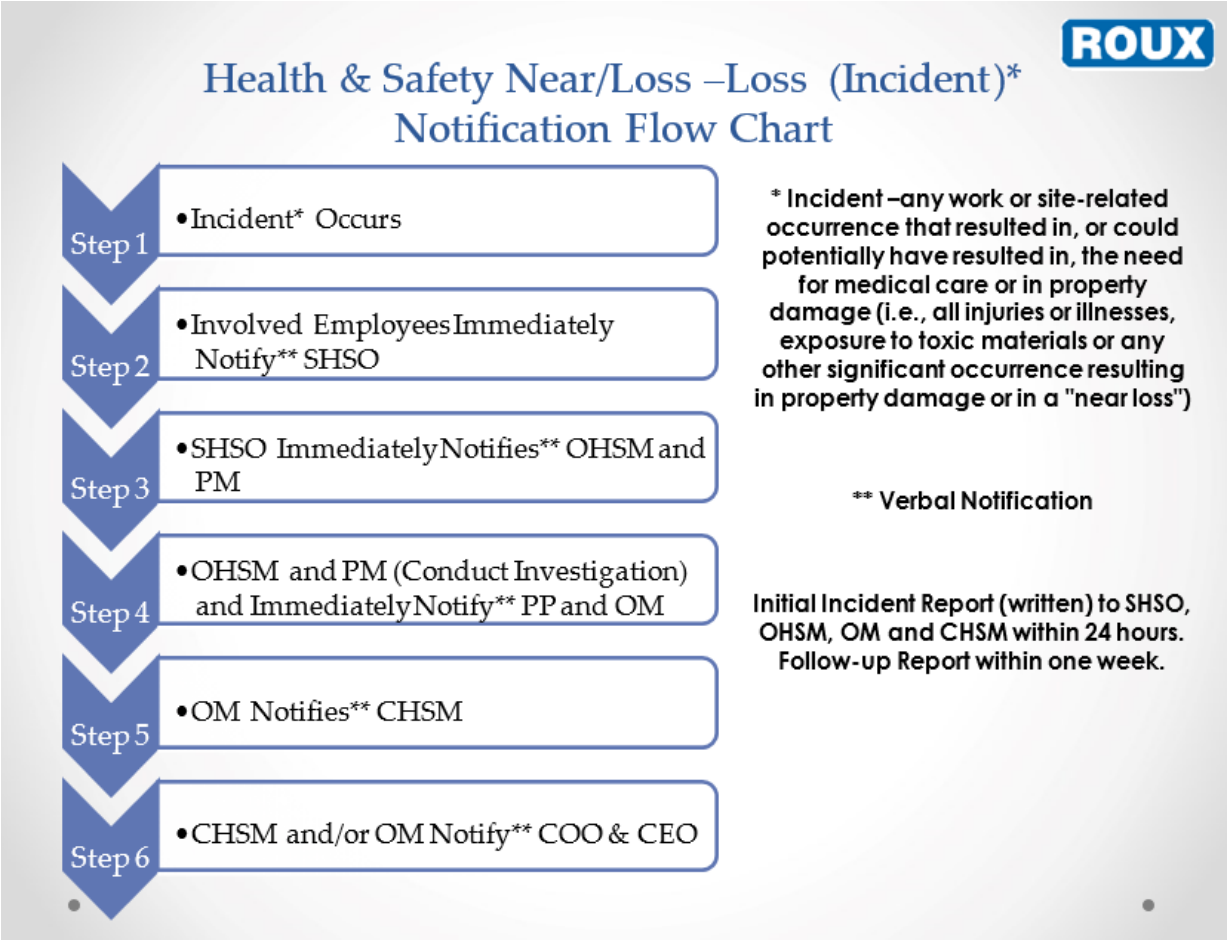
b. Based on discussions with the Project Team, Corporate Management and the AOH evaluation, if medical attention beyond onsite First Aid is warranted, transport the injured / ill person (IP) to the Urgent Care Center, or notify the Fire Department or Ambulance Emergency service and request an

ambulance or transport the victim to the hospital, and continue communications with Corporate Management Team. An Urgent Care/Hospital Route map with location to CityMD Greenpoint Urgent Care and NYC Health + Hospitals/Gotham Health is included as **Figure 3**.

c. Decontaminate to the extent possible prior to administration of first aid or movement to medical or emergency facilities.

d. First aid medical support will be provided by onsite personnel trained and certified in First Aid, Cardio Pulmonary Resuscitation (CPR), Automatic External Defibrillation (AED), and Blood-Borne Pathogens (BBP) Awareness, until relieved by emergency medical services (EMS).

e. The SHSO and Project Manager will perform a Loss Investigation (LI) and the Project Team will complete the final Loss Report. If a Roux employee is involved in a vehicular incident, the employee must also complete the Acord Automobile Loss Notice.



6.4 Adverse Weather Conditions

In the event of adverse weather conditions, the SHSO or project principal will determine if work can continue without sacrificing the health and 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 conditions;

- Limited visibility; and
- Electrical storm potential.

Site activities will be limited to daylight hours and acceptable weather conditions. Inclement working conditions include heavy rain, fog, high winds, and lightning. Observe daily weather reports and evacuate if necessary in case of inclement weather conditions.

6.5 Electrical Storm Guidelines

In the event that lightning and/or thunder are observed while working onsite, all onsite activities shall stop and personnel shall seek proper shelter (e.g., substantial building, enclosed vehicle, etc.). Work shall not resume until the threat of lighting has subsided and no lightning or thunder has been observed for 30 minutes. If the possibility of lightning is forecast for the day, advise the onsite personnel on the risks and proper procedure at the pre-work safety briefing. Continuously monitor for changing weather conditions and allow enough time to properly stop work if lightning is forecast.

7. Safety Procedures

This section of the HASP presents the specific safety procedures to be implemented during Roux's activities at the Site in order to protect the health and safety of various on-Site personnel. Minimum OSHA-mandated procedures are presented first, followed by client- and Site-specific procedures. Lastly, activity-specific procedures are discussed. These Site and activity-specific procedures supplement the general safety procedures included in Roux's Corporate Health and Safety Manual, which also must be followed in their entirely.

7.1 Training

At a minimum, Site personnel who will perform work in areas where there exists the potential for toxic exposure will be health and safety-trained prior to performing work onsite per OSHA 29 CFR 1910.120(e) and 29 CFR 1926.65(e). More specifically, all Roux, subcontractor, and other personnel engaged in sampling and remedial activities at the Site and who are exposed or potentially exposed to hazardous substances, health hazards, or safety hazards must have received at a minimum the 40 hour initial HAZWOPER training consistent with the requirements of 29CFR 1910.120(e)(3)(i) training and a minimum of 3 days' actual field experience under the direct supervision of a trained experienced supervisor, plus 8 hours of refresher training on an annual basis. Depending on tasks performed, less training may be permitted. Evidence of such training must be maintained at the Site at all times. Furthermore, all on-Site management and supervisory personnel directly responsible for or who supervise the employees engaged in Site remedial operations, must have received an additional 8 hours of specialized training at the time of job assignment on topics including, but not limited to, the employer's safety and health program and the associated employee training program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques, plus 8 hours of refresher training on an annual basis.

Roux personnel training records are maintained in a corporate database with records available upon request from either the OHSM/SHSO/CHSM or Human Resources Department.

7.2 Site-Specific Safety Briefings for Visitors

A Site-specific briefing is provided to all site visitors who enter this site beyond the site entry point. For visitors, the site-specific briefing provides information about site hazards, the site lay-out including work zones and places of refuge, the emergency alarm system and emergency evacuation procedures, and other pertinent safety and health requirements as appropriate.

7.3 HASP Information and Site-Specific Briefings for Workers

Site personnel review this HASP and are provided a Site-specific tailgate briefing prior to the commencement of work to ensure employees are familiar with this HASP and the information and requirements it contains, as well as the relevant JSAs included in **Appendix A**. Additional briefings are provided as necessary to notify employees of any changes to this HASP as a result of information gathered during on-going Site characterization and analysis of changing conditions. Conditions for which we schedule additional briefings include, but are not limited to: changes in site conditions, changes in the work schedule/plan, newly discovered hazards, and incidents occurring during Site work.

7.4 Medical Surveillance

The medical surveillance section of the Health and Safety Plan describes how worker health status is monitored at this site. Medical surveillance is used when there is the potential for worker exposure to hazardous substance at levels above OSHA permissible exposure limits or other published limits. The purpose of a medical surveillance program is to medically monitor worker health to ensure that personnel are not adversely affected by site hazards. The provisions for medical surveillance at this site are based on the site characterization and job hazard analysis found in Section 4 of this HASP and are consistent with OSHA requirements in 29 CFR 1910.120(f) as applicable.

7.4.1 Site Medical Surveillance Program

Medical surveillance requirements are based on a worker's potential for exposure as determined by the site characterization and job hazard analysis documented in Section 4 and JSAs within **Appendix A** of this HASP and in compliance with the requirements of 29 CFR 1910.120(f)(2). Based on site information and use of direct reading instruments, limited use of respirators (less than 30 days per year), and the absence of an employee-staffed HAZMAT team, a limited medical surveillance program is required and implemented at this site. The medical surveillance program provides that:

1. Workers assigned to tasks requiring the use of respirators receive medical examinations in accordance with 29 CFR 1910.134(e) to ensure they are physically capable to perform the work and use the equipment, and
2. If a worker is injured, becomes ill, or develops signs or symptoms of possible over-exposure to hazardous substance or health hazards, medical examinations are provided to that worker as soon as possible after the occurrence and as required by the attending physician.
3. These medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided to workers free of cost, without loss of pay, and at a reasonable time and place. In addition, the need to implement a more comprehensive medical surveillance program will be re-evaluated after any apparent over-exposure.

7.4.2 Medical Recordkeeping Procedures

Medical recordkeeping procedures are consistent with the requirements of 29 CFR 1910.1020 and are described in the company's overall safety and health program. A copy of that program is available at our Islandia, New York office.

The following items are maintained in worker medical records:

- Respirator fit test and selection;
- Physician's medical opinion of fitness for duty (pre-placement, periodic, termination);
- Physician's medical opinion of fitness for respirator protection (pre-placement, periodic); and
- Exposure monitoring results.

7.4.3 Program Review

The medical program is reviewed to ensure its effectiveness. The Corporate Health and Safety Manager in coordination with the Human Resources Director is responsible for this review. At minimum, this review consists of:

- Review of accident and injury records and medical records to determine whether the causes of accidents and illness were promptly investigated and whether corrective measures were taken wherever possible;

- Evaluation of the appropriateness of required medical tests based on site exposures; and
- Review of emergency treatment procedures and emergency contacts list to ensure they were site-specific, effective, and current.

7.5 Personnel Protection

Site safety and health hazards are eliminated or reduced to the greatest extent possible through engineering controls and work practices. Where hazards are still present, a combination of engineering controls, work practices and PPE are used to protect employees. Appropriate personal protective equipment (PPE) shall be worn by Site personnel when there is a potential exposure to chemical hazards or physical hazards (e.g., falling objects, flying particles, sharp edges, electricity, and noise), as determined by the SHSO. The level of personal protection, type and kind of equipment selected will depend on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors will be made before work can be safely executed.

Roux maintains a comprehensive written PPE program that addresses proper PPE selection, use, maintenance, storage, fit and inspection. Roux's PPE program can be found within **Appendix E**. PPE to be used at the Site will meet the appropriate American National Standards Institute (ANSI) standards and the following OSHA (General/Construction Industry) standards for minimum PPE requirements.

The minimum level of PPE for entry onto the Site is Level D. The following equipment shall be worn:

- Work uniform (long pants, sleeved shirt);
- Hard hat;
- Steel or composite toe work boots;
- Safety Glasses (must comply with one of the following ANSI/ISEA Z87.1-2010, ANSI Z87.1-2003, ANSI Z87.1-2003);
- Boot Covers (as needed);
- Hearing protection (as needed);
- High visibility clothing (shirt/vest); and
- Hand protection (e.g., minimum cut resistance meeting ANSI 105-2000 Level 2).

Note that jewelry shall be removed or appropriately secured to prevent it from becoming caught in rotating equipment or unexpectedly snagged on a fixed object (e.g., wrist watches, bracelets, rings, chains and necklaces, open earrings). Do not wear loose clothing and all shoulder-length hair should be tied back.

Site specific PPE ensembles and materials are identified within task specific JSAs located within **Appendix A**, and any upgrades or downgrades of the level of protection (i.e., not specified in the JSA) must be approved by the PP and immediately communicated to all Roux personnel and subcontractors as applicable. PPE is used in accordance with manufacturer's recommendations.

7.5.1 Hearing Conservation

Hearing protection is made available when noise exposures equal or exceed an 8-hour time-weighted average sound level of 85 dBA. Hearing protection is required when the 8-hour time weighted average sound level $\geq$ 90 dBA. Where noise exposure meets or exceeds this level, noise is listed as a physical hazard in the JSA for the tasks/operation, and hearing protection is included as one of the control measures (PPE).

7.6 Monitoring

An air monitoring program is important to the safety of on- and off-Site personnel, and the surrounding area. A preliminary survey, to establish background conditions in the immediate sampling area, may be made prior to the initiation of Site work including, but not limited to, monitoring wind direction (e.g., wind socks) and approximate temperature during all invasive Site activities. This survey will be conducted with the appropriate pre-calibrated air monitoring instrument(s), as warranted by the field activity. Once this survey has been complete, any changes in the type of PPE will be determined and relayed to those working on-Site.

CAMP will be implemented during Site redevelopment (ground intrusive) activities in accordance with the New York State Department of Health (NYSDOH) generic CAMP (see Appendix H).

Work zone air monitoring will be performed to verify that the proper level of PPE is used, and to determine if increased protection or work stoppage is required. The following equipment shall be used to monitor conditions:

- A Photoionization Detector (PID) with a lamp energy of 10.6 eV will be used to provide direct readings of organic vapor concentrations during intrusive activities to determine that personnel protection is adequate. Concentrations shall be recorded during intrusive activities with the potential to encounter contaminant vapors.
- Colorimetric detection tubes shall be used based on PID action levels to qualitatively identify possible contaminants as applicable.
- A pre-calibrated multi-gas meter with combustible Lower Explosive Limit (LEL), oxygen (O_2), carbon monoxide (CO), and hydrogen sulfide (H_2S) sensors shall be used to monitor the potential for oxygen-deficient atmospheres, explosive concentrations of organic vapors, and toxic gases during intrusive operations. Monitoring will be performed according to the action levels for oxygen and combustible gases provided in this section. The calibration for this device will be performed using a known gas composition calibration mixture.

Personal exposure monitoring utilizing activated charcoal tubes may be considered based on whether or not the area sample results are at or above half of the PEL. The decision to perform the monitoring will be made by, and under the control of, the CHSM.

Below are monitoring action levels for Site-specific chemicals of concern. In the event PID readings above the thresholds identified below are sustained for 5 minutes in the breathing zone, worker protection will require upgrading following notification to the OHSM and applicable parties (e.g., client, board of health, regulators, etc.).

7.6.1 Action Levels for Air Monitoring

PPE can remain at Level D if breathing zone VOC concentrations are less than 5 ppm and benzene is non-detect. Personnel are required to evacuate the Site when breathing zone VOC readings exceed 25 ppm.

The following tables include summaries of the air monitoring, work practices, and action levels for the expected contaminants. The action levels to initiate testing with colorimetric tubes for airborne volatiles is 1 ppm (PID reading) and is based on the Permissible Exposure Limit (PEL) for benzene (1 ppm). The colorimetric tubes are used to confirm the presence or absence of specific constituents, and they do not provide a measured concentration.

Air Monitoring Summary and Action Levels Organic Vapors	
PID Reading in Breathing Zone (ppm)[1]	**Action**
0-1 ppm above background[2]	Continue monitoring
1-5 ppm sustained 60 seconds	Continue monitoring, if applicable initiate additional collection of benzene using colorimetric tubes.
<5 ppm and no presence of benzene	Continue Monitoring, ventilate space
≥ 5 ppm - ≤ 25 ppm and no presence of benzene	Ventilate space until PID reads < 5 ppm. If < 5 ppm cannot be achieved, upgrade to Level C[3].
≥ 25 ppm	Ventilate space and evacuate area.

1 Based on relative response/sensitivity of PID to benzene.
2 Background concentrations should be established at the beginning of each work day. It may be necessary to re-establish background concentrations and ambient conditions vary through the day.
3 Measured air concentrations of known organic vapors will be reduced by the respirator to one half of the PEL or lower, and the individual and combined compound concentrations shall be within the service limit of the respirator cartridge.

Air Monitoring Summary and Action Levels Oxygen	
O_2 Reading in Breathing Zone (%)[1]	**Action**
20.9% O_2	Oxygen level normal
< 19.5% O_2	Oxygen deficient Interrupt task/Evacuate area
>23.5% O_2	Oxygen enriched Interrupt task/Evacuate area

1. Action levels based on USEPA Standard Operating Safety Guides; Table 5-1, Atmospheric Hazard Action Guidelines may be further restricted based on the CHSM's professional judgment and experience.

Air Monitoring Summary and Action Levels Carbon Monoxide	
CO Reading in Breathing Zone (ppm)[1]	**Action**
<25 ppm	Inspect exhaust system for leaks or other sources of CO. Monitor initially and every 15 minutes during use of CO-generating equipment.
25-50 ppm	Ventilate area. Monitor continuously and record measurements. Contact PM.
>50 ppm	Cease Field Operations. Ventilate area.

1. Based upon the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 25 ppm as an 8-hour time weighted average (TWA) and OSHA's Permissible Exposure Limit (PEL) of 50 ppm as an 8-hour TWA concentration.

Air Monitoring Summary and Action Levels Combustible Gases	
Lower Explosive Limit (LEL) Reading	**Action**
< 4% LEL (<2,000 ppm)	Site activities will continue with normal monitoring
4% – 20% LEL (2,000 – 10,000 ppm)	Stop work until levels dissipate to <4% LEL
> 20% LEL (>10,000 ppm)	Potential explosion hazard. Halt all site activities, research source of release, aerate work area, suppress source.

Air Monitoring Summary and Action Levels Hydrogen Sulfide	
Hydrogen Sulfide (H_2S) Reading	**Action**
<10 ppm	Site activities will continue with normal monitoring
>10 ppm	Stop work until levels dissipate to <10 ppm; use mechanical ventilation if possible
Cannot use air purifying respirators for H_2S because of olfactory fatigue	

7.6.2 Air Monitoring Equipment and Calibration

A PID calibrated to an appropriate calibration mixture will be used to detect organic vapors in and around the work areas. Monitoring will be conducted in and around all work areas and at the workers breathing zone before activities commence to establish a background level, then at 15-minute intervals throughout the day. All equipment will be calibrated according to the manufacturer's recommendation. A calibration log will be maintained and will include the name of the person who performed the calibration, the date and time calibrated, and the instrument reading at the time of calibration. A manual bellows pump or equivalent with colorimetric tubes for formaldehyde will be utilized to determine the course of action related to upgrading or downgrading the level of respiratory protection, as applicable.

If air monitoring data indicate safe levels of potentially harmful constituents at consistent intervals (5-minute intervals), then monitoring can be conducted less frequently (every 30 minutes). This determination will be made by the onsite SHSO. Monitoring data, including background readings and calibration records, will be documented. Work to be performed on-Site will conform to Roux's Standard Operating Procedures (SOPs). Conformance with these guidelines as well as the guidelines described in this HASP will aid in mitigating the physical and chemical hazards mentioned throughout this HASP.

7.7 Tailgate Safety Meetings

A designated Site worker will provide daily safety briefings (e.g., tailgate meetings) including, but not limited to, the following scenarios:

- When new operations are to be conducted;

- Whenever changes in work practices must be implemented; and
- When new conditions are identified and/or information becomes available.

Daily safety briefings shall be recorded on the Roux Daily Tailgate Health and Safety Meeting Log/Daily Site Safety Checklist, and all completed forms will become a part of the project file.

7.8 Spill Containment

Spill containment equipment and procedures should, at a minimum, meet the requirements of the facility's Spill Prevention, Control and Countermeasure Plan, if applicable. Otherwise, spill containment equipment and procedures must be considered depending on the task including, but no limited to, chemical/product transfer points and handling.

7.8.1 Initial Spill Notification and Response

Any worker who discovers a hazardous substance spill will immediately notify Levi Curnutte and/or Brandon Vella (PM). The worker will, to his/her best ability, report the hazardous substance involved, the location of the spill, the estimated quantity of material spilled, the direction/flow of the spill material, related fire/explosion incidents, and any associated injuries without compromising their own safety.

7.8.2 Spill Evaluation and Response

Levi Curnutte and/or Brandon Vella (PM) is responsible for evaluating spills and determining the appropriate response. When this evaluation is being made, the spill area will be isolated and demarcated to the extent possible. If necessary to protect nearby community members, notification of the appropriate authorities is made by the PM as appropriate. On-Site response is limited to small spills (e.g., <10 gallons); large spills require external emergency responders who will be contacted by the SHSO.

7.9 Decontamination

The decontamination section of the HASP describes how personnel and equipment are decontaminated when they leave the Exclusion Zone. This section also describes how residual waste from decontamination processes is disposed. The site decontamination procedures are designed to achieve an orderly, controlled removal or neutralization of contaminants that may accumulate on personnel or equipment. These procedures minimize worker contact with contaminants and protect against the transfer of contaminants to clean areas of the site and off-site. They also extend the useful life of PPE by reducing the amount of time that contaminants contact and can permeate PPE surfaces. Decontamination is facilitated within the CRZ at this site, if applicable.

7.9.1 Decontamination Procedures for Personnel and PPE

The following are general decontamination procedures established and implemented at this site.

1. Decontamination is required for all workers exiting a contaminated area. Personnel may re-enter the SZ only after undergoing the decontamination procedures described below in the next section.
2. Protective clothing is decontaminated, cleaned, laundered, maintained and/or replaced as needed to ensure its effectiveness.
3. PPE used at this site that requires maintenance or parts replacement is decontaminated prior to repairs, or

4. PPE used at this site is decontaminated or prepared for disposal on the premises. Personnel who handle contaminated equipment have been trained in the proper means to do so to avoid hazardous exposure.
5. This site uses an off-site laundry for decontamination of PPE. The site has informed that facility of the hazards associated with contaminated PPE from this site.
6. The site requires and trains workers that if their permeable clothing is splashed or becomes wetted with a hazardous substance, they will immediately exit the work zone, perform applicable decontamination procedures, shower, and change into uncontaminated clothing.
7. Procedures for disposal of decontamination waste meet applicable local, State, and Federal regulations.

7.9.2 Decontamination Procedures for Equipment

All tools, equipment, and machinery from the EZ or CRZ are decontaminated in the CRZ prior to removal to the SZ. Equipment decontamination procedures are designed to minimize the potential for hazardous skin or inhalation exposure and to avoid cross-contamination and chemical incompatibilities.

General Equipment Decontamination Procedures:

1. Decontamination is required for all equipment exiting a contaminated area. Equipment may re-enter the SZ only after undergoing the equipment decontamination procedures.
2. Vehicles that travel regularly between the contaminated and clean areas of the site are carefully decontaminated each time they exit the EZ and the effectiveness of that decontamination is monitored to reduce the likelihood that contamination will be spread to other parts of the site.
3. Particular attention is given to decontaminating tires, scoops, and other parts of heavy equipment that are directly exposed to contaminants and contaminated soil.

The following items may be used to decontaminate equipment:

- Fresh water rinse;
- Non-phosphorus detergent wash;
- Distilled water rinse;
- Acetone rinse;
- Distilled water rinse; and
- A steam cleaner or pressure washer (heavy equipment only).

7.9.3 Monitoring the Effectiveness of Decontamination Procedures

Visual examination and sampling are used to evaluate the effectiveness of decontamination procedures. Visual examination is used to ensure that procedures are implemented as described and that they appear to control the spread of contaminants under changing site conditions. Visual examination is also used to inspect for signs of residual contamination or for contaminant permeation of PPE.

Personnel who work in contaminated areas of the site, either the Contamination Reduction Zone (CRZ) or the Exclusion Zone, are trained in the principles and practices of decontamination described in this section of the HASP and in related SOPs. If site procedures are changed as a result of inspection and monitoring, all affected employees are notified of these changes.

7.10 Confined Space Entry

The following is a list of the safety requirements for confined space entry at the Site:

- **ROUX PERSONNEL ARE NOT AUTHORIZED TO ENTER AN OSHA PERMIT REQUIRED CONFINED SPACE;**
- Currently the scope of work **DOES NOT** require personnel to enter permitted confined space for this project; and
- Any changes to the field activities that may necessitate confined space entry will be reported to the Project Principal and OHSM.

Confined space is defined as any space, depression, or enclosure that:

- Has limited opening for entry and egress;
- Is large enough for and employee to enter and perform assigned work; and
- Is not intended for continuous occupancy.

A permit required confined space is one that meets the definition of a confined space and has one or more of the following characteristics:

- May contain or produce life-threatening atmospheres due to oxygen deficiency the presence of toxic, flammable, or corrosive contaminants;
- Contains a material that has the potential for engulfment;
- Has an internal configuration that may cause an entrant to be trapped or asphyxiated by inwardly converging walls or by a floor that slopes downward and tapers to a smaller cross-section; and
- Contains any other serious safety or health hazards.

Although Roux personnel will not perform confined space entry, it is expected that subcontractors performing cleaning and mitigation and/or remedial measures activities may be required to enter structures that are considered to be a permit required confined space. Permitting of the confined space as well as hazard mitigation for entry will be completed by the subcontractor in accordance with 1910.146.

7.11 Client and Site-Specific

In addition to the OSHA-specific procedures discussed above, there may be client and site-specific safety procedures that must be adhered to during the performance of remedial activities at the Site. Client and site-specific requirements will be documented and brought to the attention of Roux and Roux subcontractor personnel.

7.12 Unusual or Significant Risks

Field activities that appear to have unusual or significant risks that cannot be adequately managed with existing risk tools such as LPS, HASPs, traffic safety plans, work permits, design and O&M practices, equipment HAZOPS or other safety tools must be referred to the CHSM to help with the assessment and management of the associated potential safety risks. Examples include the use of explosives for demolition, use of firearms to control wildlife, rappelling, demolition over water, diving, etc.

7.13 Activity-Specific Hazards

In addition to the general hazards discussed above, there are activity-specific hazards associated with each work activity planned for the Site. An activity-specific JSA has been completed for each of the activities planned for the Site. JSAs are provided in **Appendix A**. In the event that new work activities or tasks are planned, JSAs will be developed and implemented prior to performing the new activities. In the absence of a JSA, the personnel performing work must prepare a field JSA and receive clearance from a designated competent safety official prior to performing any task with significant risk. In emergency situations where time is critical SPSAs will be utilized to identify the task, associated hazards and mitigative actions to take. For lower risk activities (as deemed by the discretion of a Competent Person) where a JSA is determined to not be needed, the individual(s) conducting the activities must perform SPSAs prior to and during the work.

7.13.1 Electrical and Other Utility Assessment and Accommodations

Roux shall perform a site walk to identify any potential overhead electrical or utility lines. All applicable guidelines will be followed in the vicinity of overhead power and utility lines (see Section 7.13.3 below).

Prior to commencing work, Roux will review all available Site maps showing buried utility lines to identify potential hazards to confirm no underground hazards are known to exist in the vicinity of the areas of the Site pertinent to this HASP. Roux or its subcontractor(s) will complete a “one-call” public utility mark out. Additionally, a private utility mark-out and/or geophysical investigation may be performed. The results of all utility assessments will be available on-Site for review during implementation of all scopes of work involving intrusive activities.

7.13.2 Subsurface Work

Subsurface work activities will require adherence to Roux’s Corporate Subsurface Utility Clearance Management program found within **Appendix F**.

7.13.2.1 Excavations and Trenching

All trenching and excavation work activities contracted by Roux shall comply with 29 CFR 1926.651-652 Subpart P. Additionally, for trenches greater than 4 feet deep, where employees will enter, the trench needs to have a stairway or ladder or other safe means of egress. Where employees will enter trenches greater than 5 feet deep, the trench must have some type of protective system or sloped appropriately to prevent cave-ins.

The SHSO will be present on-Site during all Roux contracted excavation and backfill operations and will supplement health and safety monitoring conducted by Subcontractor air quality screening to ensure that appropriate levels of protection and safety procedures are utilized. The proximity of chemical, water, sewer, and electrical lines will be identified by Roux and/or their subcontractor before any subsurface activity or sampling is attempted.

The following safe work practices will be implemented during this task.

- The proximity of chemical, water, sewer, and electrical lines will be identified by a facility representative prior to beginning any subsurface activity.
- While earthmoving, stay out of the excavator’s delineated heavy equipment exclusion zone and away from the excavation sides, where there is potential for cave in (within excavations that are 6 feet or more in depth, a delineated perimeter 6 feet away from the excavated edge is required).

Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H:V)[1] for Excavations Less Than 20 Feet Deep[3]
Stable Rock	Vertical (90°)
Type A[2]	3/4 : 1 (53°)
Type B	1 : 1 (45°)
Type C	1 1/2 : 1 (34°)

OSHA (29 CFR 1926.652, Subpart P, Appendices A and B)

Notes:

1 Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

2 A short-term maximum allowable slope of 1/2H : 1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 meters) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 meters) in depth shall be 3/4H : 1V (53°).

3 Sloping or benching for excavations greater than 20 feet deep shall be designed and stamped by a registered professional engineer.

Proper stockpiling (i.e., 2 feet minimum distance from the excavation edge), containment, transport, storage, and disposal practices will be utilized and is dependent upon the potential type and amount of waste generated during operations. The location of safety equipment and evacuation procedures will be established prior to initiation of operations according to this HASP.

7.13.3 Heavy Equipment

Use of heavy equipment at the Site will require adherence to Roux's Corporate Heavy Equipment Exclusion Zone Management Program found within **Appendix G**. Additionally, operation of the drill rig/other heavy equipment will maintain clearances from overhead power lines in accordance with OSHA 29 CFR1926.1408 Table A Minimum Clearance Distances provided below.

Minimum Required Clearances for Energized Overhead Power Lines

Nominal System Voltage of Power Line (K V)	Minimum Required Clearance (feet)
0-50	10
51-100	12
101-200	15
201-300	20
301-500	25
501-750	35
751-1000	45

1 kilovolt (KV) = 1,000 volts

7.14 Heat Stress

The National Oceanic and Atmospheric Administration records average minimum/maximum temperatures of 48 to 62 degrees Fahrenheit during the year in Brooklyn, New York.

7.14.1 Heat Stress

Heat stress is a significant potential hazard and can be associated with heavy physical activity and/or the use of personal protective equipment in hot weather environments. Heat cramps are brought on by prolonged

exposure to heat. As an individual sweats, water and salts are lost by the body resulting in painful muscle cramps. The signs and symptoms of heat stress are as follows:

- Severe muscle cramps, usually in the legs and abdomen;
- Exhaustion, often to the point of collapse; and
- Dizziness or periods of faintness.

First aid treatment includes, but is not limited to, shade, rest, and fluid replacement. Typically, the individual should recover within one-half hour while being monitored constantly. If the individual has not improved substantially within 30 minutes and the body temperature has not decreased, the individual should be transported to a hospital for medical attention.

7.14.2 Heat Exhaustion

Heat exhaustion may occur in a healthy individual who has been exposed to excessive heat while working or exercising. The circulatory system of the individual fails as blood collects near the skin to rid the body of excess heat through transference. The signs and symptoms of heat exhaustion are as follows:

- Rapid and shallow breathing;
- Weak pulse;
- Cold and clammy skin with heavy perspiration;
- Skin appears pale;
- Fatigue and weakness;
- Dizziness; and
- Elevated body temperature.

First aid treatment includes, but is not limited to, cooling the victim, elevating the feet, and replacing fluids.

If the individual is not substantially improved within 30 minutes and the body temperature has not decreased, the individual should be transported to the hospital for medical attention.

7.14.3 Heat Stroke

Heat stroke occurs when an individual is exposed to excessive heat and stops sweating. This condition is classified as a MEDICAL EMERGENCY requiring immediate cooling of the victim and transport to a medical facility. The signs and symptoms of heat stroke are as follows:

- Dry, hot red skin;
- Body temperature approaching or above 105 degrees F;
- Confusion, altered mental state, slurred speech;
- Seizures;
- Large (dilated) pupils; and
- Loss of consciousness – the individual may go into a coma.

First aid treatment requires immediate cooling and transportation to a medical facility. Heat stress is a significant hazard if any type of protective equipment (semi-permeable or impermeable) that prevents evaporative cooling when worn in hot weather environments.

7.15 Cold Stress

Cold stress is a danger at low temperatures and when the wind-chill factor is low. Prevention of cold-related illnesses is a function of whole-body protection. Adequate insulating clothing must be used when the air temperature is below 60°F. A work/rest regimen will be initiated when ambient temperatures and protective clothing cause a stressful situation. In addition, reduced work periods followed by rest in a warm area may be necessary in extreme conditions. The signs and symptoms of cold stress include the following:

- Severe shivering;
- Abnormal behavior;
- Slowing;
- Weakness;
- Stumbling or repeated falling;
- Inability to walk;
- Collapse; and/or
- Unconsciousness.

First aid requires removing the victim from the cold environment and seeking medical attention immediately. Also, prevent further body heat loss by covering the victim lightly with blankets. Do not cover the victim's face. If the victim is still conscious, administer hot drinks and encourage activity such as walking, wrapped in a blanket.

8. Field Team Review

Each person performing work at or visiting this site shall sign this section after site-specific training is completed and before being permitted to access the CRZ or Exclusion Zone.

I have read and understand this Site-Specific Health and Safety Plan. I will comply with the provision contained therein.

Site/Project: Greenpoint Ferry Site/1 Java Street

Name & Company	Signature	Date

9. Approvals

By their signature, the undersigned certify that this HASP is approved and will be utilized at the Broadway Triangle Parcels A1, A2, B, and C.

Vanessa Ricigliano – Site Health and Safety Officer	March 23, 2021 Date
Kristina DeLuca – Office Health and Safety Manager	March 23, 3021 Date
Brian Hobbs, CIH, CSP – Corporate Health and Safety Manager	March 23, 2021 Date
Jeff Wills – Project Manager	March 23, 2021 Date
Emily Butler – Project Manager	March 23, 2021 Date
Rob Kovacs – Project Principal	March 23, 2021 Date

TABLE

Toxicological Properties of Hazardous Substances
Present at the Site

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Acenaphthene	83-32-9	None established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Brown solid
Acenaphthylene	208-96-8	None Established	None established	None established	None established	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Yellow Solid Fl. Pt.=251°F
Arsenic (inorganic)	7440-38-2 (metal)	TWA 0.01 mg/m3	Ca C 0.002 mg/m3 [15-min]	TWA 0.010 mg/m3	Ca [5 mg/m3 (as As)]	Inhalation; ingestion; skin absorption; skin and/or eye contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, resp irritation, hyperpigmentation of skin, [potential occupational carcinogen]	Liver, kidneys, skin, lungs, lymphatic sys	Metal: sliver-gray or tin-white, brittle, odorless solid BP: sublimes
Barium	7440-39-3	TWA 0.5 mg/m3	None established	TWA 0.5 mg/m3	None established	Inhalation, ingestion, skin contact	Irritation skin, respiratory system, digestive system	Skin, eyes, respiratory system	Yellow white powder BP: 1640 C
Benzene	71-43-2	TWA 0.5 ppm STEL 2.5 ppm	Ca TWA 0.1 ppm STEL 1 ppm	TWA 1 ppm ST 5 ppm	Ca [500 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, respiratory system; dizziness; headache, nausea, staggered gait; anorexia, lassitude (weakness, exhaustion); dermatitis; bone marrow depression; [potential occupational carcinogen]	Eyes, skin, respiratory system, blood, central nervous system, bone marrow	Colorless to light yellow liquid with an aromatic odor [Note: Solid below 42 °F] BP: 176°F Fl.Pt. = 12°F LEL: 1.2% UEL: 7.8% Class B Flammable liquid
Benzo[a]anthracene	56-55-3	None established [skin cancer]	None established	None established	None established	Inhalation; ingestion; skin absorption; skin and/or eye contact	Irritation eyes, skin, respiratory system, CNS; skin cancer	Skin	Pale Yellow crystal, solid BP: 438 C
Benzo[a]pyrene	50-32-8	None established [cancer]	TWA 0.1 mg/m3	TWA 0.2 mg/m3	None established	Inhalation; ingestion; skin absorption; skin and/or eye contact	POISON. This material is an experimental carcinogen, mutagen, tumorigen, neoplastigen and teratogen. It is a probable carcinogen in humans and a known human mutagen. IARC Group 2A carcinogen. It is believed to cause bladder, skin and lung cancer. Exposure to it may damage the developing fetus. May cause reproductive damage. Skin, respiratory and eye irritant or burns.	Skin, eye, bladder, lung, reproductive	Yellow crystals or powder [found in cigarette smoke, coal tar, fuel exhaust gas and in many other sources] BP: 495 C
Benzo[b]fluoranthene	205-99-2	None established [cancer]	TWA 0.1 mg/m3	TWA 0.2 mg/m3	None established	Inhalation; ingestion; skin and/or eye contact	No data were identified on the toxicity of benzo[b]fluoranthene to humans. Based on results of studies in animals, IARC concluded that benzo[b]fluoranthene is possibly carcinogenic to humans	Respiratory system, skin, bladder, kidneys	Off-white to tan powder
Benzo[k]fluoranthene	207-08-9	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory tract, gastrointestinal; fatal if swallowed, inhaled, absorbed through the skin; vomiting, nausea, diarrhea	Lungs, respiratory system	Yellow crystals BP: 480 C
Benzo(g,h,i)perylene	191-24-2	None established	None established	California permisible exposure limits for chemical contaminants (Title 8, Article 107) PEL 0.2 mg/m3	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, respiratory tract, very toxic to aquatic life with long lasting effects	Eyes, skin, respiratory system	Pale Yellow -Green Crystals BP: 550°C
Beryllium	7440-41-7 (metal)	TWA 0.00005 mg/m^3	Ca C 0.0005 mg/m^3	TWA 0.002 mg/m^3 C 0.005 mg/m^3 (30 minutes) with a maximum peak of 0.025 mg/m^3	Ca [4 mg/m^3 (as Be)]	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 eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	Metal: A hard, brittle, gray-white solid. BP: 4532°F
Cadmium	7440-43-9 (metal)	TWA 0.01 mg/m^3	Ca	TWA 0.005 mg/m^3	Ca [9 mg/m^3 (as Cd)]	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]	respiratory system, kidneys, prostate, blood	Metal: Silver-white, blue-tinged lustrous, odorless solid. BP: 1409°F
Carbon Tetrachloride	56-23-5	TWA 5 ppm STEL 10 ppm	Ca ST 2 ppm (12.6 mg/m3) [60 minute]	TWA 10 ppm C 25 ppm 200 ppm (5-minute maximum peak in any 4 hours)	Ca [200 ppm]	inhalation, skin absorbtion, ingestion, skin and/or eye contact	irritation eyes, skin; central nervous system depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	central nervous system, eyes, lungs, liver, kidneys, skin	Colorless liquid with a characteristic ether-like odor. BP: 170°F
Carbon Monoxide	630-08-0	TWA 25 ppm	TWA 35 ppm C 200 ppm	TWA 50 ppm	1,200 ppm	inhalation	Carboxyhemogloemia	Blood	Colorless, odorless gas

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Chromium	7440-47-3	TWA 0.5 mg/m^3 (metal and Cr III compounds) TWA 0.05 mg/m^3 (water-soluble Cr VI compounds) TWA 0.01 mg/m^3 (insoluble Cr IV compounds)	TWA 0.5 mg/m^3	TWA 1 mg/m^3	250 mg/m^3 (as Cr)	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; lung fibrosis (histologic)	Eyes, skin, respiratory system	Blue-white to steel-gray, lustrous, brittle, hard, odorless solid. BP: 4788°F
Chrysene; Phenanthrene; Pyrene; Coal tar pitch volatiles	65996-93-2	TWA 0.2 mg/m3	Ca TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m^3 (benzene-soluble fraction)	Ca [80 mg/m^3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	Respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids
Coal Tar Pitch Volatiles; Chrysene; Phenanthrene; Pyrene	65996-93-2	TWA 0.2 mg/m^3	Ca TWA 0.1 mg/m^3 (cyclohexane-extractable fraction)	TWA 0.2 mg/m^3 (benzene-soluble fraction)	Ca [80 mg/m^3]	Inhalation, skin and/or eye contact	Dermatitis, bronchitis, [potential occupational carcinogen]	respiratory system, skin, bladder, kidneys	Black or dark-brown amorphous residue. Combustible Solids
1,1-Dichloroethane	75-34-3	TWA 100 ppm	TWA 100 ppm (400 mg/m^3)	TWA 100 ppm (400 mg/m^3)	3000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation skin; central nervous system depression; liver, kidney, lung damage	Skin, liver, kidneys, lungs, central nervous system	Colorless, oily liquid with a chloroform-like odor. BP: 135°F Fl.P: 2°F UEL: 11.4% LEL: 5.4%
1,2-Dichloroethane (Ethylene Dichloride)	107-06-2	TWA 10 ppm	Ca TWA 1 ppm (4 mg/m^3) STEL 2 ppm (8 mg/m^3)	TWA 50 ppm C 100 ppm 200 ppm [5-minute maximum peak in any 3 hours]	Ca [50 ppm]	inhalation, ingestion, skin absorption, skin and/or eye contact	Irritation eyes, corneal opacity; central nervous system depression; nausea, vomiting; dermatitis; liver, kidney, cardiovascular system damage; [potential occupational carcinogen]	Eyes, skin, kidneys, liver, central nervous system, cardiovascular system	Colorless liquid with a pleasant, chloroform-like odor. [Note: Decomposes slowly, becomes acidic & darkens in color.] BP: 182°F Fl.P: 56°F UEL: 16% LEL: 6.2% Class IB Flammable Liquid
1,2-Dichloroethene (total)	540-59-0	TWA 200 ppm	TWA 200 ppm (790 mg/m^3)	TWA 200 ppm (790 mg/m^3)	1000 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, respiratory system; central nervous system depression	Eyes, respiratory system, central nervous system	Colorless liquid (usually a mixture of the cis & trans isomers) with a slightly acrid, chloroform-like odor BP: 118-140°F Fl.P: 36-39°F UEL: 12.8% LEL: 5.6% Class IB Flammable Liquid
cis-1,2-Dichloroethene	156-59-2	TWA 200 ppm	TWA 200 ppm	TWA 200 ppm	None established	inhalation, skin absorption, ingestion	Harmful if swallowed, inhaled, or absorbed through skin. Irritant. Narcotic. Suspected carcinogen	Skin	Colorless liquid BP: 60 C Fl.P: 4 C UEL: 12.8% LEL: 9.7 %
trans-1,2-Dichloroethene	156-60-5	TWA 200 ppm	None established	TWA 200 ppm STEL 250 ppm (skin)	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Narcotic. Irritation eyes, skin, respiratory tract, mucous membrane; CNS depression.	Respiratory tract, mucous membrane, eyes, skin, CNS	Colorless liquid with a fruity pleasant odor BP: 48°C Fl.P 6C UEL: 12.8% LEL: 9.7%
Dibenzo[a,h]anthracene	53-70-3	None established	None established	None established	None established	Inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin	Eyes, skin; skin photosensitization.	Colorless crystalline powder BP: 524°C
Dibenzofuran	132-64-9								
Diesel Fuel #2	68476-34-6	TWA 100 mg/m^3; Skin notation	None established	Designated as an OSHA Select Carcinogen	None established	ingestion, skin and/or eye contact	Kidney damage; potential lung damage; suspected carcinogen; irritation of eyes, skin, respiratory tract; dizziness, headache, nausea; chemical pneumonitis (from aspiration of liquid); dry, red skin; irritant contact dermatitis; eye redness, pain.	Eyes, skin, kidneys	Clear yellow brown combustible liquid; floats on water; distinct diesel petroleum hydrocarbon odor. BP: 356-716°F Fl.P: 154.4-165.2°F LEL: 0.6% UEL: 7.0%
Ethylbenzene	100-41-4	TWA 20 ppm	TWA 100 ppm (435 mg/m^3) STEL 125 ppm (545 mg/m^3)	TWA 100 ppm (435 mg/m^3)	800 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, mucous membrane; headache; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system	Colorless liquid with an aromatic odor. BP: 277°F Fl.P: 55°F UEL: 6.7% LEL: 0.8% Class IB Flammable Liquid
Fluoranthene	206-44-0	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible burns; heart and liver injury, pulmonary edema, respiratory arrest, gastrointestinal disturbances.	Heart, liver, lungs.	Yellow needles.

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Fuel Oil #2	68476-30-2	TWA 100 mg/m3; Skin notation	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; CNS effects; nausea, vomiting, headache, cramping, dizziness, weakness, loss of coordination,, drowsiness; kidney, liver damage	Eyes, skin, CNS	Clear or yellow to red oily liquid, kerosene-like odor BP: 347 - 689 °F UEL:5-6% LEL: 0.7-1.0%
Gasoline	8006-61-9	TWA 300 ppm STEL 500 ppm	Carcinogen	None established	Ca [IDLH value has not been determined]	Skin absorption; inhalation; ingestion; skin and/or eye contact	Eyes and skin irritation, mucous membrane; dermatitis; headache; listlessness, blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonitis; possible liver, kidney damage [Potential occupational carcinogen]	Eyes, skin, respiratory system, CNS, Liver, Kidneys	Clear liquid with a characteristic odor, aromatic Fl.Pt. = -45°F LEL = 1.4% UEL = 7.6% Class 1B Flammable Liquid
Hydrogen Sulfide	7783-06-4	TWA 1 ppm STEL 5 ppm	C 10 ppm (15 mg/m^3) [10-minute]	C 20 ppm 50 ppm [10-minute maximum peak]	100 ppm	inhalation, skin and/or eye contact	Irritation eyes, respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance; liquid: frostbite	Eyes, respiratory system, central nervous system	Colorless gas with a strong odor of rotten eggs. BP: -77°F UEL: 44.0% LEL: 4.0% Flammable Gas
Indeno[1,2,3-cd]pyrene	193-39-5	None established	None established	None established	None established	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; possible human carcinogen (skin); weakness; affect liver, lung tissue, renal tissue; impairment of blood forming tissue	Skin	Fluorescent green-yellow crystalline solid BP: 536 C
Lead (inorganic)	7439-92-1	TWA 0.05 mg/m^3	TWA (8-hour) 0.050 mg/m^3	TWA 0.050 mg/m^3	100 mg/m^3 (as Pb)	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 eyes; hypertension	Eyes, gastrointestinal tract, central nervous system, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid. BP: 3164°F Noncombustible Solid in bulk form
Mercury (organo) alkyl compounds (as Hg)	7439-97-6	TWA 0.01 mg/m^3 STEL 0.03 mg/m^3 [skin]	TWA 0.01 mg/m^3 STEL 0.03 mg/m^3 [skin]	TWA 0.01 mg/m^3 C 0.04 mg/m^3	2 mg/m^3 (as Hg)	inhalation, skin absorption, ingestion, skin and/or eye contact	Paresthesia; ataxia, dysarthria; vision, hearing disturbance; spasticity, jerking limbs; dizziness; salivation; lacrimation (discharge of tears); nausea, vomiting, diarrhea, constipation; skin burns; emotional disturbance; kidney injury; possible teratogenic effects	Eyes, skin, central nervous system, peripheral nervous system, kidneys	Appearance and odor vary depending upon the specific (organo) alkyl mercury compound
Mercury compounds [except (organo) alkyls] (as Hg) Mercury	7439-97-6	TWA 0.025 mg/m^3 (elemental and inorganic forms)	Hg Vapor: TWA 0.05 mg/m^3 [skin] Other: C 0.1 mg/m3 [skin]	TWA 0.1 mg/m^3	10 mg/m^3 (as Hg)	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria	Eyes, skin, respiratory system, central nervous system, kidneys	Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.] BP: 674°F
Methylene Chloride (Dichloromethane)	75-09-2	TWA 50 ppm, A3 - suspected human carcinogen	Ca	TWA 25 ppm STEL 125 ppm	Ca [2300 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; lassitude (weakness, exhaustion), drowsiness, dizziness; numbness, tingle limbs; nausea; [potential occupational carcinogen]	Eyes, skin, cardiovascular system, central nervous system	Colorless liquid with a chloroform-like odor BP: 104°F UEL: 23% LEL: 13%
Naphtha (Rubber Solvent)	8030-30-6	None established	TWA 100 ppm (400 mg/m^3)	TWA 100 ppm (400 mg/m^3)	1000 ppm [10%LEL]	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin, nose; dizziness, drowsiness; dermatitis; in animals: liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Reddish-brown, mobile liquid with an aromatic odor BP: 320-428°F Fl.P: 100-109°F Class II Combustible Liquid
Naphthalene	91-20-3	TWA 10 ppm [skin]	TWA 10 ppm (50 mg/m^3) STEL 15 ppm (75 mg/m^3)	TWA 10 ppm (50 mg/m^3)	250 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes; headache, confusion, excitement, malaise (vague feeling of discomfort); nausea, vomiting, abdominal pain; irritation bladder; profuse sweating; jaundice; hematuria (blood in the urine), renal shutdown; dermatitis, optical neuritis, corneal damage	Eyes, skin, blood, liver, kidneys, central nervous system	Colorless to brown solid with an odor of mothballs. BP: 424°F Fl.P: 174°F UEL: 5.9% LEL: 0.9%
Petroleum hydrocarbons(Petroleum distillates)	8002-05-9	None established	TWA 350 mg/m^3 C 1800 mg/m^3 [15 min]	TWA 500 ppm (2000 mg/m^3)	1,100 [10% LEL]	Inhalation; ingestion; skin and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, drowsiness, headache, nausea; dried/cracked skin; chemical pneumonitis	CNS, eyes, respiratory system, skin	Colorless liquid with a gasoline or kerosene-like odor BP: 86-460°F Fl. Pt = -40 to -86°F UEL: 5.9% LEL: 1.1% Flammable liquid
Polychlorinated Biphenyls (PCBs) (Chlorodiphenyl (42% Chlorine))	53469-21-9	TWA 1 mg/m^3	Ca TWA 0.001 mg/m^3	0.5 mg/m^3	5 ppm	Dermal; inhalation; ingestion; skin and/or eye contact	Irritation eyes; chloracne; liver damage; reproductive effects; [potential occupational carcinogen]	Eyes, skin, liver, respiratory system	Colorless to light-colored, viscous liquid, hydrocarbon odor, BP: 617 - 734°F, non-flammable, LEL: NA, UEL: NA
Selenium	7782-49-2	TWA 0.2 mg/m^3	TWA 0.2 mg/m^3	TWA 0.2 mg/m^3	1 mg/m^3 (as Se)	inhalation, ingestion, skin and/or eye contact	Irritation 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	Eyes, skin, respiratory system, liver, kidneys, blood, spleen	Amorphous or crystalline, red to gray solid. [Note: Occurs as an impurity in most sulfide ores.] BP: 1265°F

Table 1. Toxicological, Physical, and Chemical Properties of Compounds Potentially Present at the Site

Compound	CAS #	ACGIH TLV	NIOSH REL	OSHA PEL	IDLH	Routes of Exposure	Toxic Properties	Target Organs	Physical/Chemical Properties
Silver	7440-22-4 (metal)	TWA 0.1 mg/m^3 (metal, dust, fume) TWA 0.01 mg/m^3 (Soluble compounds, as Ag)	TWA 0.01 mg/m^3	TWA 0.01 mg/m^3	10 mg/m^3 (as Ag)	inhalation, ingestion, skin and/or eye contact	Blue-gray eyes, nasal septum, throat, skin; irritation, ulceration skin; gastrointestinal disturbance	Nasal septum, skin, eyes	Metal: White, lustrous solid BP: 3632°F
Tetrachloroethene	127-18-4	TWA 25 ppm STEL 100 ppm listed as A3, animal carcinogen	Ca Minimize workplace exposure concentrations	TWA 100 ppm C 200 ppm (for 5 minutes in any 3-hour period), with a maximum peak of 300 ppm	Ca [150 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin, nose, throat, respiratory system; nausea; flush face, neck; dizziness, incoordination; headache, drowsiness; skin erythema (skin redness); liver damage; [potential occupational carcinogen]	Eyes, skin, respiratory system, liver, kidneys, central nervous system	Colorless liquid with a mild, chloroform-like odor. BP: 250°F Noncombustible Liquid
Toluene	108-88-3	TWA 20 ppm	TWA 100 ppm (375 mg/m^3) STEL 150 ppm (560 mg/m^3)	TWA 200 ppm C 300 ppm 500 ppm (10-minute maximum peak)	500 ppm	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, nose; lassitude (weakness, exhaustion), confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); anxiety, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys	Colorless liquid with a sweet, pungent, benzene-like odor. BP: 232°F Fl.P: 40°F UEL: 7.1% LEL: 1.1% Class IB Flammable Liquid
1,1,1-Trichloroethane (Methyl Chloroform)	71-55-6	TWA 350 ppm STEL 450 ppm	C 350 ppm (1900 mg/m^3) [15-minute]	TWA 350 ppm (1900 mg/m^3)	700 ppm	inhalation, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, lassitude (weakness, exhaustion), central nervous system depression, poor equilibrium; dermatitis; cardiac arrhythmias; liver damage	Eyes, skin, central nervous system, cardiovascular system, liver	Colorless liquid with a mild, chloroform-like odor. BP: 165°F UEL: 12.5% LEL: 7.5%
Trichloroethene	79-01-6	TWA 10 ppm STEL 25 ppm	Ca	TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)	Ca [1000 ppm]	inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; headache, visual disturbance, lassitude (weakness, exhaustion), dizziness, tremor, drowsiness, nausea, vomiting; dermatitis; cardiac arrhythmias, paresthesia; liver injury; [potential occupational carcinogen]	Eyes, skin, respiratory system, heart, liver, kidneys, central nervous system	Colorless liquid (unless dyed blue) with a chloroform-like odor. BP: 189°F UEL(77°F): 10.5% LEL(77°F): 8%
Vinyl Chloride	75-01-4	TWA 1 ppm	Carcinogen	TWA 1 ppm C 5 ppm [15-minute]	Ca [IDLH value has not been determined]	inhalation, skin, and/or eye contact (liquid)	Lassitude (weakness, exhaustion); abdominal pain, gastrointestinal bleeding; enlarged liver; pallor or cyanosis of extremities; liquid: frostbite; [potential occupational carcinogen]	Liver, central nervous system, blood, respiratory system, lymphatic system	Colorless gas or liquid (below 7°F) with a pleasant odor at high concentrations. BP: 7°F UEL: 33.0% LEL: 3.6% Flammable Gas
Xylene (m, o & p isomers)	108-38-3, 95-47-6, 106-42-3	TWA 100 ppm STEL 150 ppm	TWA 100 ppm (435 mg/m^3)	TWA 100 ppm (435 mg/m^3)	900 ppm	Skin absorption, inhalation, ingestion, skin, and/or eye contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys	Colorless liquid with an aromatic odor BP: 282°F, 292°F, 281°F Fl. Pt. 82°F, 90°F, 81°F LEL: 1.1%, 0.9%, 1.1% UEL: 7.0%, 6.7%, 7.0% Class C Flammable Liquid
Zinc Oxide	1314-13-2	TWA 2 mg/m3 STEL 10 mg/m^3	None established	TWA 10 mg/m3 (for zinc oxide fume)	None established	skin and/or eye contact, inhalation, ingestion	Irritation eyes, skin, respiratory tract; gastrointestinal disturbances	Eyes, skin, respiratory system,	Bluish gray solid BP: 1664.6°F Flammable

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2017 TLVs® and BEIs®, American Conference of Industrial Hygienists

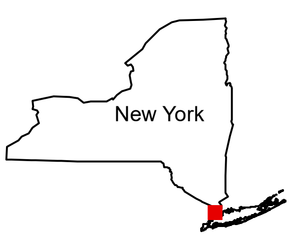
Abbreviations:

ACGIH – American Conference of Governmental Industrial Hygienists.
BP – boiling point at 1 atmosphere, °F
C – Ceiling, is a concentration that should not be exceeded during and part of the working exposure.
CAS# - Chemical Abstracts Service registry number which is unique for each chemical.
Ft Pt. – Flash point
IDLH - Immediately Dangerous to Life and Health concentrations represent the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.
LEL – Lower explosive (flammable) limit in air, % by volume (at room temperature)
mg/m^3 – Milligrams of substance per cubic meter of air
NIOSH - National Institute for Occupational Safety and Health.
OSHA – Occupational Safety and Health Administration
PEL - OSHA Permissible Exposure Limit (usually) a time weighted average concentration that must not be exceeded during any 8 hour work shift of a 40 hr work week.
ppm – parts per million
REL – NIOSH Recommended Limit indicated a time weighted average concentration that must not be exceeded during any 10 hour work shift of a 40 hr work week
SG - Specific Gravity
STEL – Short-term exposure limit (ST)
TLV - ACGIH Threshold Limit Values (usually 8 hour time weighted average concentrations).
TWA – 8-hour, time-weighted average
UEL – Upper explosive (flammable) limit in air, % by volume (at room temperature)
VP - Vapor Pressure

FIGURES

1. Site Location Map
2. Site Plan with Emergency Muster Area
3. Routes to Urgent Care and Hospital

QUADRANGLE LOCATION



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1,000 0 1,000'

Title:

SITE LOCATION MAP

GREENPOINT FERRY SITE
1 JAVA STREET, BROOKLYN, NY

Prepared for:

LENDLEASE DEVELOPMENT, INC.

ROUX

Compiled by: E.B.	Date: 02/08/21	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	1
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583.0001Y104.1.mxd		

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LEGEND

- EMERGENCY MUSTER AREA
- SITE ENTRANCE AND EXIT
- EXISTING BUILDING BOUNDARY

75 0 75'

Title:

SITE PLAN WITH EMERGENCY MUSTER AREA

GREENPOINT FERRY SITE
1 JAVA STREET, BROOKLYN, NY

Prepared for:

LENDLEASE DEVELOPMENT, INC.

ROUX

Compiled by: E.B.	Date: 02/08/21	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	2
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583.0001Y104.2.mxd		

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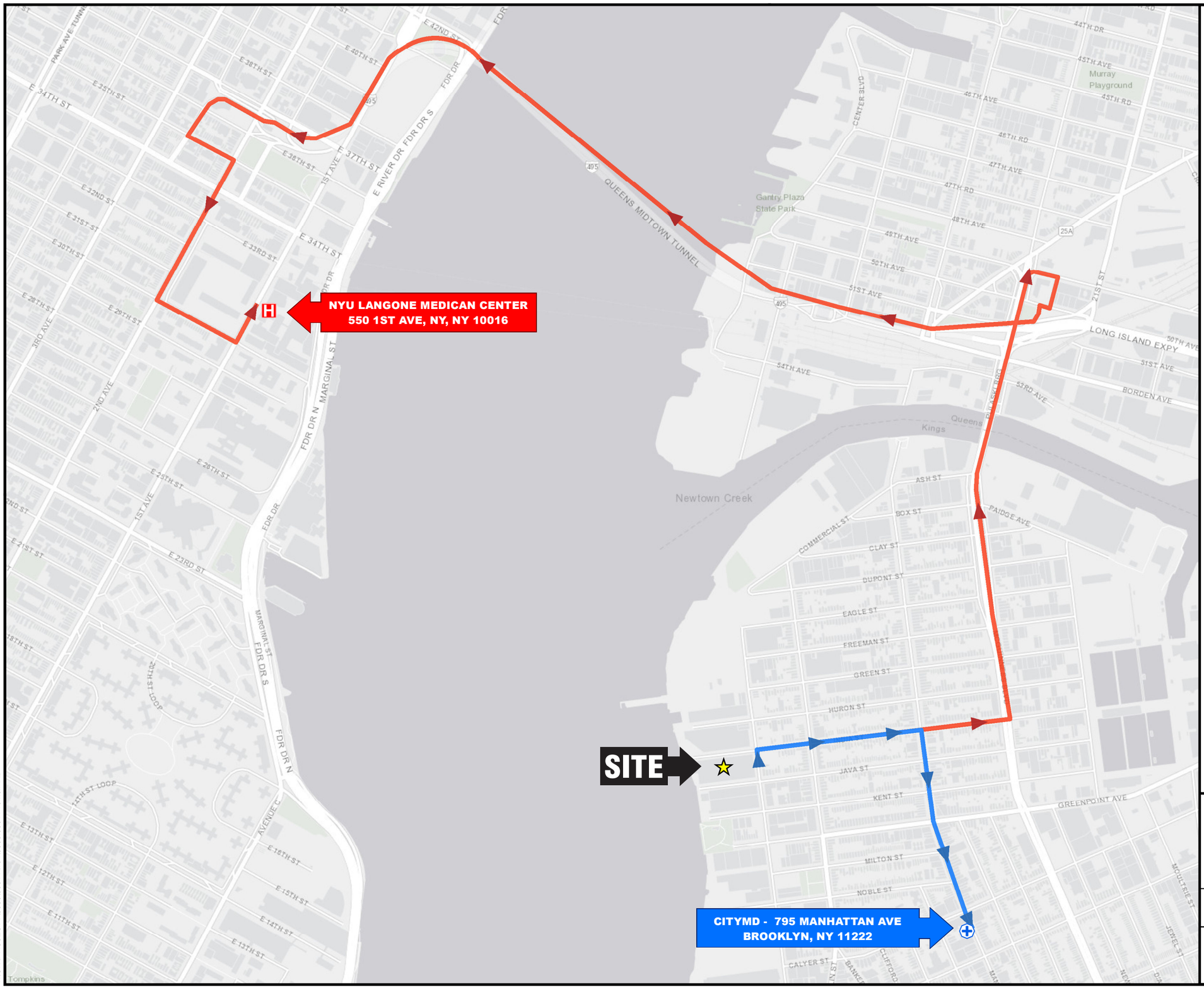

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DIRECTIONS TO HOSPITAL

1. FOLLOW INDIA ST TO MCGUINNESS BLVD
2. TAKE PULASKI BRIDGE, QUEENS MIDTOWN TUNNEL AND 2ND AVE TO 1ST AVENUE IN MANHATTAN

DIRECTIONS TO URGENT CARE

1. HEAD NORTH ON WEST ST TOWARD INDIA ST
2. TURN RIGHT ONTO INDIA ST
3. TURN RIGHT ONTO MANHATTAN AVE/SGT. NICHOLAS ALEMAN WAY
4. CONTINUE TO FOLLOW MANHATTAN AVE
5. CONTINUE STRAIGHT THROUGH CHARNO WAY TO STAY ON MANHATTAN AVE

850 0 850'

Title:

ROUTES TO URGENT CARE AND HOPSITAL

GREENPOINT FERRY SITE
1 JAVA STREET, BROOKLYN, NY

Prepared for:

LENDLEASE DEVELOPMENT, INC.

ROUX

Compiled by: E.B.	Date: 02/08/21	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	3
Project Mgr: J.W.	Project: 3583.0001Y000	
File: 3583.0001Y104.3.mxd		

APPENDICES

A. Job Safety Analysis (JSA) Forms
B. Daily Tailgate Form
C. SDSs for Chemicals Used
D. COVID-19 Interim Health and Safety Guidance
E. Personal Protective Equipment (PPE) Management Program
F. Subsurface Utility Clearance Management Program
G. Heavy Equipment Exclusion Zone Policy
H. Generic Community Air Monitoring Program

APPENDIX A

Job Safety Analysis (JSA) Forms

JOB SAFETY ANALYSIS	Ctrl. No. CVD-19	DATE: 04/16/2020	☒ NEW ☐ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Fieldwork**	**Working in Areas Affected by Coronavirus**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Kristina DeLuca	Health and Safety Specialist	Brian Hobbs	CHSM

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES – Leather/cut-resistant in field and nitrile as needed
☒ HARD HAT – In field	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING – High visibility vest in field	☐ OTHER
☒ SAFETY GLASSES – In field	☒ SAFETY SHOES – Steel/composite toe in fie		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Cloth face covering, nitrile gloves, hand soap, water source, hand sanitizer, disinfectant spray and disinfectant wipes.

Commitment to Safety – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.

SOCIAL DISTANCING: Maintain 6' of distance between yourself and all other people at all times. If you do not believe the scope of work can be conducted while maintaining this distance, contact your Project Manager immediately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Project Preplanning	N/A	• Review and follow COVID-19 CDC, Roux, Client and local orders/protocols. • Ensure all workers are fit for duty - anyone feeling sick should remain at home even if symptoms do not align with COVID-19. If a worker has been in contact with someone potentially positive or positive for COVID-19, contact your Office Manager. • Determine PPE needs and ensure adequate supply of disinfectant wipes/spray, soap and water or hand sanitizer at Site. Due to high demands and limited supply, plan ahead. • Use the minimum number of employees necessary to safely complete the work.
2. Mobilization	**Exposure:** Becoming infected or infecting co-workers	**Personal/Rental/Roux Owned Vehicle** • Do not carpool. • Use the same vehicle every day and do not share with co-workers. • Verify workers/other people are not approaching vehicle prior to exiting the vehicle. Maintain 6' of distance from others. • DO not valet your car or allow others to use your car. If necessary, don nitrile gloves and safety glasses and clean/disinfect all high touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (follow manufacturer's instructions). This cleaning and disinfection shall occur before and after each use of the vehicle. Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. **Public Transportation** • Public transit should not be used unless absolutely necessary. Consider renting a car rather than taking public transit. If public transit is required, wear appropriate PPE and apply social distancing (6 ft). Use proper donning and doffing procedures for nitrile gloves. Wash hands or use hand sanitizer immediately after. **Hotel Stay (Refer to COVID-19 H&S Guidance for more info)** • If a hotel stay is deemed necessary for the given field work, ensure that you disinfect your room upon initial arrival and returning each day. Disinfect all surfaces of your room with an appropriate disinfectant using nitrile gloves. Use proper donning and doffing procedures for nitrile gloves. • Place the "Do Not Disturb" placard on the room while away and limit housekeeping services to the extent feasible during your stay to minimize the reintroduction and spread of the virus from others. Minimize, or avoid entirely, time spent in hotel common areas (i.e., the lobby, dining areas, gyms, etc.). Wash hands or use hand sanitizer often.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards, energy source; Energy Source – electricity, pressure, compression/tension.
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3. Tailgate Meeting	**Exposure:** Becoming infected or infecting co-workers	• Must occur outside or remotely (i.e. video or conference call). • Maintain at least a 6+ ft distance between you and others. • Discuss primary infection prevention measures listed below. • Do not require employees or subcontractors to sign in, the Site Supervisor shall record names on the attendance form. • If the Site has more than 10 workers, separate tailgate meetings should be performed. • Discuss COVID-19 symptoms with coworkers and subcontractors to ensure fitness for duty. Anyone exhibiting signs or symptoms should be instructed to leave the Site, contact your Project Manager.
4. Site Activities	**Exposure:** Becoming infected or infecting co-workers	• Coordinate field activities at the beginning of the day (i.e. Tailgate meeting) to minimize time spent in crowded spaces or overlap while completing job tasks. • Don cloth face coverings as appropriate. • Apply social distancing (6+ ft) when interacting with others. If anyone comes within 6 ft of you while conducting work and your work prevents you from moving away, politely ask them to move back. If others are unable to move from your space, stop work and leave area. • Do not shake hands or touch others. • Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g. nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically (See Appendix A of Roux Interim H&S Guidance for proper glove removal). • If anyone is coughing or sneezing in your vicinity, stop work and leave the area. • Do not work in areas with limited ventilation with others. • Cover your mouth and nose with tissue or paper towel or with your elbow when coughing or sneezing and wash hands or use hand sanitizer immediately after. If sick contact SHSO/PM and leave Site immediately. • Disinfect work surfaces/areas with approved disinfectant you're responsible for (ex: desk, office doorknob, computer, etc.) at least once at the beginning of your shift and at least once at the end of your shift with either sanitizing wipes or disinfectant spray. • Phones should be operated hands free to extent feasible. Sanitize your phone on a regular basis. Disinfection should also take place whenever suspected contaminated material comes in contact with any work surfaces/areas. Wash hands or use hand sanitizer immediately after. • Avoid public spaces and going out to eat by bringing your own lunch to the Site. If performing work in high density urban areas, it is recommended all food must be consumed at or in your vehicle. Wash hands or use hand sanitizer before eating and immediately after.

Primary Infection Prevention Measures

- Wash your hands often with soap and water for at least 20 seconds.
  - If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol. Key times to wash hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
- Do not touch your eyes, face, nose and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw potentially contaminated items (e.g. used tissues) in the trash.
- Avoid close contact/secondary contact with people and potentially contaminated surfaces.
  - Apply appropriate social distance (6+ feet).
  - Stop handshaking/touching others and use caution when accessing public spaces.
- Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboard, toilets, sinks and field equipment. If surfaces are dirty, they should be cleaned with soap and water prior to disinfection. If surface cannot be cleaned/disinfected, then wash hands or use sanitizer as soon as possible.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-006	DATE 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY:	WORK TYPE:	WORK ACTIVITY (Description):	
Generic	**Drilling**	**Direct Push Soil Borings / Well Installation**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Timothy Zei	Project Hydrogeologist	Raymond Olson	Office Health & Safety Manager
		Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing, Long Sleeve Shirt	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Insect Repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Geoprobe or Truck-Mounted Direct Push Drill Rig, Hand Tools, Photoionization Detector, Multi-Gas Meter (or equivalent), Macrocore liners, Liner Opening Tool, 20 lb. Type ABC Fire Extinguisher, 42" Cones & Flags, "Work Area" Signs, Water

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

"SHOW ME YOUR HANDS"
Driller and helper should show that hands are clear from controls and moving parts

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilization of drilling rig (ensure the Subsurface Clearance Protocol and Drill Rig Checklist are completed)	**1a. CONTACT:** Equipment/property damage.	1a. The drill rig's tower/derrick will be lowered and secured prior to mobilization. 1a. A spotter should be utilized while moving the drill rig. If personnel move into the path of the drill rig, the drill rig will be stopped until the path is again clear. Use a spotter for all required backing operations. 1a. Set-up the work area and position equipment in a manner that eliminates or reduces the need for backing of support trucks and trailers. 1a. When backing up truck rig with an attached trailer use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver visibility. 1a. Inspect the driving path for uneven terrain. Level or avoid if needed. 1a. Drill rig should have a minimum **exclusion zone which encompasses its tip radius** for non-essential personnel (i.e., driller helper, geologist) when the rig is moving/ in operation.
	1b. FALL: Slip/trip/fall hazards.	1b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 1b. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 1b. Use established pathways and walk on stable, secure ground.
	1c. CONTACT: Crushing from roll-over.	1c Geoprobe should cross all hills/obstructions head on with the mast down to reduce risk of roll-over.
2. Raising tower/derrick of drill rig	**2a. CONTACT:** Overhead hazards.	2a. Prior to raising the tower/derrick, the area above the drilling rig will be inspected for wires, tree limbs, piping, or other structures, that could come in contact with the rig's tower and/or drilling rods or tools. 2a. Maintain a safe distance of 10' from overhead structures.
	2b. CONTACT: Pinch Points/Amputation Points when raising the rig and instability of rig	2b. Inspect the equipment prior to use and avoid pinch/amputation points. 2b. Lower outriggers to ensure stability prior to raising rig tower/derrick. 2b. If the rig needs to be mounted, be sure to use three points of contact.
3. Advancement of drilling equipment and well installation	**3a. CONTACT:** Flying debris	3a. Be aware of and avoid potential lines of fire and wear required PPE such as eye, ear, and hand protection.
	3b. EXPOSURE: Noise and dust.	3b. Wet borehole area with sprayer to minimize dust. 3b. Stand upwind and keep body away from rig. 3b. Dust mask should be worn if conditions warrant. 3b. Wear hearing protection when the drill rig is in operation.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
3. Advancement of drilling equipment and well installation (Continued)	**3a. CONTACT:** Flying debris	3c. Contain drill cuttings and drilling water to prevent fall hazards from developing in work area. 3c. See 1b.
	3b. EXPOSURE: Noise and dust.	3d. Ensure all Emergency Safety Stop buttons function properly. 3d. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools.
	3c. FALL: Slip/trip/fall hazards.	3d. Inspect the equipment prior to use for potential pinch/amputation points. Keep hands away from pinch/amputation points and use of tools is preferable compared to fingers and hands. 3d. Inspect drill head for worn surface or missing teeth; replace if damaged or blunt.
	3d. CAUGHT: Limb/extremity pinching; abrasion/crushing.	3d. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3d. All non-essential personnel should stay away from the immediate work area; position body out of the line-of-fire of equipment. 3d. Drillers and helpers will understand and use the "Show Me Your Hands" Policy. 3d. Spinning rods/casing have an **exclusion zone of tip radius** while in operation.
	3e. CONTACT: Equipment imbalance during advancement of drill equipment.	3e. Drillers will advance the borehole with caution to avoid causing the rig to become imbalanced and/or tip. 3e. The blocking and leveling devices used to secure the rig will be inspected by drillers and Roux personnel regularly to see if shifting has occurred. 3e. In addition, personnel and equipment that are non-essential to the advancement of the borehole will be positioned away from the rig at a distance that is at least as far as the boom is high (**minimum exclusion zone**).
	3f. EXPOSURE: Inhalation of contamination/vapors.	3f. Monitor ambient air for dangerous conditions using a calibrated photoionization detector (PID) to periodically monitor the breathing zone of the work area. 3f. If a reading of >5ppm is recorded, the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings and inform the Roux PM of the condition. The Roux PM will then recommend additional precautions in accordance with the site specific health and safety plan. 3f. Use a multi-gas meter to monitor ambient air for dangerous conditions (i.e. unsafe levels of carbon monoxide when drilling indoors or the presence of explosive vapors).
	3g. EXERTION: Potential for muscle strain/injury while lifting and installing well casings, lifting sand bags, and/or lifting rods.	3g. Keep back straight and bend at the knees. 3g. Utilize team lifting for objects over 50lbs. 3g. Use mechanical lifting device for odd shaped objects.
4. Remove sample liner.	**4a. EXERTION:** Potential for muscle strain/injury while removing liner from probe rod.	4a Utilize team lifting for objects over 50lbs. 4a. Use hydraulic liner extruder if available.
	4b. CONTACT: Pinch points and cuts	4b. Place liner on sturdy surface when opening. 4b. Don cut-resistant gloves and use appropriate liner cutter when opening liners. 4b. Always cut away from the body.
	4c. EXPOSURE: Inhalation and/or dermal contact with contaminants.	4c. Wear chemical-resistant disposable gloves when handling liners. 4c. See 3e.
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors).	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from side angle, not straight on, to avoid backsplash. 5a. See 3b.
	5b. EXPOSURE: To chemicals in cleaning solution including ammonia.	5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-007	DATE 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**General Site Activity**	**Driving**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Valerie Sabatasso	Staff Scientist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather/ cut-resistant level 2
☒ HARD HAT: when outside vehicle	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER _____
☐ LIFELINE / BODY HARNESS	☒ HEARING PROTECTION	☒ PPE CLOTHING: high visibility vest, when outside vehicle	
☒ SAFETY GLASSES:when outside vehicle	☒ SAFETY TOE BOOTS: when outside vehicle		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Motor Vehicle (i.e. car, truck, SUV)

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving Site	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc. *Common factors that may lead to CONTACT incident, but not limited to: • distracted driving (cell phone, GPS, radio, billboards, "rubber necking") • lack of situational awareness • unfamiliarity with traffic patterns/road layout • weather conditions (wet/icy roads, hydroplaning, black ice) • weariness • high speeds • obstructed vision (solar glare, debris on windshield, blind spots) • changes in travel pathway (construction, snow banks, non-operational signals, potholes, detours, special events) • improper vehicle maintenance (non-operational signal light, worn tires, cracked windshield, ineffective wipers) • loose or unsecure objects	1a. PLAN AHEAD – review/make yourself familiar with maps and driving directions before beginning the drive to the Site. Do not attempt to drive and review maps/directions at the same time. Pull over and stop your vehicle before looking at maps/directions. 1a. Complete a basic vehicle inspection before driving. Verify Inspection and Registration are current, tires and wipers are in good condition, all lights are functional, all glass/mirrors are undamaged, the horn is functional, roof/hood/trunk are free from accumulated snow and visibility is not impaired due to snow/ice/frost/fog on windows. 1a. Do not hang items in car that can obstruct your view or become projectiles in a collision. 1a. Do not get distracted using touch screen radios or GPS units built into newer models. Keep your eyes on the road and stay alert. 1a. Follow posted speed limits and obey traffic signals and roadway signs. 1a. Always wear your seat belt and shoulder harness when driving. 1a. When driving around large vehicles and trucks, maintain extra space as these vehicles may not be able to see a smaller car too close. 1a. Follow the "Rules of the Road" including: using your turn signals, coming to a complete stop, and allowing vehicles the right of way (yield) when they are when traffic laws require. 1a. Apply the Smith Five Keys® of safe driving • Aim High in Steering® - Expand eye lead time to a minimum of 15 seconds • Get the Big Picture® - Maintain proper a 4 second minimum following distance at all times - Scan mirrors every 5-8 seconds to achieve a circle of awareness - Position your vehicle so you can see relevant/non-relevant objects • Keep Your Eyes Moving® - Try to maintain about 180 degrees of visibility - Avoid blank and fixed stares. Avoid focusing on one object for more than 2 seconds • Leave Yourself an Out® - Avoid traveling in traffic clusters - Surround yourself with space - Anticipate the actions of others

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Driving to/leaving Site (cont'd)	**1a. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	• Make Sure They See You® - Maintain eye contact with on-coming vehicles/pedestrians - Use warning devices (e.g., hand signals, high-lights, horns etc.) - Proper timing is essential 1a. Do not perform reconnaissance or inspections while driving. Your vehicle should be parked in a safe location when viewing or surveying the Site and vicinity 1a. Avoid sudden turns and stops. Don't drive recklessly – be in control of vehicle at all times. 1a. In inclement weather, first determine if work can be POSTPONED. Otherwise, plan according to weather conditions including checking forecast along entirety of travel route (especially, for long distances). Reduce speed as road conditions warrant. Travelling with winter car equipment, in the winter, is strongly recommended (i.e., shovel, scraper, brush, blanket, extra clothing, flashlight, bag of sand). If your vehicle has 4-wheel drive, review to operators manual and understand operating procedure prior to engaging 4-wheel drive. If at any point on your drive weather becomes too severe to proceed safely pull over if safe to do so or seek nearest cover (e.g., overpass) 1a. If feeling drowsy or sleepy, do not drive. Pull over in a safe place to rest if you experience any signs of drowsiness. Make sure to get adequate sleep the night before an early drive. 1a. Never operate a vehicle under the influence of alcohol or illegal substances or medications affecting your performance. 1a. Keep your eyes on the road. Do not call or talk on cellular phones. Pull over to a safe location if you must answer or make a call. 1a. When parking, pull-through when possible. If backing is required visually inspect area to ensure it is free from obstructions prior to backing in and relying solely on mirrors; use spotters when available.
2. Entering/Exiting Vehicle.	**2a. CAUGHT:** Personal injury (broken fingers/hand) while entering or exiting vehicles **2b. FALL:** Personal injury (twisted ankle, deep contusion, concussion, broken wrist/arm, etc.) from slip/fall on uneven or unstable or slippery surface while exiting/entering vehicle **2c. CONTACT:** Severe injury/disability, property damage, monetary loss (insurance premiums, deductibles, loss of license/job) caused by collision with or struck by other vehicles, obstructions, pedestrians, animals, etc.	2a. Open and close doors slowly. Never put hands or feet in between door and vehicle to avoid pinch points. 2b. When exiting the vehicle make sure your feet are on firm footing and weight is evenly distributed before exiting/standing. In inclement weather use hands to support yourself, by holding the car door and/or steering wheel, when exiting the vehicle. 2c. Check both directions for traffic before opening door. Do not exit vehicle if traffic does not permit you to exit safely 2c. Check anticipated path of door prior to opening, do not open door into any obstructions (e.g., bollards, high curbing)

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-009	DATE: 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 1

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**O&M**	**Movement of 55-Gallon Drums/Drum Handling with Mobile Carrier**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Michael Sarni	Technician	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Cut-resistant gloves
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent long sleeve shirt or long sleeve shirt and reflective safety vest.	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel or composite toe		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Mobile Drum Carrier, safety cones, and caution tape

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment (i.e. forklift) and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Preparing for and Inspection of Drum	**1a. FALL:** Tripping/falling due to uneven surface. Loose debris/garbage in work area.	1a. Clear area of loose garbage and debris. Inspect 55-gal drums for proper condition, labeling, check drum ring and bolts for tightness, inspect mobile drum carrier. 1a. Do a Test Lift to get a general sense of the weight of the drum. 1a. Inspect and use established pathways to avoid uneven terrain, weather-related hazards (i.e., debris, puddles, ice, etc.), and other obstructions. 1a. Secure work area and coordinate and communicate the planned work activities with other personnel working in the area. 1a. Delineate work area with 42" safety cones.
	1b. CONTACT/EXPOSURE: Drums could potentially be damaged or contain hazardous material. Mobile drum carrier could potentially be in poor working condition causing malfunctioning during operation.	1b. Prior to inspecting drums don cut-resistant gloves. If drum is not properly labeled, do not open and cease all drum transport activities. Immediately contact project manager and inform him/her of drum situation. 1b. Do not continue drum transport activities until further actions are determined by the project manager. 1b. If the drum is properly labeled, but leaking, improperly sealed or in poor condition, place drum in an over-pack drum. 1b. Inspect mobile drum carrier to ensure its overall integrity. Look for rust marks or potential weak points where the drum carrier could malfunction. Inspect the wheels to ensure that they easily turn and nothing is impeding their movement.
	1c. EXERTION/CAUGHT: Potential pinching/exertion hazards while securing ring/ tightening bolts	1c. Keep back straight and knees slightly bent while securing drum ring/tightening bolt. Wear cut-resistant gloves.

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2. Position drum clamp tightly in between drum ribs, securing drum clamp to drum with chain	**2a. CAUGHT:** Pinching fingers between drum clamp and handle/chain.	2a. Attach drum clamp with chain and tighten until snug. Do not place hands between drum clamp and drum as the chain is tightened; wear cut resistant gloves. Keep face away from drum when handling in case of escaping vapors.
Assess **[1]JOB STEPS**	**Analyze** **[2]POTENTIAL HAZARDS**	**Act** **[3]CRITICAL ACTIONS**
3. Disengage safety latches on handle, pull handle down until drum is lifted off ground and safety latches are reengaged; slightly suspending drum off the ground	**3a. EXERTION/ CONTACT:** Potential muscle strain associated with lifting/engaging drum/handle. Drum could shift/slip downward and crush toes.	3a. Ascertain whether the drum is overweight; if it is, then two people are needed to lower handle while drum is secured with clamp so that safety latches can be engaged. Keep body out of the line of fire of the handle (do not position head above handle) as it is being pushed down. Do not allow feet/toes to be positioned under the drum as it is being lifted; wear steel/composite toe boots.
	3b. CAUGHT: Fingers could be pinched while engaging/disengaging safety latches on handle	3b. Wear cut-resistant gloves while disengaging/reengaging safety latches. 3b. Avoid placing hands in pinch points.
4. Transport drums to designated location and disengage drum clamp (repeat Step 3 in reverse order)	**4a. FALL:** Tripping/ falling due to obstructions and uneven terrain. Potential for drum to fall during transport.	4a. Ensure transport path is free of potential obstructions that may cause the drum/carrier to become unstable. Position drum clamp between the ribs on the drum to prevent possible slipping.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-015	DATE: 7/10/2020	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)	
GENERIC	**Site Recon**	**Mobilization/Demobilization**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Rebecca Lowy	Staff Assistant Geologist	Brian Hobbs	Corporate Health & Safety Manager
Tally Sodre	OHSM		

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES: Leather, nitrile, and cut resistant (as needed)
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER
☐ LIFELINE / BODY HARNESS	☒ HEARING PROTECTION (as needed)	☒ PPE CLOTHING: Fluorescent reflective vest of high-visibility clothing; long sleeve shirt; long pants	
☒ SAFETY GLASSES	☒ SAFETY SHOES: Steel Toe or composite toe		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Varies

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Mobilize/demobilize and establish work area	**1a. FALL:** Slip/trips/falls from obstructions, uneven terrain, weather conditions, heavy loads, and/or poor housekeeping.	1a. Use 3 points-of-contact/ensure secure footing when entering and exiting vehicle. 1a. Inspect walking path for uneven terrain, steep hills, obstructions, and/or weather-related hazards (i.e., ice, snow, and puddles) prior to mobilizing equipment. Use established pathways. Walk on stable/secure ground. 1a. Do not climb over stored materials/equipment; walk around. Practice good housekeeping; organize and store equipment neatly in one area at its lowest potential energy. 1a. Wear boots with adequate treads. 1a. Delineate unsafe areas with 42” cones, caution tape and/or flagging.
	1b. CONTACT: Personal injury and/or property damage caused by being struck by Site traffic or equipment used in Site activities.	1b. Observe and maintain the posted speed limits. 1b. When first arriving onsite, park vehicles in designated parking space and/or out of the way locations. Use parking brake on all vehicles and tire chocks on work trucks and trailers. 1b. Check in with Site Manager/Supervisor to ensure coordination with other Site activities and to discuss any special hazards. Ensure that short-service employees (SSE) are identified. 1b. Identify potential traffic sources. 1b. Wear PPE including high visibility clothing or reflective vest. 1b. Use a spotter while moving work vehicles; plan ahead to avoid backing whenever possible. 1b. Maintain a minimum exclusion zone when vehicles are in motion (i.e. greater than swing/tip radius of equipment). When backing up truck rig with an attached trailer use a second spotter if there is tight clearance simultaneously on multiple sides of the equipment or if turning angles limit driver-to-spotter visibility. 1b. Delineate work area with 42” cones, flags, caution tape, and/or other barriers. 1b. Position “Work Area” signs at Site entrances, if possible, or at either side of work area.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
		1b. Position largest vehicle to protect against oncoming traffic. 1b. Face traffic, maintain eye contact with oncoming vehicles, use a spotter, and establish a safe exit route. 1b. Observe potential overhead and ground surface features that may interfere with moving equipment. Clear the path of physical hazards prior to initiating mobilization.
	1c. CAUGHT: Personal injury from pinch points and being in line-of-fire of vehicle and/or equipment.	1c. Make sure driver has engaged parking brake and placed wheel chocks in a position to prevent movement. Be sure that vehicle is parked in front/down gradient (positioned to best block oncoming traffic) of work area. 1c. Wear leather gloves when handling any tools or equipment. Wear cut-resistant gloves (Kevlar or similar) when handling sharp objects/cutting tools/glass. 1c. Keep body parts away from line-of-fire of equipment. 1c. Always carry tools by the handles and/or designated carrier. Ensure sharp-edged tools are sheathed/secure. 1c. Remove any loose jewelry. Avoid wearing loose clothing and/or ensure loose clothing is secure. 1c. Secure all items on the equipment, tighten up any items or features that have potential to shift or break during mobilization.
	1d. OVEREXERTION: Muscle strains while lifting/carrying equipment.	1d. Use body positioning and lifting techniques that avoid muscle strain; keep back straight, lift with legs, turn with whole body, keep load close to body, and never reach with a load. 1d. Ensure that loads are balanced. Use assistance (mechanical or additional person) to carry equipment that is either unwieldy or over 50 lbs.
	1e. EXPOSURE: Personal injury from exposure to biological and environmental hazards.	1e. Inspect area to avoid contact with biological hazards (i.e. poisonous plants, stinging insects, ticks, etc.). 1e. Wear long sleeved clothes treated with Permethrin, apply insect repellant containing DEET to exposed skin, and inspect clothes and skin for ticks during and after work. 1e. Apply sunscreen (SPF 15+) if exposure to sun for 30 minutes or more is expected.
	1f. EXPOSURE: Weather related injuries.	1f. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, nausea, rapid and shallow breathing). Take breaks in cool places and hydrate as needed. 1f. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks in warm areas as needed. 1f. Wear clothing appropriate for weather and temperature conditions (e.g., rain jackets, snow pants, multiple layers). 1f. If lightning is observed, wait 30 minutes in a sheltered location (car is acceptable) before resuming work.
	1g. EXPOSURE: Personal injury from noise hazards.	1g. Wear hearing protection if sound levels exceed 85 dBA (if you must raise your voice for normal conversation).

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-019	DATE: 7/10/2020	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Site Recon**	**Site Walk and Inspection**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Sara Barrientos	Staff Geologist	Brian Hobbs	Corporate Health and Safety Manager
		Joe Duminuco	Vice President

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☐ FACE SHIELD ☒ HEARING PROTECTION: ear plugs as necessary ☒ SAFETY SHOES: Steel or composite toed	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: High-visibility vest or high-vis outerwear	☒ GLOVES: Leather/cut-resistant/chemical resistant ☒ OTHER: Tyvek and rubber boots as necessary, dust mask as necessary

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Required Equipment: Site map, emergency contact list, documentation of urgent care/hospital routes and / or guide familiar with Site, operating cell phone or walkie-talkie if Site allows.

Commitment to Safety – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

SITE SECURITY: Prior to site inspection verify appropriate method to address Site Security concerns as it relates to potential criminal activity, homeless population, and/or isolation concerns. Work with the Project Principal and/or Project Manager to address appropriately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Check in with Site contact.	**1a. CONTACT/EXPOSURE/FALL:** Personal injury caused by lack of site specific hazards.	1a. Inquire about hazards and other activities taking place at the Site. 1a. Inform Site contact of work scope, timeline and location(s). 1a. Discuss emergency evacuation procedures and muster points with Site contact.
2. Traversing the Site	**2a. CONTACT:** Property damage and personal injury caused by obstructions/vehicles or unauthorized personnel at remote Sites. **2b. FALL:** Uneven terrain and weather conditions. Overgrown shrubs and vines. Equipment in the work zone. **2c. OVEREXERTION:** Muscle strain while carrying equipment. **2d. EXPOSURE:** Biological hazards – ticks; bees/wasps; poison ivy; insects; (Ticks are most active any time the temperature is above freezing, typically from March to November.)	2a. All equipment must be stowed and secured prior to moving. 2a. Maintain speed limit as posted on-site. 2a. When possible drive on established roadways. 2a. Yield to all pedestrians. 2a. Use pull-through spots or back into parking spots. 2a. Don high visibility clothing/safety vest. If working at remote Site, add orange accessories during hunting season. 2b. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. 2b. When possible, use established pathways and walk on stable, secure ground. 2b. Communicate traversing hazards with others. 2c. When carrying equipment to/from work area, use proper lifting techniques; keep back straight, lift with legs, keep load close to body, never reach with a load. Ensure that loads are balanced to reduce the potential for muscle strain. Use mechanical assistance or make multiple trips to carry equipment. 2d. Inspect area to avoid contact with biological hazards. 2d. Ticks: • Treat outer clothing including pants, shirts, socks, boots and hats the evening before with Permethrin (allowing at least two hours before use). • Apply DEET to exposed skin before travelling to the Site and reapply after two hours. • Check for ticks during and after work. 2d. Bees: • Use bee spray as appropriate to deter/eliminate bees. • Protect exposed skin with insect repellent.

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[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

	2e. EXPOSURE: Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	2d. Poison Ivy: • Identify areas of poison ivy and spray with weed killer. Don Tyvek and rubber boots while traversing poison ivy areas. • If skin contacts poison ivy, wash skin thoroughly with soap and water. 2e. Wear sunscreen with SPF 15 or greater on exposed skin whenever 30 minutes or more of sun exposure is expected. 2e. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 2e. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 2e. Wear appropriate rain gear as needed. 2e. Take frequent breaks if tired, wet, or cold/hot. Drink water. 2e. If lightning is observed, wait 30 minutes after last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
3. Walking near heavy equipment and machinery.	**3a. CONTACT:** Personal injury from Site and roadway traffic. Personal injury from flying debris **3b. OVEREXERTION:** Personal injury from lifting/moving/rotating equipment. **3c. EXPOSURE:** Hearing damage from noise generating equipment/processes. Inhalation/exposure to hazardous vapors and or dust. **3d. EXPOSURE:** Working in a remote area.	3a. See 2a. 3a. Maintain an exclusion zone of at least 10'-25' feet from all engaged equipment. 3a. Keep body parts out of the line of fire of pinch points. 3a. Wear appropriate PPE always. 3b. See 2c. 3c. Wear hearing protection if >85 dBA. (i.e. noise levels which require you to raise your voice to communicate) 3c. Always wear leather gloves when handling any tools or equipment. 3c. Always wear appropriate PPE based off chemicals present. 3d. Use the "buddy system" whenever possible. If working alone, contact PM upon arrival/departure, as well as during work activities prior to commencing work if applicable. 3d. Always carry a communication (i.e., cell phone, walkie-talkie) or directional (i.e., map, compass, etc.) device when traversing remote areas.
4. Working in adverse weather conditions.	**4a. EXPOSURE:** Heat Stress & Cold Stress. Personal injury from working in inclement weather conditions.	4a. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). Take breaks as needed. 4a. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). Take breaks as needed. 4a. Wear appropriate rain gear as needed. 4a. Take frequent breaks if tired, wet, or cold/hot. Drink water. 4a. If lightning is observed, wait 30 minutes after last thunder boom/lightning bolt in a sheltered location (car acceptable) before starting work again.
5. Departing Site.	**5a. EXPOSURE:** Exposure to unnecessary hazards should personnel believe Roux is on-Site during an emergency and conduct a search.	5a. Sign out or notify Site contact and Roux Project Manager of your departure.

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JOB SAFETYANALYSIS Ctrl. No. GEN-020	DATE: 7/10/2020	☐NEW ☒REVISED	PAGE 1 of 2

JSA TYPE CATEGORY: **GENERIC**	WORK TYPE: **Gauging & Sampling**	WORK ACTIVITY (Description): **Soil Sampling**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
MaryBeth Lyons	Project Scientist	Brian Hobbs	Corporate Health and Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES ☒ FLAME RESISTANT CLOTHING (as needed)	☐ GOGGLES ☐ FACE SHIELD: ☒ HEARING PROTECTION: (as needed) ☒ SAFETY SHOES: Composite-toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing	☒ GLOVES: Leather, Nitrile and cut resistant ☒ OTHER: Insect repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Recommended Equipment: 42" traffic cones, caution tape, trowel

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs.

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Secure location	**1a. CONTACT:** Personnel and vehicular traffic may enter the work area.	1a. If in an area with foot or vehicle traffic, delineate the work area with 42" traffic cones and/or caution tape to prevent exposure to traffic and inform others of work activity. 1a. Wear reflective vest and/or high visibility clothing. 1a. Face the direction of any vehicular traffic. Position vehicle to protect worker from traffic. 1a. Communicate work activity with adjacent work areas.
	1b. FALL: Tripping/falling due to uneven terrain or entry/exit from excavations.	1b. Inspect pathways and work area for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions. 1b. Use established pathways and walk on stable, secure ground. 1b. Stage equipment and tools in a convenient, stable, and orderly manner. Store equipment at lowest potential energy. 1b. Roux employees should stay 5 feet from in-progress excavations and trenches. Should entry to an excavation be required (when stabilization is complete), ladders must be employed for steep embankments, excavations, pits, and trenches.
	1c. EXPOSURE: Exposure to sun and excessive heat, possibly causing sunburn, heat exhaustion or heat stroke. Exposure to cold temperatures possibly causing cold stress. Skin burn as a result of fire, if applicable. Exposure to explosive vapors due to tank farm operations. Exposure to airborne dust due to high wind speeds. Biological hazards - ticks, bees/wasps, poison ivy, thorns, insects, etc.	1c. Wear sunscreen with an SPF 15 or greater whenever 30 minutes or more of exposure is expected. 1c. Use a tent to shade the work area from direct sunlight particularly when warm temperatures are expected. 1c. Be aware of the location of all Site personnel. 1c. Watch for heat stress symptoms (muscle cramping, exhaustion, dizziness, rapid and shallow breathing). 1c. Watch for cold stress symptoms (severe shivering, slowing of body movement, weakness, stumbling or inability to walk, collapse). 1c. Take breaks for rest and water as necessary. Move to an area that is well shaded or a climate controlled area (i.e., car, site trailer, etc.). 1c. No open flames/heat sources. 1c. Flame retardant clothing must be worn when specified by Site policy. 1c. Cell phones should be disabled when specified by Site policy. 1c. Pre-treat field clothing with Permethrin prior to site visit to kill ticks and insects. 1c. Wear long sleeved shirts and tuck in (or tape) pant legs into socks or boots to prevent ticks from reaching skin. 1c. Spray insect repellant containing DEET on exposed skin when working in overgrown areas of the Site. 1c. Inspect area to avoid contact with biological hazards. 1c. Wear cut-resistant gloves when handling branches, shrubs, etc. that may lie within the walking path. 1c. Wear spoggles if the average wind speeds are above 15 mph. 1c. Personnel shall examine themselves and co-worker's outer clothing for ticks periodically when onsite. 1c. If skin comes in contact with poison ivy, wash skin thoroughly with soap and water. If rash persists after washing, immediately notify your supervisor, the OM and OHSM for possible consultation with a physician at an approved Occupational Health Clinic.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
2. Collect Soil Sample	**2a. CONTACT:** Personal injury from pinch points, cuts, and abrasions from sampling equipment tools, and material within soil sample. Personal injury from contact with moving equipment while sampling. Personal injury from contact with glass sample jars.	2a. Wear cut-resistant (i.e., Kevlar) gloves under chemical-resistant (nitrile) disposable gloves when handling soil samples and sampling jars. 2a. Where possible, use trowel or equivalent tool to avoid contact with soil. 2a. If sampling from bucket of heavy equipment, ensure all equipment is off and operator utilizes the “show me your hands” policy. 2a. See 1a.
	2b. EXPOSURE: Exposure to contamination (impacted soil) and/or lab preservatives.	2b. Wear chemical-resistant (nitrile) disposable gloves over cut resistant gloves to protect hands when handling samples; use containment material or plastic sheeting to protect surrounding areas. 2b. Wear safety glasses to protect eyes from dust or air-borne contaminants that may results from disturbing the soil. 2b. Where possible, remain upgradient from sample location if collecting soil sample from stockpile, drill rig, etc. to avoid breathing contaminant vapors, if they are present. 2b. When collecting soil sample from hand auger, put large zip lock bag over entire auger to prevent spillage of soil on to the ground. 2b. Open sample jars slowly and fill carefully to avoid contact with preservatives.
	2c. EXERTION: Exertion due to repetitive motion and ergonomics.	2c. Utilize a table or raised surface for soil sampling if multiple soil samples are going to be taken to minimize repetitive bending motion.
3. Decontaminate equipment	**3a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated vapors and/or soil).	3a. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3a. Use an absorbent pad to clean spills. 3a. Properly dispose of used materials/PPE in provided drums in designated drum storage area. 3a. Remain upwind of sample and avoid breathing contaminant vapors, if they are present.
	3b. EXPOSURE: Chemicals in cleaning solution including ammonia.	3b. Wear chemical-resistant (nitrile) disposable gloves and safety glasses. 3b. Work on the upwind side of decontamination area. 3b. Use an absorbent pad to clean spills. 3b. Properly dispose of used materials/PPE in provided drums in designated drum storage area. Ensure that all drums are properly labeled and secured.

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JOB SAFETY ANALYSIS	Ctrl. No. GEN-023	DATE: 7/10/2020	☐ NEW ☒ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)	
Generic	**Construction**	**Spotting Heavy Machinery**	
DEVELOPMENT TEAM	**POSITION / TITLE**	**REVIEWED BY:**	**POSITION / TITLE**
Levi Curnutte	Project Scientist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ Particulate Respirator	☒ GLOVES: Cut resistant / leather
☒ HARD HAT	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	☐ OTHER:
☒ LONG SLEEVED SHIRT	☐ HEARING PROTECTION	☒ PPE CLOTHING: Fluorescent reflective clothing	
☐ LIFELINE / BODY HARNESS	☒ SAFETY SHOES: Steel-/Composite-toe boots/shoes		
☒ SAFETY GLASSES			

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Heavy Machinery (i.e. excavator, payloader, truck, forklift, etc.)

COMMITMENT TO SAFETY- All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE (EZ): Maintain Minimum Heavy Equipment Exclusion Zone around equipment and loads while it is in motion. The HEEZ must be greater than the swing zone of any moving part of the equipment, tip zone of the equipment, fall zone of the equipment and contents, distance that debris may travel during demolition activities and/or foot print of a structure to be demolished.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Prepare for machine activity.	**1a. CONTACT:** Obstructions in the work area may create contact hazards from machinery. **1b. Fall :** Slip/Trip/Fall	1a. Cordon off the work area with safety barrels/cones and a rigid barrier (snow fence, traffic bar, etc.). Communicate that only necessary personnel should be in the work area. Spotter and equipment operator shall enforce the **EZ.** Operator will not operate but shall remain in the hands-off mode while personnel are within the exclusion zone. 1b. Ensure that work area is flat, level and clear of any obstructions or debris before setting up work zone.
2. Spotting.	**2a. CONTACT:** Machine or load contact with personnel, property, or machinery.	2a. Discuss the specifics of the work with the operator and be clear about any hand signals that will be used. Clearly discuss the limits of the assigned work area and the machine's Exclusion Zone. Maintain Exclusion Zone. The Exclusion Zone shall be delineated by using 42-inch traffic cones/barrels and a fixed rigid barrier. 2a. The Minimum Heavy Equipment Exclusion zone is greater than the swing/tip radius of equipment. 2a. Both the spotter and equipment operators shall have 2-way radios/cellular devices on their persons to ensure audible communication in the event any changes or new hazards may arise. 2a. All workers should stay outside of the Exclusion Zone of all equipment unless operator is stopped and in "Hands Off" mode. **(This includes the spotter unless an exception has been established in the Site-specific JSA).** If the Exclusion Zone must be reduced due to work area restrictions then the spotter and operator shall enforce the reduced Exclusion Zone. 2a. Spotters must make eye contact with the machine operator or all movement ceases until visual contact can be reestablished. 2a. Spotter shall keep an eye out for any issues with the machine the operator may not see and communicate with other work crews and spotters on behalf of the operator. 2a. If the spotter needs to take a break, he must find a replacement before leaving or have the machine stop operations. **No heavy equipment shall operate without a spotter under any circumstances.** 2a. Wear fluorescent clothing/safety vest.

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Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
	2b. FALL: Slip/Trip/Fall	2b. Look where walking to identify and avoid slip/trip/fall hazards. Avoid icy and/or wet surfaces. Remove obstacles if possible. 2b. Use designated walkways during spotting whenever possible.
	2c. CAUGHT: Caught between machinery and nearby objects.	2c. **Maintain Exclusion Zone.** Do not stand between large, loose or fixed objects or structures and the machinery while it is in motion. Keep in sight of operator at all times while being aware of surrounding structures.
	2d. EXPOSURE: Inhalation of exhaust from machinery.	2d. The spotter will position him/herself upwind of the working machinery, when possible. Spotter will also inform others working within the vicinity of the EZ of proper positioning, if applicable.

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JOB SAFETY ANALYSIS	Cntrl. No. GEN-027	DATE: 11/3/2020	☒ NEW ☐ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
GENERIC	**Drilling**	**Pre-Drilling Clearance, Vactron and Air Knife**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Courtney Rempfer	Staff Scientist	Joseph Midwig	Office Health & Safety Manager
Sara Redding	Senior Hydrogeologist	Brian Hobbs	Corporate Health & Safety Manager

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST ☒ HARD HAT ☐ LIFELINE / BODY HARNESS ☒ SAFETY GLASSES	☐ GOGGLES ☒ FACE SHIELD (While Air Knifing) ☒ HEARING PROTECTION (As needed) ☒ SAFETY SHOES: Composite toe or steel toe boots	☐ AIR PURIFYING RESPIRATOR ☐ SUPPLIED RESPIRATOR ☒ PPE CLOTHING: Fluorescent reflective vest or high visibility clothing; long-sleeve shirt	☒ GLOVES: Leather, Nitrile, cut-resistant ☒ OTHER: Dusk mask, insect repellant, sunscreen (as needed)

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Vac-Truck or Vac Drum, Compressor, Jack Hammer, Air Knife. Circular Saw, Hand Tools, Dust Mask, Photoionization Detector, Multi Gas Meter, 42 inch safety cones and flags, Retractable Cone Bars, Caution Tape, 20 lb. Fire Extinguisher, "Work Area" Signs, Pressurized Water Sprayer

Commitment to Safety – All personnel onsite will actively participate in hazard recognition and mitigation throughout the day by verbalizing SPSAs

EXCLUSION ZONE: All non-essential personnel will maintain a distance of 10 feet from drilling equipment while equipment is moving/engaged

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Verify pre-clearance protocol	**1a. CONTACT:** Underground utility damage; property damage; personal injury	1a. Confirm that (if applicable) "Call Before You Dig" and local utility companies were contacted prior to starting work in order to confirm utility mark outs. Must have a case # before digging. 1a Walk the Site to evaluate utility markings and review maps (see Site Walk Inspection JSA). Utilities are not always properly marked out ensure use of observational skills through the pre-clearing checklist. 1a. Review pre-clearing checklist fromm and sub-surface clearance form. Pre-clearing protocol indicates that clearance must be conducted to a minimum of 5 vertical feet below ground surface or 10 vertical feet below ground surface in the critical zone using hand tools.
	1b. ENERGY SOURCE/CONTACT: Property damage; Pressurized water mains may cause lacerations or broken bones. Pressurized gas mains may explode causing serious injury, or death. Underground electric may cause severe burns, shock, or death.	1b. Pre-clearing of each soil boring/monitoring well location must be conducted to a minimum of 5 vertical feet below the ground surface (10 feet minimum for Critical Zone) using hand tools (shovel and non-metallic dig bar and hand auger) prior to drilling. Supervisor should be contacted to discuss appropriate pre-clearing depth. 1b. MUST Complete subsurface clearance checklist prior to pre-clearance.
	1c. FALL: Slip, Trip or Fall may cause muscle strains or tears, abrasions, lacerations, or broken bones.	1c. Be aware of the conditions when walking or loading equipment and working. Walk within established pathway avoiding uneven surfaces. Remove potential slip/trip/fall hazards.
2. Mobilize/demobilize and establish work area	**2a. SEE MOBILIZATION / DEMOBILIZATION JSA**	2a. See Mobilization / Demobilization JSA
3. Concrete saw cutting, jack hammer and hand clearance with hand tools, air knife	**3a. CONTACT:** Flying debris striking face or body	3a Maintain 10' minimum exclusion zone. Use the required PPE (i.e., leather/cut proof gloves, safety glasses/face shield). 3a. Use anti-whip devices on compressor hoses. 3a Wear a face shield to protect face from flying debris when using air knife. 3a. Utilize a traffic cone or physical barriers over the hole during air knife activities to keep flying debris close to ground.
	3b. EXPOSURE: Inhalation/exposure to hazardous vapors and/or concrete dust, noise exposure	3b. Monitor breathing zone with a calibrated PID and/or multi-gas meter. If meters sustain readings greater than recommeneded in the HASP for the specific contaminant of concerns (COCs) the Roux field personnel must temporarily cease work, instruct all Site personnel to step away from the area of elevated readings. Contact PM. 3b. Wet concrete while using saw to minimize dust and wear dust mask to prevent inhalation. 3b. Stand upwind and keep body behind saw. Observers and helpers should avoid line of fire for saw blade. Always cut away from body. 3b. No open flames/heat sources. 3b. Wear hearing protection when saw, jackhammer or air compressor are in operation. Otherwise, if sound levels exceed 85 dbA, put on hearing protection.
	3c. ENERGY SOURCE/CONTACT: Property damage; Pressurized water	

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

[2] A hazard is a potential danger. Break hazards into five types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift." Avoid general statements such as, "be careful."

	mains may cause lacerations or broken bones. Pressurized gas mains may explode causing serious injury, or death. Underground electric may cause severe burns, shock, or death.	3c. For air knifing, ensure extention/lance tip reaches the full 5 feet bgs. Air knife should be advanced **AT A MINIMUM** in all four corners of the expected boring location to find any possible arrangement of utilities. 3c. Ensure diameter of soil preclearance hole is at a **MINIMUM 2x** the diameter of any drilling or hard dig equipment that will be entering the hole. 3c. See Complete subsurface clearance protocol for information provided above.
	3d.ERGONOMICS/EXERTION: Muscle strain due to poor body positioning when handling equipment and materials	3d. Use body positioning and lifting techniques that minimizes muscle strain; keep back straight, lift with legs, keep load close to body, and never reach with a load. 3d. Ensure that loads are balanced to reduce the potential for muscle strain. 3d. Two people or a mechanical lifting aid are required when lifting objects over 50 lbs. or when the shape makes the object difficult to lift.
	3e. FALL: Tripping/falling due to uneven terrain, weather conditions, and materials/equipment stored at the Site	3e. Inspect walking path for uneven terrain, weather-related hazards (i.e., ice, puddles, snow, etc.), and obstructions prior to mobilizing equipment. Mob/Demob JSA. 3e. Do not climb over stored materials/equipment; walk around. Practice good housekeeping. 3e. Use established pathways and walk on stable, secure ground. 3e. Equipment and tools will be stored at the lowest point of potential energy and out of the walkway and immediate work area (i.e. tools should not be propped against walls or nearby equipment or vehicles). 3e. Equipment and tools that are not anticipated to be used will be returned to a storage area that is out of the immediate work area. 3e. Ensure power cords and compressed air lines are grouped when used within the work area. 3e. Pre-cleared location will be finished flush to grade as to prevent a slip/trip hazard or coned and taped off.
	3f. CAUGHT: Amputation points associated with the equipment and vacuum hose	3f. Always wear leather gloves when making connections and using hand tools; wear cut-resistant (i.e., Kevlar) gloves when handling cutting tools. 3f. Inspect the equipment prior to use for potential pinch points. 3f. Test all emergency shutdown devices prior to using equipment. 3f. Inspect saw blade for worn surface or missing teeth; switch blade if damaged or blunt. 3f. Ensure all jewelry is removed, loose clothing is secured, and PPE is secured close to the body. 3f. All non-essential personnel shall maintain a 10 foot exclusion zone; position body out of the line-of-fire of equipment. 3f. Drillers and helpers will understand and use the “Show Me Your Hands Policy”.
4. Move drum to staging area using drum cart	**4a. EXPOSURE/CONTACT:** Contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, soil)	4a. Wear Nitrile chemical-resistant gloves under leather or cut proof gloves. 4a. Do not overfill drums. Ensure that the drum lids are attached securely. 4a. All drums will be staged in the designated storage area.
	4b. EXERTION: Muscle strain while maneuvering drums with drum cart/lift gate	4b. See 3d. Do not overfill drums. Use lift gate on back of truck to load and unload drums. Use drum dolly to move drum.
	4c. CAUGHT: Pinch points associated with handling drum lid	4c. Ensure that fingers are not placed under the lid of the drum. Wear leather gloves or cut proof gloves. Use appropriate ratchet while sealing drum lid.
5. Decontaminate equipment.	**5a. EXPOSURE/CONTACT**: To contamination (e.g., Separate Phase Hydrocarbons (SPH), contaminated groundwater, vapors).	5a. Wear chemical-resistant disposable gloves and safety glasses. 5a. Contain decontamination water so that it does not spill. 5a. Use an absorbent pad to clean spills, if necessary. 5a. Spray equipment from side angle, not straight on, to avoid backsplash. 5a. See 3b.
	5b. EXPOSURE: To chemicals in cleaning solution.	5b. See 4a. Review SDS to ensure appropriate precautions are taken and understood.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

[2] A hazard is a potential danger. Break hazards into five types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

APPENDIX B

Daily Tailgate Form

HEALTH AND SAFETY BRIEFING / TAILGATE MEETING FORM

Site Name / Location _____

Date: _____ Weather Forecast: _____

Names of Personnel Attending Briefing

_____ _____ _____

_____ _____ _____

_____ _____ _____

Planned Work

_____

_____

_____

Instrument Calibration: Instrument/Time/Cal. Gas/Cal. Concentration/Actual Concentration

_____

_____

_____

Items Discussed

_____

_____

_____

_____

_____

Work Permit Type and Applicable Restrictions

_____

_____

_____

Signatures of Attending Personnel

_____ _____ _____

_____ _____ _____

_____ _____ _____

APPENDIX C

SDSs for Chemicals Used

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

1 Identification of the substance/mixture and of the supplier

1.1 Product identifier

Trade Name: Alconox
Synonyms:
Product number: Alconox

1.2 Application of the substance / the mixture : Cleaning material/Detergent

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer
Alconox, Inc.
30 Glenn Street
White Plains, NY 10603
1-914-948-4040

Supplier
Not Applicable

Emergency telephone number:
ChemTel Inc
North America: 1-800-255-3924
International: 01-813-248-0585

2 Hazards identification

2.1 Classification of the substance or mixture:

In compliance with EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments.

Hazard-determining components of labeling:
Tetrasodium Pyrophosphate
Sodium tripolyphosphate
Sodium Alkylbenzene Sulfonate

2.2 Label elements:

Skin irritation, category 2.
Eye irritation, category 2A.

Hazard pictograms:

Signal word: Warning

Hazard statements:
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Additional information: None.

Hazard description

Hazards Not Otherwise Classified (HNOC): None

Information concerning particular hazards for humans and environment:

The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification system:

The classification is according to EC regulation No. 1272/2008, 29CFR1910/1200 and GHS Rev. 3 and amendments, and extended by company and literature data. The classification is in accordance with the latest editions of international substances lists, and is supplemented by information from technical literature and by information provided by the company.

3 Composition/information on ingredients

3.1 Chemical characterization : None

3.2 Description : None

3.3 Hazardous components (percentages by weight)

Identification	Chemical Name	Classification	Wt. %
CAS number: 7758-29-4	Sodium tripolyphosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	12-28
CAS number: 68081-81-2	Sodium Alkylbenzene Sulfonate	Acute Tox. 4; H303 Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	8-22
CAS number: 7722-88-5	Tetrasodium Pyrophosphate	Skin Irrit. 2 ; H315 Eye Irrit. 2; H319	2-16

3.4 Additional Information : None.

4 First aid measures

4.1 Description of first aid measures

General information: None.

After inhalation:

Maintain an unobstructed airway.

Loosen clothing as necessary and position individual in a comfortable position.

After skin contact:

Wash affected area with soap and water.

Seek medical attention if symptoms develop or persist.

After eye contact:

Rinse/flush exposed eye(s) gently using water for 15-20 minutes.

Remove contact lens(es) if able to do so during rinsing.

Seek medical attention if irritation persists or if concerned.

After swallowing:

Rinse mouth thoroughly.

Seek medical attention if irritation, discomfort, or vomiting persists.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

4.2 Most important symptoms and effects, both acute and delayed

None

4.3 Indication of any immediate medical attention and special treatment needed:

No additional information.

5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition.

For safety reasons unsuitable extinguishing agents : None

5.2 Special hazards arising from the substance or mixture :

Thermal decomposition can lead to release of irritating gases and vapors.

5.3 Advice for firefighters

Protective equipment:

Wear protective eye wear, gloves and clothing.
Refer to Section 8.

5.4 Additional information :

Avoid inhaling gases, fumes, dust, mist, vapor and aerosols.
Avoid contact with skin, eyes and clothing.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures :

Ensure adequate ventilation.
Ensure air handling systems are operational.

6.2 Environmental precautions :

Should not be released into the environment.
Prevent from reaching drains, sewer or waterway.

6.3 Methods and material for containment and cleaning up :

Wear protective eye wear, gloves and clothing.

6.4 Reference to other sections : None

7 Handling and storage

7.1 Precautions for safe handling :

Avoid breathing mist or vapor.
Do not eat, drink, smoke or use personal products when handling chemical substances.

7.2 Conditions for safe storage, including any incompatibilities :

Store in a cool, well-ventilated area.

7.3 Specific end use(s):

No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

8 Exposure controls/personal protection

8.1 Control parameters :

7722-88-5, Tetrasodium Pyrophosphate, OSHA TWA 5 mg/m3.

8.2 Exposure controls

Appropriate engineering controls:

Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Respiratory protection:

Not needed under normal conditions.

Protection of skin:

Select glove material impermeable and resistant to the substance.

Eye protection:

Safety goggles or glasses, or appropriate eye protection.

General hygienic measures:

Wash hands before breaks and at the end of work.
Avoid contact with skin, eyes and clothing.

9 Physical and chemical properties

Appearance (physical state, color):	White and cream colored flakes - powder	**Explosion limit lower:** **Explosion limit upper:**	Not determined or not available. Not determined or not available.
Odor:	Not determined or not available.	**Vapor pressure at 20°C:**	Not determined or not available.
Odor threshold:	Not determined or not available.	**Vapor density:**	Not determined or not available.
pH-value:	9.5 (aqueous solution)	**Relative density:**	Not determined or not available.
Melting/Freezing point:	Not determined or not available.	**Solubilities:**	Not determined or not available.
Boiling point/Boiling range:	Not determined or not available.	**Partition coefficient (n-octanol/water):**	Not determined or not available.
Flash point (closed cup):	Not determined or not available.	**Auto/Self-ignition temperature:**	Not determined or not available.
Evaporation rate:	Not determined or not available.	**Decomposition temperature:**	Not determined or not available.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Flammability (solid, gaseous):	Not determined or not available.	**Viscosity**:	a. Kinematic: Not determined or not available. b. Dynamic: Not determined or not available.
Density at 20°C:	Not determined or not available.		

10 Stability and reactivity

10.1 Reactivity : None

10.2 Chemical stability : None

10.3 Possibility hazardous reactions : None

10.4 Conditions to avoid : None

10.5 Incompatible materials : None

10.6 Hazardous decomposition products : None

11 Toxicological information

11.1 Information on toxicological effects :

Acute Toxicity:

Oral:

: LD50 > 5000 mg/kg oral rat - Product .

Chronic Toxicity: No additional information.

Skin corrosion/irritation:

Sodium Alkylbenzene Sulfonate: Causes skin irritation. .

Serious eye damage/irritation:

Sodium Alkylbenzene Sulfonate: Causes serious eye irritation .

Tetrasodium Pyrophosphate: Rabbit - Risk of serious damage to eyes .

Respiratory or skin sensitization: No additional information.

Carcinogenicity: No additional information.

IARC (International Agency for Research on Cancer): None of the ingredients are listed.

NTP (National Toxicology Program): None of the ingredients are listed.

Germ cell mutagenicity: No additional information.

Reproductive toxicity: No additional information.

STOT-single and repeated exposure: No additional information.

Additional toxicological information: No additional information.

12 Ecological information

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

12.1 Toxicity:

Sodium Alkylbenzene Sulfonate: Fish, LC50 1.67 mg/l, 96 hours.
Sodium Alkylbenzene Sulfonate: Aquatic invertebrates, EC50 Daphnia 2.4 mg/l, 48 hours.
Sodium Alkylbenzene Sulfonate: Aquatic Plants, EC50 Algae 29 mg/l, 96 hours.
Tetrasodium Pyrophosphate: Fish, LC50 - other fish - 1,380 mg/l - 96 h.
Tetrasodium Pyrophosphate: Aquatic invertebrates, EC50 - Daphnia magna (Water flea) - 391 mg/l - 48 h.

12.2 Persistence and degradability: No additional information.

12.3 Bioaccumulative potential: No additional information.

12.4 Mobility in soil: No additional information.

General notes: No additional information.

12.5 Results of PBT and vPvB assessment:

PBT: No additional information.

vPvB: No additional information.

12.6 Other adverse effects: No additional information.

13 Disposal considerations

13.1 Waste treatment methods (consult local, regional and national authorities for proper disposal)

Relevant Information:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities. (US 40CFR262.11).

14 Transport information

14.1 UN Number: None
ADR, ADN, DOT, IMDG, IATA

14.2 UN Proper shipping name: None
ADR, ADN, DOT, IMDG, IATA

14.3 Transport hazard classes:
ADR, ADN, DOT, IMDG, IATA

Class: None
Label: None
LTD. QTY: None

US DOT
Limited Quantity Exception: None

Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Non Bulk:
RQ (if applicable): None
Proper shipping Name: None
Hazard Class: None
Packing Group: None
Marine Pollutant (if applicable): No additional information.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Comments: None	**Comments:** None
14.4 Packing group: ADR, ADN, DOT, IMDG, IATA	None
14.5 Environmental hazards :	None
14.6 Special precautions for user:	None
Danger code (Kemler):	None
EMS number:	None
Segregation groups:	None

14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

14.8 Transport/Additional information:

Transport category:	None
Tunnel restriction code:	None
UN "Model Regulation":	None

15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.

North American

SARA

Section 313 (specific toxic chemical listings): None of the ingredients are listed.
Section 302 (extremely hazardous substances): None of the ingredients are listed.

CERCLA (Comprehensive Environmental Response, Clean up and Liability Act) Reportable

Spill Quantity: None of the ingredients are listed.

TSCA (Toxic Substances Control Act):

Inventory: All ingredients are listed.
Rules and Orders: Not applicable.

Proposition 65 (California):

Chemicals known to cause cancer: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for females: None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males: None of the ingredients are listed.

Chemicals known to cause developmental toxicity: None of the ingredients are listed.

Canadian

Canadian Domestic Substances List (DSL):
All ingredients are listed.

EU

REACH Article 57 (SVHC): None of the ingredients are listed.

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

Germany MAK: Not classified.

Asia Pacific

Australia

Australian Inventory of Chemical Substances (AICS): All ingredients are listed.

China

Inventory of Existing Chemical Substances in China (IECSC): All ingredients are listed.

Japan

Inventory of Existing and New Chemical Substances (ENCS): All ingredients are listed.

Korea

Existing Chemicals List (ECL): All ingredients are listed.

New Zealand

New Zealand Inventory of Chemicals (NZOIC): All ingredients are listed.

Philippines

Philippine Inventory of Chemicals and Chemical Substances (PICCS): All ingredients are listed.

Taiwan

Taiwan Chemical Substance Inventory (TSCI): All ingredients are listed.

16 Other information

Abbreviations and Acronyms: None

Summary of Phrases

Hazard statements:

H315 Causes skin irritation.
H319 Causes serious eye irritation.

Precautionary statements:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 If on skin: Wash with soap and water.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362 Take off contaminated clothing and wash before reuse.
P501 Dispose of contents and container as instructed in Section 13.

Manufacturer Statement:

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 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.

NFPA: 1-0-0

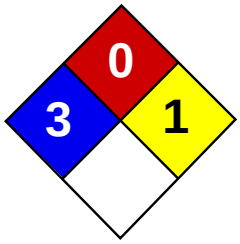
Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), 29CFR1910/1200 and GHS Rev. 3

Effective date: 12.08.2015 **Revision** : 12.10.2015

Trade Name: Alconox

HMIS: 1-0-0



Material Safety Data Sheet
Hydrochloric acid MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid

Catalog Codes: SLH1462, SLH3154

CAS#: Mixture.

RTECS: MW4025000

TSCA: TSCA 8(b) inventory: Hydrochloric acid

CI#: Not applicable.

Synonym: Hydrochloric Acid; Muriatic Acid

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

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
Hydrogen chloride	7647-01-0	20-38
Water	7732-18-5	62-80

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, . Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target

organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a 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. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

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 immediately.

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:
If swallowed, 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 immediately.

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: of metals

Explosion Hazards in Presence of Various Substances: Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas.

Special Remarks on Explosion Hazards:

Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

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. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill:
Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. 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 container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. 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, organic materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

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:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

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:
CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Pungent. Irritating (Strong.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light yellow.

pH (1% soln/water): Acidic.

Boiling Point:
108.58 C @ 760 mm Hg (for 20.22% HCl in water) 83 C @ 760 mm Hg (for 31% HCl in water) 50.5 C (for 37% HCl in water)

Melting Point:
-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water)

Critical Temperature: Not available.

Specific Gravity:
1.1- 1.19 (Water = 1) 1.10 (20%and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38%HCl solutions)

Vapor Pressure: 16 kPa (@ 20°C) average

Vapor Density: 1.267 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.25 to 10 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble 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: Incompatible materials, water

Incompatibility with various substances:
Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:
Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with, alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalies (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g. brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothmeric reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the folloiwng can cause explosion or ignition on contact or

Special Remarks on Corrosivity:

Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinium, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

Toxicity to Animals:
Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects (fetoxicity). May affect genetic material.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjuntivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and larryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well has headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomitting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophogeal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

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: Class 8: Corrosive material

Identification: : Hydrochloric acid, solution UNNA: 1789 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Hydrochloric acid Illinois toxic substances disclosure to employee act: Hydrochloric acid Illinois chemical safety act: Hydrochloric acid New York release reporting list: Hydrochloric acid Rhode Island RTK hazardous substances: Hydrochloric acid Pennsylvania RTK: Hydrochloric acid Minnesota: Hydrochloric acid Massachusetts RTK: Hydrochloric acid Massachusetts spill list: Hydrochloric acid New Jersey: Hydrochloric acid New Jersey spill list: Hydrochloric acid Louisiana RTK reporting list: Hydrochloric acid Louisiana spill reporting: Hydrochloric acid California Director's List of Hazardous Substances: Hydrochloric acid TSCA 8(b) inventory: Hydrochloric acid TSCA 4(a) proposed test rules: Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances: Hydrochloric acid SARA 313 toxic chemical notification and release reporting: Hydrochloric acid CERCLA: Hazardous substances.: Hydrochloric acid: 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):
CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

DSCL (EEC):
R34- Causes burns. R37- Irritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. 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: 3

Fire Hazard: 0

Reactivity: 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References:
-Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. -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.

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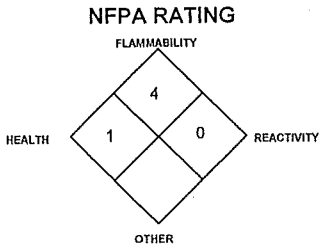
MATERIAL SAFETY DATA SHEET

Prepared to U.S. OSHA, CMA, ANSI and Canadian WHMIS Standards



PART I *What is the material and what do I need to know in an emergency?*

1. PRODUCT IDENTIFICATION

CHEMICAL NAME; CLASS:	**ISOBUTYLENE - C_4H_8** Document Number: Isobutylene
PRODUCT USE:	For general analytical/synthetic chemical uses.
SUPPLIER/MANUFACTURER'S NAME: ADDRESS:	MESA Specialty Gases & Equipment 3619 Pendleton Avenue, Suite C Santa Ana, CA 92704
BUSINESS PHONE: EMERGENCY PHONE:	1-714-434-7102 INFOTRAC: 1-800-535-5053
DATE OF PREPARATION:	May 10, 1999

2. COMPOSITION and INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS #	mole %	EXPOSURE LIMITS IN AIR					
			ACGIH		OSHA			
			TLV ppm	STEL ppm	PEL ppm	STEL ppm	IDLH ppm	OTHER
Isobutylene	115-11-7	> 99.0%	There are no specific exposure limits for Isobutylene. Isobutylene is a simple asphyxiant (SA). Oxygen levels should be maintained above 19.5%.					
Maximum Impurities		< 1.0%	None of the trace impurities in this mixture contribute significantly to the hazards associated with the product. All hazard information pertinent to this product has been provided in this Material Safety Data Sheet, per the requirements of the OSHA Hazard Communication Standard (29 CFR 1910.1200) and State equivalent standards.					

NE = Not Established C = Ceiling Limit See Section 16 for Definitions of Terms Used

NOTE: All WHMIS required information is included. It is located in appropriate sections based on the ANSI Z400.1-1993 format.

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW: Isobutylene is a colorless, liquefied, flammable gas with an unpleasant odor similar to burning coal. The liquefied gas rapidly turns into a gas at standard atmospheric temperatures and pressures. Isobutylene is an asphyxiant and presents a significant health hazard by displacing the oxygen in the atmosphere. Rapid evaporation of liquid from the cylinder may cause frostbite. Both the liquid and gas pose a serious fire hazard when accidentally released. The gas is heavier than air and may travel to a source of ignition and flash back to a leak or open container. Flame or high temperature impinging on a localized area of a cylinder of Isobutylene can cause the cylinder to rupture without activating the cylinder's relief devices. Provide adequate fire protection during emergency response situations.

SYMPTOMS OF OVEREXPOSURE BY ROUTE OF EXPOSURE: The most significant route of overexposure for this gas is by inhalation. The following paragraphs describe symptoms of exposure by route of exposure.

INHALATION: High concentrations of this gas can cause an oxygen-deficient environment. 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 overexposure, death may occur. Isobutylene also has some degree of anesthetic action and can be mildly irritating to the mucous membranes. The effects associated with various levels of oxygen are as follows:

CONCENTRATION	SYMPTOMS OF EXPOSURE
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 and vomiting, collapse or loss of consciousness.
Below 6%:	Convulsive movements, possible respiratory collapse, and death.

OTHER POTENTIAL HEALTH EFFECTS: Contact with liquid or rapidly expanding gases (which are released under high pressure) may cause frostbite. Symptoms of frostbite include change in skin color to white or grayish-yellow. The pain after such contact can quickly subside.

HAZARDOUS MATERIAL INFORMATION SYSTEM

HEALTH	(BLUE)	1
FLAMMABILITY	(RED)	4
REACTIVITY	(YELLOW)	0
PROTECTIVE EQUIPMENT		B

EYES	RESPIRATORY	HANDS	BODY
	See Section 8		See Section 8

For routine industrial applications

See Section 16 for Definition of Ratings

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in **Lay Terms**. Overexposure to Isobutylene may cause the following health effects:

ACUTE: The most significant hazard associated with this gas is inhalation of oxygen-deficient atmospheres. Symptoms of oxygen deficiency include respiratory difficulty, headache, dizziness, and nausea. At high concentrations, unconsciousness or death may occur. Contact with liquefied gas or rapidly expanding gases may cause frostbite.

CHRONIC: There are currently no known adverse health effects associated with chronic exposure to Isobutylene.

TARGET ORGANS: Respiratory system.

PART II *What should I do if a hazardous situation occurs?*

4. FIRST-AID MEASURES

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO ISOBUTYLENE WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus and Fire-Retardant Personal Protective equipment should be worn. Adequate fire protection must be provided during rescue situations.

4. FIRST-AID MEASURES (Continued)

Remove victim(s) to fresh air as quickly as possible. Trained personnel should administer supplemental oxygen and/or cardio-pulmonary resuscitation, if necessary. Only trained personnel should administer supplemental oxygen.

In case of frostbite, place the frostbitten part in warm water. DO NOT USE HOT WATER. If warm water is not available, or is impractical to use, wrap the affected parts gently in blankets. Alternatively, if the fingers or hands are frostbitten, place the affected area in the armpit. Encourage victim to gently exercise the affected part while being warmed. Seek immediate medical attention.

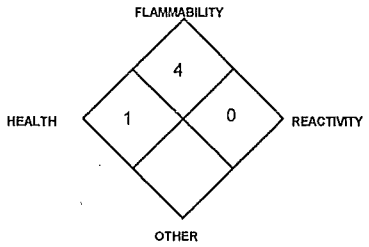
Victim(s) must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take copy of label and MSDS to physician or other health professional with victim(s).

5. FIRE-FIGHTING MEASURES

FLASH POINT (Closed Cup): -10°C (< 14°F)
AUTOIGNITION TEMPERATURE: 465°C (869°F)
FLAMMABLE LIMITS (in air by volume, %):

Lower (LEL): 1.8%
Upper (UEL): 9.6%

NFPA RATING



See Section 16 for Definition of Ratings

FIRE EXTINGUISHING MATERIALS: Extinguish Isobutylene fires by shutting off the source of the gas. Use water spray or a foam agent to cool fire-exposed containers, structures, and equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: When involved in a fire, this material may ignite and produce toxic gases, including carbon monoxide and carbon dioxide.

DANGER! Fires impinging (direct flame) on the outside surface of unprotected pressure storage vessels of Isobutylene can be very dangerous. Direct flame exposure on the cylinder wall can cause an explosion either by BLEVE (Boiling Liquid Expanding Vapor Explosion), or by exothermic decomposition. This is a catastrophic failure of the vessel releasing the contents into a massive fireball and explosion. The resulting fire and explosion can result in severe equipment damage and personnel injury or death over a large area around the vessel. For massive fires in large areas, use unmanned hose holder or monitor nozzles; if this is not possible, withdraw from area and allow fire to burn.

Explosion Sensitivity to Mechanical Impact: Not sensitive.
Explosion Sensitivity to Static Discharge: Static discharge may cause Isobutylene to ignite explosively if released.

SPECIAL FIRE-FIGHTING PROCEDURES: Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. The best fire-fighting technique may be simply to let the burning gas escape from the pressurized cylinder, tank car, or pipeline. Stop the leak before extinguishing fire. If the fire is extinguished before the leak is sealed, the leaking gas could explosively re-ignite without warning and cause extensive damage, injury, or fatality. In this case, increase ventilation (in enclosed areas) to prevent flammable or explosive mixture formation. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Because of the potential for a BLEVE, evacuation of non-emergency personnel is essential. If water is not available for cooling or protection of vessel exposures, evacuate the area. Refer to the North American Emergency Response Guidebook for additional information. Other information for pre-planning can be found in the American Petroleum Institute Publications 2510 and 2510A.

6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE: Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a release, clear the affected area, protect people, and respond with trained personnel. Adequate fire protection must be provided. Minimum Personal Protective Equipment should be **Level B: fire-retardant protective clothing, gloves resistant to tears, and Self-Contained Breathing Apparatus.**

Use only non-sparking tools and equipment. Locate and seal the source of the leaking gas. Protect personnel attempting the shut off with water spray. Allow the gas to dissipate. Monitor the surrounding area for combustible gas levels and oxygen. Combustible gas concentration must be below 10% of the LEL (LEL = 1.8%) prior to entry. The atmosphere must have at least 19.5 percent oxygen before personnel can be allowed in the area without Self-Contained Breathing Apparatus. Attempt to close the main source valve prior to entering the area. If this does not stop the release (or if it is not possible to reach the valve), allow the gas to release in place or remove it to a safe area and allow the gas to be released there.

THIS IS AN EXTREMELY FLAMMABLE GAS. Protection of all personnel and the area must be maintained.

PART III *How can I prevent hazardous situations from occurring?*

7. HANDLING and STORAGE

WORK PRACTICES AND HYGIENE PRACTICES: As with all chemicals, avoid getting Isobutylene IN YOU. Do not eat or drink while handling chemicals. Be aware of any signs of dizziness or fatigue; exposures to fatal concentrations of Isobutylene could occur without any significant warning symptoms.

STORAGE AND HANDLING PRACTICES: Cylinders should be stored in dry, well-ventilated areas away from sources of heat. Compressed gases can present significant safety hazards. Store containers away from heavily trafficked areas and emergency exits. Post "No Smoking or Open Flames" signs in storage or use areas.

SPECIAL PRECAUTIONS FOR HANDLING GAS CYLINDERS: Protect cylinders against physical damage. Store in cool, dry, well-ventilated area, away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 52°C (125°F). Isolate from oxidizers such as oxygen, chlorine, or fluorine. Use a check valve or trap in the discharge line to prevent hazardous backflow. Post "No Smoking or Open Flame" signs in storage and use areas. Cylinders should be stored upright and be firmly secured to prevent falling or being knocked over. Cylinders can be stored in the open, but in such cases, should be protected against extremes of weather and from the dampness of the ground to prevent rusting. Never tamper with pressure relief devices in valves and cylinders. Electrical equipment should be non-sparking or explosion proof. The following rules are applicable to situations in which cylinders are being used:

Before Use: Move cylinders with a suitable hand truck. Do not drag, slide, or roll cylinders. Do not drop cylinders or permit them to strike each other. Secure cylinders firmly. Leave the valve protection cap, if provided, in place until cylinder is ready for use.

During Use: Use designated CGA fittings and other support equipment. Do not use adapters. Do not heat cylinder by any means to increase the discharge rate of the product from the cylinder. Use check valve or trap in discharge line to prevent hazardous backflow into the cylinder. Do not use oils or grease on gas-handling fittings or equipment.

After Use: Close main cylinder valve. Replace valve protection cap, if provided. Mark empty cylinders "EMPTY".

NOTE: Use only DOT or ASME code containers. Earth-ground and bond all lines and equipment associated with Isobutylene. Close valve after each use and when empty. Cylinders must not be recharged except by or with the consent of owner. For additional information refer to the Compressed Gas Association Pamphlet P-1, *Safe Handling of Compressed Gases in Containers*. Additionally, refer to CGA Bulletin SB-2 "*Oxygen Deficient Atmospheres*".

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. Purge gas handling equipment with inert gas (e.g., nitrogen) before attempting repairs.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation. Local exhaust ventilation is preferred, because it prevents Isobutylene dispersion into the work place by eliminating it at its source. If appropriate, install automatic monitoring equipment to detect the presence of potentially explosive air-gas mixtures and level of oxygen.

RESPIRATORY PROTECTION: Maintain oxygen levels above 19.5% in the workplace. Maintain level of gas below the level listed in Section 2 (Composition and Information on Ingredients). Use supplied air respiratory protection if oxygen levels are below 19.5% or during emergency response to a release of Isobutylene. If respiratory protection is required, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134) or equivalent State standards.

EYE PROTECTION: Splash goggles or safety glasses, for protection from rapidly expanding gases and splashes of liquid Isobutylene.

HAND PROTECTION: Wear gloves resistant to tears when handling cylinders of Isobutylene. Use low-temperature protective gloves (e.g., Kevlar) when working with containers of liquid Isobutylene.

BODY PROTECTION: Use body protection appropriate for task. Transfer of large quantities under pressure may require protective equipment appropriate to protect employees from splashes of liquefied product, as well as fire retardant items.

9. PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY @ 21.1°C (70°F): 2.396 kg/m^3 (0.1496 lb/ft^3)
SPECIFIC GRAVITY (air = 1): 1.997
SOLUBILITY IN WATER: Insoluble.
EVAPORATION RATE (nBuAc = 1): Not applicable.
ODOR THRESHOLD: Not established.
COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.
pH: Not applicable.
FREEZING POINT: -140°C (-220.6°F)
BOILING POINT @ 1 atm: -6.9°C (19.6°F)
EXPANSION RATIO: Not applicable
VAPOR PRESSURE (psia): 39
SPECIFIC VOLUME (ft^3/lb): 6.7

APPEARANCE AND COLOR: Colorless gas with the unpleasant odor of burning coal. The liquid is also colorless and has the same unpleasant odor of burning coal.

HOW TO DETECT THIS SUBSTANCE (warning properties): There are no distinct warning properties. 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: Stable.

DECOMPOSITION PRODUCTS: When ignited in the presence of oxygen, this gas will burn to produce carbon monoxide and carbon dioxide.

MATERIALS WITH WHICH SUBSTANCE IS INCOMPATIBLE: Strong oxidizers (e.g., chlorine, bromine pentafluoride, oxygen, oxygen difluoride, and nitrogen trifluoride).

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: Contact with incompatible materials and exposure to heat, sparks, and other sources of ignition. Cylinders exposed to high temperatures or direct flame can rupture or burst.

PART IV *Is there any other useful information about this material?*

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA: The following information is for pure Isobutylene.

ISOBUTYLENE:
LC_{50} (rat, inhalation) = 620 g/m^3/4 hours
LC_{50} (mouse, inhalation) = 415 g/m^3/2 hours

SUSPECTED CANCER AGENT: Isobutylene is not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, CAL/OSHA, and therefore is neither considered to be nor suspected to be a cancer-causing agent by these agencies.

IRRITANCY OF PRODUCT: Isobutylene may be mildly irritating to the mucous membranes. In addition, contact with rapidly expanding gases can cause frostbite to exposed tissue.

SENSITIZATION TO THE PRODUCT: Isobutylene is not known to cause sensitization in humans.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of Isobutylene on the human reproductive system.

Mutagenicity: No mutagenic effects have been described for Isobutylene.
Embryotoxicity: No embryotoxic effects have been described for Isobutylene.
Teratogenicity: No teratogenic effects have been described for Isobutylene.
Reproductive Toxicity: No reproductive toxicity effects have been described for Isobutylene.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational 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.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Acute or chronic respiratory conditions may be aggravated by overexposure to Isobutylene.

11. TOXICOLOGICAL INFORMATION (Continued)

RECOMMENDATIONS TO PHYSICIANS: Administer oxygen, if necessary. Treat symptoms and eliminate exposure.

BIOLOGICAL EXPOSURE INDICES (BEIs): Currently, Biological Exposure Indices (BEIs) are not applicable for Isobutylene.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL STABILITY: This gas will be dissipated rapidly in well-ventilated areas.

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Any adverse effect on animals would be related to oxygen-deficient environments. No adverse effect is anticipated to occur to plant life, except for frost produced in the presence of rapidly expanding gases. See Section 11, Toxicological Information, for additional information on effects on animals.

EFFECT OF CHEMICAL ON AQUATIC LIFE: No evidence is currently available on the effects of Isobutylene on aquatic life.

13. DISPOSAL CONSIDERATIONS

PREPARING WASTES FOR DISPOSAL: Waste disposal must be in accordance with appropriate Federal, State, and local regulations. Return cylinders with any residual product to MESA Specialty Gases & Equipment Do not dispose of locally.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

For Isobutylene Gas:

PROPER SHIPPING NAME:	Isobutylene
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1055
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115

Alternate Description:

PROPER SHIPPING NAME:	Petroleum gases, liquefied
HAZARD CLASS NUMBER and DESCRIPTION:	2.1 (Flammable Gas)
UN IDENTIFICATION NUMBER:	UN 1075
PACKING GROUP:	Not Applicable
DOT LABEL(S) REQUIRED:	Flammable Gas

NORTH AMERICAN EMERGENCY RESPONSE GUIDEBOOK NUMBER (1996): 115

MARINE POLLUTANT: Isobutylene is not classified by the DOT as a Marine Pollutant (as defined by 49 CFR 172.101, Appendix B).

TRANSPORT CANADA TRANSPORTATION OF DANGEROUS GOODS REGULATIONS: THIS MATERIAL IS CONSIDERED AS DANGEROUS GOODS. Use the above information for the preparation of Canadian Shipments.

15. REGULATORY INFORMATION

U.S. SARA REPORTING REQUIREMENTS: Isobutylene is 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: Not applicable.

U.S. CERCLA REPORTABLE QUANTITY (RQ): Not applicable.

CANADIAN DSL/NDSL INVENTORY STATUS: Isobutylene is on the DSL Inventory.

U.S. TSCA INVENTORY STATUS: Isobutylene is listed on the TSCA Inventory.

15. REGULATORY INFORMATION (Continued)

OTHER U.S. FEDERAL REGULATIONS: 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 lb. Depending on specific operations involving the use of Isobutylene, the regulations of the Process Safety Management of Highly Hazardous Chemicals may be applicable (29 CFR 1910.119). Under this regulation Isobutylene is not listed in Appendix A; however, any process that involves a flammable gas on-site, in one location, in quantities of 10,000 lb (4,553 kg) or greater is covered under this regulation unless it is used as a fuel.

U.S. STATE REGULATORY INFORMATION: Isobutylene is covered under specific State regulations, as denoted below:

Alaska - Designated Toxic and Hazardous Substances: Liquefied Petroleum Gas.
California - Permissible Exposure Limits for Chemical Contaminants: Liquefied Petroleum Gas.
Florida - Substance List: Isobutylene.
Illinois - Toxic Substance List: No.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Isobutylene.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: Liquefied Petroleum Gas.
Missouri - Employer Information/Toxic Substance List: No.
New Jersey - Right to Know Hazardous Substance List: Isobutylene.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: No.
Pennsylvania - Hazardous Substance List: Isobutylene.
Rhode Island - Hazardous Substance List: Liquefied Petroleum Gas.
Texas - Hazardous Substance List: Liquefied Petroleum Gas.
West Virginia - Hazardous Substance List: Liquefied Petroleum Gas.
Wisconsin - Toxic and Hazardous Substances: Liquefied Petroleum Gas.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Isobutylene is not on the California Proposition 65 lists.

LABELING:

DANGER:

FLAMMABLE LIQUID AND GAS UNDER PRESSURE.
CAN FORM EXPLOSIVE MIXTURES WITH AIR.
MAY CAUSE FROSTBITE.

Keep away from heat, flames, and sparks.
Store and use with adequate ventilation.
Cylinder temperature should not exceed 52°C (125°F).
Do not get liquid in eyes, on skin, or clothing.
Close valve after each use and when empty.
Use in accordance with the Material Safety Data Sheet.

FIRST AID:

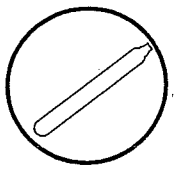
IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

IN CASE OF FROSTBITE, obtain immediate medical attention.

DO NOT REMOVE THIS PRODUCT LABEL.

CANADIAN WHMIS SYMBOLS:

Class A: Compressed Gas
Class B1: Flammable Gas



16. OTHER INFORMATION

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. MESA Specialty Gases & Equipment assumes no responsibility for injury to the vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, MESA Specialty Gases & Equipment 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 his use of the material.

DEFINITIONS OF TERMS

A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:

CAS #: This is the Chemical Abstract Service Number which uniquely identifies each constituent. It is used for computer-related searching.

EXPOSURE LIMITS IN AIR:
ACGIH - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV** - Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average **(TWA)**, the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level **(C)**. Skin absorption effects must also be considered.
OSHA - U.S. Occupational Safety and Health Administration. **PEL** - Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order.
IDLH - Immediately Dangerous to Life and Health - This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. Occupational Safety and Health Administration **(OSHA)**. NIOSH issues exposure guidelines called Recommended Exposure Levels **(RELs)**. When no exposure guidelines are established, an entry of **NE** is made for reference.

HAZARD RATINGS:
HAZARDOUS MATERIALS IDENTIFICATION SYSTEM: Health Hazard: **0** (minimal acute or chronic exposure hazard); **1** (slight acute or chronic exposure hazard); **2** (moderate acute or significant chronic exposure hazard); **3** (severe acute exposure hazard; onetime overexposure can result in permanent injury and may be fatal); **4** (extreme acute exposure hazard; onetime overexposure can be fatal). Flammability Hazard: **0** (minimal hazard); **1** (materials that require substantial pre-heating before burning); **2** (combustible liquid or solids; liquids with a flash point of 38-93°C [100-200°F]); **3** (Class IB and IC flammable liquids with flash points below 38°C [100°F]); **4** (Class IA flammable liquids with flash points below 23°C [73°F] and boiling points below 38°C [100°F]. Reactivity Hazard: **0** (normally stable); **1** (material that can become unstable at elevated temperatures or which can react slightly with water); **2** (materials that are unstable but do not detonate or which can react violently with water); **3** (materials that can detonate when initiated or which can react explosively with water); **4** (materials that can detonate at normal temperatures or pressures).
NATIONAL FIRE PROTECTION ASSOCIATION: Health Hazard: **0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure causes death or major residual injury).

NATIONAL FIRE PROTECTION ASSOCIATION (Continued): Flammability Hazard and Reactivity Hazard: Refer to definitions for "Hazardous Materials Identification System".

FLAMMABILITY LIMITS IN AIR:
Much of the information related to fire and explosion is derived from the National Fire Protection Association **(NFPA)**. Flash Point - Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. Autoignition Temperature: The minimum temperature required to initiate combustion in air with no other source of ignition. LEL - the lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. UEL - the highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.

TOXICOLOGICAL INFORMATION:
Possible health hazards as derived from human data, animal studies, or from the results of studies with similar compounds are presented. Definitions of some terms used in this section are: **LD_{50}** - Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** - Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm** concentration expressed in parts of material per million parts of air or water; **mg/m^3** concentration expressed in weight of substance per volume of air; **mg/kg** quantity of material, by weight, administered to a test subject, based on their body weight in kg. Data from several sources are used to evaluate the cancer-causing potential of the material. The sources are: **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. Other measures of toxicity include **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo, LDLo**, and **LDo**, or **TC, TCo, LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV. Ecological Information: EC is the effect concentration in water.

REGULATORY INFORMATION:
This section explains the impact of various laws and regulations on the material. **EPA** is the U.S. Environmental Protection Agency. **WHMIS** is the Canadian Workplace Hazardous Materials Information System. **DOT** and **TC** are the U.S. Department of Transportation and the Transport Canada, respectively. Superfund Amendments and Reauthorization Act **(SARA)**; the Canadian Domestic/Non-Domestic Substances List **(DSL/NDSL)**; the U.S. Toxic Substance Control Act **(TSCA)**; Marine Pollutant status according to the **DOT**; the Comprehensive Environmental Response, Compensation, and Liability Act **(CERCLA or Superfund)**; and various state regulations.

Manufactured for

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CORPORATION

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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%; Propane, 0-1.1%; n-Pentane, 0-0.75%; n-Hexane; 0-0.48%; Carbon Monoxide, 0.0005-1.0%; Hydrogen Sulfide, 0.001-0.025%

NOTE: MIXTURES COMPRISED OF AN AIR BALANCE GAS CONTAIN BETWEEN 19.5-23.5% OXYGEN.

SYNONYMS: Not Applicable

CHEMICAL FAMILY NAME: Not Applicable

FORMULA: Not Applicable

Document Number: 50016 (Replaces ISC MSDS No.1810-2187, 1810-2343, 1810-3366, 1810-3937 1810-7219, 1810-7599, 1810-6179)

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					
			ACGIHTLV		OSHA		IDLH	OTHER
			TWA ppm	STEL ppm	TWA ppm	STEL ppm	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%.					
Propane	74-98-6	0 - 1.1%	2500	NE	1000	NE	2100	NIOSH REL: 1000 DFG MAK: 1000 ppm
n-Pentane	109-66-0	0 - 0.75%	600	750	1000 600 (Vacated 1989 PEL)	750 (Vacated 1989 PEL)	1500	NIOSH REL: TWA = 120 STEL = 610 (ceiling) 15 minutes DFG MAKs: TWA =1000 PEAK = 2•MAK, 60 min., momentary value
n-Hexane	110-54-3	0 - 0.48%	50	NE	500 50 (Vacated 1989 PEL)	NE	1100	NIOSH REL: 50 DFG MAK: 50
Hydrogen Sulfide	7783-06-4	0.001-0.025 %	10 NIC = 5	15 NIC = 5	10 (Vacated 1989 PEL)	20 (ceiling), 50 (10 min. peak, once per 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, 1 hr interval 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: 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. The Propane, n-Pentane, and n-Hexane components can cause anesthetic or peripheral neuropathy effects. 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 significant 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. Exposure to this component can result in respiratory arrest, coma, or unconsciousness. 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 obvious and 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

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.

Another hazard associated with this gas mixture is the potential for anesthetic and peripheral neuropathy effects after inhalation over-exposures to the Propane, n-Pentane and n-Hexane components of this gas mixture. Specific human over-exposure data are available for n-Pentane and n-Hexane, as follows:

CONCENTRATION OF n-PENTANE	OBSERVED EFFECT
Brief (10 minute) up to 5,000 ppm:	No symptoms.
Higher than 5,000 ppm:	Exhilaration, dizziness and headache can occur.
Long term:	Can cause chronic neurological disorder causing damage to the nerves in the hands and feet (peripheral neuropathy)

CONCENTRATION OF n-HEXANE	OBSERVED EFFECT
Brief (10 minute) at 1,500 ppm:	Irritation of the respiratory tract, nausea and headache.
5000 ppm:	Dizziness and drowsiness can occur.
Long term at 500 ppm:	Can affect the nerves in the arms and legs. Effects include numbing or tingling sensations in the fingers and toes, tiredness, muscle weakness, cramps and spasms in the leg, difficulty in holding objects or walking, abdominal pains, loss of appetite, weight loss. More serious exposures can cause damage to the nerves in the hands and feet (peripheral neuropathy).
Eyes and Vision:	Abnormal color perception and pigment changes in the eyes have been reported among industrial workers exposed to 423-1280 ppm for 5 years or more.
Blood Cells:	Mild forms of anemia have also been associated with exposure to hexane. These are of temporary nature.

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: The Hydrogen Sulfide 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.

Inhalation over-exposures to Propane, n-Pentane, and n-Hexane can cause anesthetic effects and motor neuropathy (i.e. pain and tingling in feet and hands).

3. HAZARD IDENTIFICATION (Continued)

CHRONIC: Abnormal color perception and pigment changes in the eyes have been reported among persons exposed to 420 -1300 ppm of n-Hexane for five years. Additionally, long-term exposure to low levels of n-Hexane or n-Pentane can affect the nerves in the arms and legs. Effects include numbing or tingling sensation, tiredness, cramps, spasms in legs, difficulty holding objects or walking, loss of appetite and weight loss. Pentane isomers, such as n-Pentane, and Propane can cause sensitization of the heart to epinephrine. Refer to Section 11 (Toxicology Information) for additional information on the components of this gas mixture.

TARGET ORGANS: ACUTE: Respiratory system, blood system, central nervous system, cardiovascular system. CHRONIC: Reproductive system, cardiovascular 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).

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, n-Hexane or n-Pentane in this gas mixture, central nervous system conditions, 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.

FIRE EXTINGUISHING MATERIALS: Non-flammable gas mixture. Use extinguishing media appropriate for surrounding fire.

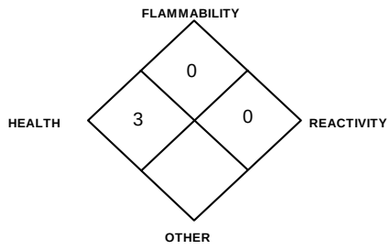
UNUSUAL FIRE AND EXPLOSION HAZARDS: This gas mixture contains toxic gases, Hydrogen Sulfide and Carbon Monoxide, and presents an extreme health hazard to firefighters. This gas mixture is not flammable; however, containers, when involved in fire, may rupture or burst in the heat of the fire.

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.

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 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, 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; 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 Carbon Monoxide levels exceed the exposure levels given in Section 2 (Composition and Information on Ingredients) or if oxygen levels are below 19.5%, or if either level is unknown during emergency response to a release of this gas mixture. If respiratory protection is required for emergency response to this gas mixture, follow the requirements of the Federal OSHA Respiratory Protection Standard (29 CFR 1910.134) or equivalent State standards. The following NIOSH respiratory protection recommendations for Hydrogen Sulfide and Carbon Monoxide are provided for further information.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION (Continued)

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; or 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.

EYE PROTECTION: Safety glasses. If necessary, refer to U.S. OSHA 29 CFR 1910.133 or appropriate Canadian Standards.

HAND PROTECTION: No special protection is needed under normal circumstances of use. 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: 0.072 lbs/ ft^3 (1.153 kg/m^3)

FREEZING/MELTING POINT @ 10 psig: -210°C (-345.8°F)

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.

ODOR THRESHOLD: Not applicable.

VAPOR PRESSURE @ 70°F (21.1°C) psig: Not applicable.

COEFFICIENT WATER/OIL DISTRIBUTION: Not applicable.

BOILING POINT: -195.8°C (-320.4°F)

pH: Not applicable.

MOLECULAR WEIGHT: 28.01

EXPANSION RATIO: Not applicable.

SPECIFIC VOLUME (ft^3/lb): 13.8

The following information is for the gas mixture.

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 Hydrogen Sulfide (a component of this gas mixture) may cause olfactory fatigue, so that there are no distinct warning properties. 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 Propane, n-Hexane, and n-Pentane 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, Propane, n-Pentane, n-Hexane) 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

n-PENTANE:

LD_{50} (intravenous, mouse) = 446 mg/kg.

LC_{50} (inhalation, rat) = 364 g/m^3/4 hours

LCLo (inhalation, mouse) = 325 g/m^3/2 hours

n-HEXANE:

Eye, rabbit = 10 mg/ mild

TCLo (inhalation, rat) = 10,000 ppm/7 hr.

TCLo (inhalation, rat) = 5000 ppm/20 hours; teratogenic effects

LD50 (oral, rat) = 28710 mg/kg

LDLo (intraperitoneal, rat) = 9100 mg/kg

LCLo (inhalation, mouse) = 120,000 mg/kg

LD50 (rat, oral): 28,710 mg/kg

ACUTE INHALATION (mouse): 30,000 ppm, narcosis within 30 to 60 minutes; 35,000-40,000 ppm, convulsions and death.

DERMAL (rabbit): 2 to 5 ml/kg for 4 hours resulted in restlessness and discoordination,; death occurred at 5 ml/kg.

HYDROGEN SULFIDE:

LCLo (inhalation, human) = 600 ppm/30 minutes

LDLO (inhalation, man) = 5.7 mg/kg; central nervous system, pulmonary effects

n-HEXANE (continued):

CHRONIC INHALATION (rat): 400-600 ppm, 5 days/week, peripheral neuropathy in 45 days; 850 ppm for 143 days, loss of weight and degeneration of the sciatic nerve. (mouse): 250 ppm, peripheral neuropathy within 7 months; no effects at 100 ppm.

PROPANE:

Long-Term Inhalation: No toxicity or abnormalities were observed when monkeys were exposed to approximately 750 ppm for 90 days. Similar results were obtained when monkeys were exposed to an aerosol spray containing 65% propane and isobutane.

CARBON MONOXIDE:

TCLo (inhalation, mouse) = 65 ppm/24 hours (7-18 preg): rep. effects

TCLo (inhalation, mouse) = 8 pph/1 hour (female 8D post): ter. effects

HYDROGEN SULFIDE (continued):

LCLo (inhalation, human) = 800 ppm/5 minutes

LC_{50} (inhalation, rat) = 444 ppm

CARBON MONOXIDE (continued):

TCLo (inhalation, human) = 600 mg/m^3/10 minutes

LCLo (inhalation, man) = 4000 ppm/30 minutes

TCLo (inhalation, man) = 650 ppm/45 minutes: central nervous system and blood system effects.

LCLo (inhalation, human) = 5000 ppm/5 minutes

LCLo (inhalation, dog) = 4000 ppm/46 minutes

LCLo (inhalation, rabbit) = 4000 ppm

LC_{50} (inhalation, rat) = 1811 ppm/4 hours

LC_{50} (inhalation, guinea pig) = 2450 ppm/4 hours

LC_{50} (inhalation, guinea pig) = 5718 ppm/4 hours

LCLo (inhalation, mammal) = 5000 ppm/5 minutes

LD_{50} (inhalation, wild bird) = 1334 ppm

HYDROGEN SULFIDE (continued):

LC_{50} (inhalation, mouse) = 673 ppm/1 hour

LCLo (inhalation, mammal) = 800 ppm/5 minutes

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: The Hydrogen Sulfide component of 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. Pentane isomers (i.e. n-Pentane) and Propane can cause cardiac sensitization to epinephrine.

REPRODUCTIVE TOXICITY INFORMATION: Listed below is information concerning the effects of this gas mixture on the human reproductive system.

Mutagenicity: No mutagenicity effects have been described for the components of this gas mixture.

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

11. TOXICOLOGICAL INFORMATION (continued)

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 expected 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 the 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
n-HEXANE • 2,5-Hexanedione in urine • n-Hexane in end-exhaled air	• End of shift	• 5 mg/g creatinine

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.

OXYGEN: Water Solubility = 1 volume Oxygen/32 volumes water at 20°C. Log K_{ow} = -0.65

PROPANE: Log K_{ow} = 2.38. Water Solubility = 62.4 ppm, 25°C. Propane is readily degraded by soil bacteria.

PENTANE: Log K_{ow} = 3.39. Water Solubility = 38.5 mg/L. LOG BCF (n-pentane) = calculated, 1.90 and 2.35, respectively. Photolysis, hydrolysis, and bioconcentration are not anticipated to be important fate processes. Biodegradation and soil adsorption are anticipated to be more important processes for this compound.

n-HEXANE: Log K_{ow} = 3.90-4.11. Water Solubility = 9.5 mg/L. Estimated Bioconcentration Factor =2.24 and 2.89. Bioconcentration in aquatic organisms is low. Hexane is volatile. Rapid volatilization from water and soil is anticipated for this compound. Hexane will float in slick on surface of the water

HYDROGEN SULFIDE: Water Solubility = 1 g/242 mL at 20°C.

CARBON MONOXIDE: Water solubility = 3.3 ml/100 cc at 0 °C, 2.3 ml at 20°C.

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. The 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 the effects of this gas effects on aquatic life. The presence of more than a trace of Carbon Monoxide is a hazard to fish. The following aquatic toxicity data are available for the Hydrogen Sulfide component of this gas mixture.

TLm (Asellussp) = 0.111 mg/L/96 hour
TLm (Cranfgonyx sp) =1.07 mg/L/96 hour
TLm (Gammarrus) = 0.84 mg/L/96 hour
LC_{50} (fly inhalation) = 380 mg/m^3/960 minutes
LC_{50} (fly inhalation) = 1500 mg/m^3/7 minutes
TLm (Lepomis macrochirus, bluegill sunfish) = 0.0478 mg/L/96 hour
TLm (Lepomis macrochirus, bluegill sunfish) = 0.0448 mg/L/96 hour at 21-22 °C
TLm (Pimephlaes promelas, fathead minnow) = 0.0071-0.55 mg/L/96 hour
TLm (Salvenilis foninalis, brook trout) = 0.0216-0.038 mg/L/96 hour at 8-12.5 °C

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: This gas is not subject to the reporting requirements of Sections 302, 304 and 313 of Title III of the Superfund Amendments and Reauthorization Act., as follows:

COMPONENT	SARA 302 (40 CFR 355, Appendix A)	SARA 304 (40 CFR Table 302.4)	SARA 313 (40 CFR 372.65)
n-Hexane	NO	YES	YES
Hydrogen Sulfide	YES	YES	YES

15. REGULATORY INFORMATION (Continued)

U.S. SARA THRESHOLD PLANNING QUANTITY: Section 302 EHS TPQ = Hydrogen Sulfide = 500 lbs (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): Hexane = 5000 lb (2270 kg); Hydrogen Sulfide = 100 lbs (45.4 lb)
OTHER U.S. FEDERAL REGULATIONS:

- Hydrogen Sulfide, Carbon Monoxide, Propane, n-Pentane and n-Hexane are subject to the reporting requirements of CFR 29 1910.1000.
- Hydrogen Sulfide, Propane and n-Pentane 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.
- This gas mixture does not contain any Class I or Class II ozone depleting chemicals (40 CFR part 82).
- Nitrogen, Oxygen and n-Hexane 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. Carbon Monoxide, Propane and n-Pentane 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, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
California - Permissible Exposure Limits for Chemical Contaminants: Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Florida - Substance List: Oxygen, Carbon Monoxide, n-Pentane, n-Hexane, Hydrogen Sulfide.
Illinois - Toxic Substance List: Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Kansas - Section 302/313 List: No.
Massachusetts - Substance List: Oxygen, Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Michigan - Critical Materials Register: No.
Minnesota - List of Hazardous Substances: Carbon Monoxide, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Missouri - Employer Information/Toxic Substance List t: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide.
New Jersey - Right to Know Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane.
North Dakota - List of Hazardous Chemicals, Reportable Quantities: Hydrogen Sulfide.
Pennsylvania - Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Rhode Island - Hazardous Substance List: Oxygen, Carbon Monoxide, Nitrogen, Propane, n-Pentane, n-Hexane, Hydrogen Sulfide.
Texas - Hazardous Substance List: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide.
West Virginia - Hazardous Substance List: n-Pentane, n-Hexane, Propane, Hydrogen Sulfide.
Wisconsin - Toxic and Hazardous Substances: n-Pentane, n-Hexane, Propane, 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 as a chemical 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 on the Canadian DSL Inventory.
CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) PRIORITIES SUBSTANCES LISTS: The components of this gas mixture are not on the CEPA Priorities Substances List.
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™

APPENDIX D

COVID-19 Interim Health and Safety Guidance

COVID-19 INTERIM HEALTH AND SAFETY GUIDANCE

CORPORATE HEALTH AND SAFETY MANAGER	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**03/2020**
REVISION DATE	:	**10/08/2020**
REVISION NUMBER	:	**5**

TABLE OF CONTENTS

APPENDICES

1. PURPOSE

This guidance has been implemented to establish work practices, administrative procedures, and engineering controls to minimize potential exposure to SARS-CoV-2, the virus that causes COVID-19. The following guidance has been developed based on local, state and federal recommendations/requirements regarding COVID-19. The purpose of this document is to supplement existing site-specific Health and Safety Plans (HASPs) and provide interim health and safety guidance to minimize potential exposure to SARS-CoV-2. Should additional scientific information or regulatory information change, this document shall be updated accordingly.

2. SCOPE AND APPLICABILITY

This guidance covers all Roux employees and the subcontractors that Roux oversees. Site specific HASPs shall be developed to incorporate elements of mitigative measures against COVID-19 exposure. If work cannot be carried out in compliance with this guidance, the project shall be further evaluated by the Project Principal (PP), Office Manager (OM), and Corporate Health and Safety Manager (CHSM) prior to work authorization.

Roux subcontractors are required to review, comply with, and implement Roux's COVID-19 Interim Health and Safety Guidance while on site. Subcontractors may implement additional preventative measures as they see fit. All work shall be conducted in a manner consistent with the federal, state, and local guidance as it relates to COVID-19.

3. BACKGROUND

What is COVID-19?

COVID-19 is a respiratory illness that can spread from person to person. The virus that causes COVID-19 is a novel coronavirus that was first identified during an investigation into an outbreak in Wuhan, China. This virus continues to spread internationally and within the United States. There is currently no vaccine to prevent COVID-19.

What are the symptoms of COVID-19?

Reported illnesses have ranged from mild symptoms to severe illness and death for confirmed COVID-19 cases. Symptoms may appear 2 to 14 days following exposure to the virus. People with these symptoms or combinations of symptoms may have COVID-19:

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing
- Fatigue
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat
- Congestion or runny nose
- Nausea or vomiting
- Diarrhea

This list is not all possible symptoms. The CDC will continue to update this list as they learn more about the virus. For an updated symptom list please reference the following link for CDC Symptoms of Coronavirus.

If someone develops emergency warning signs for COVID-19, they should be instructed to get medical attention immediately. Emergency warning signs can include those listed below; however, this list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion
- Inability to wake or stay awake
- Bluish lips or face

How does COVID-19 spread?[1]

SARS-COV-2 spreads very easily from person to person during close contact.

Individuals who are within close contact (within 6 feet) of a person with COVID-19 or have direct contact with that person are at greatest risk of infection.

- When people with COVID-19 cough, sneeze, sing, talk, or breathe they produce respiratory droplets. These droplets can range in size from larger droplets (some of which are visible) to smaller droplets. Small droplets can also form particles when they dry very quickly in the airstream.
- Infections occur mainly through exposure to respiratory droplets when a person is in close contact with someone who has COVID-19.
- Respiratory droplets cause infection when they are inhaled or deposited on mucous membranes, such as those that line the inside of the nose and mouth.
- As the respiratory droplets travel further from the person with COVID-19, the concentration of these droplets decreases. Larger droplets fall out of the air due to gravity. Smaller droplets and particles spread apart in the air.
- With passing time, the amount of infectious virus in respiratory droplets also decreases.

SARS-CoV-2 can sometimes spread by airborne transmission under certain circumstances.

Some infections can be spread by exposure to virus in small droplets and particles that can linger in the air for minutes to hours. These viruses may be able to infect people who are further than 6 feet away from the person who is infected or after that person has left the space. This kind of spread is referred to as **airborne transmission** and is an important way that infections like tuberculosis, measles, and chicken pox are spread.

- There is evidence that under certain conditions, people with COVID-19 seem to have infected others who were more than 6 feet away. These transmissions occurred within enclosed spaces that had inadequate ventilation. Sometimes the infected person was breathing heavily, for example while singing or exercising.
    - Under these circumstances, scientists believe the amount of infectious smaller droplet and particles produced by the people with COVID-19 became concentrated enough to spread the virus to other people. The people who were infected were in the same space during the same time or shortly after the person with COVID-19 had left.
- Available data indicate it is much more common for the virus that causes COVID-19 to spread through close contact with a person who has COVID-19 than through airborne transmission.[2]

Spread from contact with contaminated surfaces or objects is less common.

Respiratory droplets can also land on surfaces and objects. It is possible that a person could get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes. Spread from touching surfaces is not thought to be a common way that COVID-19 spreads.

4. TRAINING REQUIREMENTS

All employees with potential exposure to COVID-19 shall be provided training that incorporates COVID-19 exposure mitigation strategies, such as implementation of proper social distancing, personal hygiene (e.g., handwashing), as well as disinfection procedures, as outlined by CDC guidelines.

5. EXPOSURE RISK POTENTIAL

Worker risk of occupational exposure to COVID-19 can vary from very high, high, medium, or lower (caution) risk. This level of exposure is dependent on several factors, which can include industry type; need for contact within

1 How COVID-19 Spreads https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html#edn1

2 Scientific Brief: SARS-CoV-2 and Potential Airborne Transmission | CDC https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-sars-cov-2.html

6 feet of people known to be or suspected of being infected with COVID-19; density of work environment; and industrial setting (i.e., healthcare building, occupied interior work area, minimal ventilation).

Provided below is background risk level information taken from the U.S. Department of Labor Occupational Safety and Health Administration Guidance on preparing workplaces for COVID-19. Risk evaluations for each project shall be conducted by the PP and OM in consultation with the CHSM to ensure Roux employees and subcontractors remain within the lower exposure (caution) category. If it is identified there is a medium exposure risk or higher, further evaluation and mitigative measures shall be evaluated to reduce overall exposure risk prior to work authorization.

Very High Exposure Risk (Activities not conducted by Roux)

Very high exposure risk includes occupations/work activities with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. This can include but is not limited to:

- Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough induction procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients).
- Morgue workers performing autopsies, which generally involve aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

High Exposure Risk (Activities not conducted by Roux)

High exposure risk occupations/work activities include exposure to known or suspected COVID-19 positive individuals. This can include but not limited to:

- Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes very high.)
- Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles.
- Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

Medium Exposure Risk

Medium exposure risk occupations/work activities include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with COVID-19, but who are not known or suspected to be COVID-19 positive. For most of our worksites, it is assumed there is on-going community transmission for COVID-19. Therefore, workers who work at sites and may have contact with the general public, other contractors, high-population-density work environments (i.e., greater than 10 people) fall within medium exposure risk group category. This can include, but is not limited to, sampling events that require two or more workers to collect and log samples in close contact or work occurring in an interior space with limited ventilation and several workers present.

Lower Exposure Risk (Caution)

Lower exposure risk (caution) occupations/work activities are those that do not require contact with people known to be or suspected of being COVID-19 positive. During these activities, there is limited contact (i.e., within 6 feet of) the general public or other workers. Workers in this category have minimal occupational contact with the public and other coworkers. This can include construction oversight that does not require close contact as well as sampling or gauging events performed by one worker.

6. COVID-19 HEALTH SCREENING

6.1. Roux Employees

All Roux employees are required to self-attest to a COVID-19 Daily Health Questionnaire which is to be completed at home through a mobile application on scheduled workdays. The purpose of this program is to ensure business continuity as well as mitigate any potential exposure to our employees and others if it is determined employees are at-risk for contracting COVID-19. As part of this self-attestation, all employees are required to take their temperatures daily at home to confirm they do not have a fever (≥ 100.4). Employees who answer yes to any of these questions are instructed to contact their Office Manager and/or Department Head immediately and should not enter the office or go to a field site. Information shall be used to determine appropriate internal response in consultation with the Human Resources Director and Corporate Health and Safety Manager.

Below, you will find our COVID-19 Daily Health Questionnaire that all Roux employees are required to self-attest to **every scheduled workday by 9:30 am.** If employees do not promptly fill out the questionnaire by the time listed above, there will be additional follow up by HR, H&S, and/or OMs.

According to the U.S. Centers for Disease Control and Prevention & the World Health Organization, COVID-19 Symptoms include:

- *Fever (≥100. 4°F) or chills*
- *Cough*
- *Shortness of breath or difficulty breathing*
- *Fatigue*
- *Muscle or body aches*
- *Headache*
- *New loss of taste or smell*
- *Sore throat*
- *Congestion or runny nose*
- *Nausea or vomiting*
- *Diarrhea*

Have you experienced any of the COVID-19 related symptoms noted above in the last 14 days? Please Note: We do not expect employees to answer "yes" to the symptoms question if these are symptoms you normally experience due to another condition or medication.

- *Yes*
- *No*

Have you been in close contact with someone who is suspected or confirmed to have COVID-19 or who is under investigation for COVID-19 within the last 14 days? *Close contact is defined as someone who was within 6 feet of an infected person for at least 15 minutes or coming into direct contact with secretions (e.g., sharing utensils, being coughed on) from an infected person.*

- *Yes*
- *No*

Have you traveled outside of the country, been on a cruise ship and/or traveled to areas within the United States which have state mandated travel restrictions in the last 14 days?

- *Yes*
- *No*

Have you tested positive for COVID-19 within the last 14 days?

- *Yes*
- *No*

6.2. Subcontractors

In an effort to mitigate the risk of transmission of COVID-19, Subcontractors who shall perform work on-site are required to attest to the fitness of their work crew on a daily basis. This requires each worker to self-assess by asking themselves the four questions listed in the section above and also contained within the Roux Subcontractor Work Crew COVID-19 Daily Health Attestation. If any crew member answers "yes" to any of the questions, that worker is not to report to the field site and should seek proper medical advice, in accordance with local, state and federal guidelines.

On a daily basis, the subcontractor supervisor must provide the Subcontractor Work Crew COVID-19 Daily Health Attestation complete with the names of all work crew fit to be on the site for that day (i.e., who have answered "no" to all questions on the self-assessment) to Roux's Project Manager. The Subcontractor must notify Roux if there have been any "yes" responses daily. Subcontractors shall not be required to provide the name or any other personal information of any employee who has answered "yes" to any of the self-assessment questions, however, the subcontractor should provide the date and times that employee has been onsite in the prior 14 days. Records shall be maintained within the project files indicating health screening has been performed, records shall be retained for not less than 14 days following the date of submission. The Roux Subcontractor Work Crew COVID-19 Daily Health Check Attestation can be found within Appendix A.

7. SELF-ISOLATION & QUARANTINE

7.1. Self-Isolation

What if I am asked to self-isolate at home and when can I return from home isolation?

Depending on the situation, if you are COVID-19 positive or suspected to have COVID-19, employees may be required to self-isolate in their homes, as per CDC or local health department guidelines. As per CDC guidance, return from isolation has been broken out into two categories. The first includes confirmed or suspected COVID-19 individuals exhibiting symptoms, and the second includes those who have not had COVID-19 symptoms (i.e., asymptomatic), but tested positive and are under self-isolation. Both categories, along with strategies to return from home isolation, are outlined below.

People with COVID-19 under home isolation:

Accumulating evidence supports ending isolation and precautions for persons with COVID-19 using a symptom-based strategy. Specifically, researchers have reported that people with mild to moderate COVID-19 remain infectious no longer than 10 days after their symptoms began, and those with more severe illness or those who are severely immunocompromised remain infectious no longer than 20 days after their symptoms began. Therefore, CDC has updated the recommendations for discontinuing home isolation as follows:

1. **Persons with COVID-19 who have symptoms** and were directed to care for themselves at home may discontinue isolation under the following conditions:
    a. At least 10 days* have passed since symptom onset;
    b. At least 24 hours have passed since resolution of fever without the use of fever-reducing medications; and
    c. Other symptoms have improved.

* *A limited number of persons with severe illness may produce replication-competent virus beyond 10 days, which may warrant extending the duration of isolation for up to 20 days after symptom onset. Consultation with your healthcare provider will be warranted in such cases of severe illness.*

2. **Persons infected with SARS-CoV-2 who never develop COVID-19 symptoms** may discontinue isolation and other precautions 10 days after the date of their first positive RT-PCR test for SARS-CoV-2 RNA.

7.2. Quarantine

Employees may be required to self-quarantine due to potential exposure with a suspected and/or confirmed COVID-19 positive individual as well as recent travel as per local/state guidelines. People in quarantine should stay home, separate themselves from others, monitor their health, and follow directions from their state or local health department. If Roux employees meet the criteria to self-quarantine based on potential exposure/travel, they are required to self-quarantine for 14 days regardless of local/state exemptions. Even if you test negative for COVID-19 or feel healthy, symptoms may still appear 2 to 14 days after exposure to the virus.

7.2.1. Close Contact Quarantine

Employees who have come into close contact with someone who has COVID-19 are required to self-quarantine for 14 days following their last contact with the COVID-19 positive person. Close contact can be defined as being within 6 feet of someone who has COVID-19 for a total of 15 minutes or more, providing care at home to someone who is sick with COVID-19, having direct physical contact with COVID-19 individual, sharing utensils with COVID-19 individual, and being sneezed/coughed on by someone with COVID-19.

7.2.2. Travel Related Quarantine

All travel out of state must be communicated with the OM and/or Department Head prior to departure. Please note, some state/local entities require submissions of traveler health forms. It is expected all Roux employees will comply with such state/local travel requirements. All employees returning from international and/or cruise ship travel must quarantine for 14 days from the time they have returned home.

Personal Travel

Employees who will be traveling out of state are responsible for checking the local/state quarantine guidance for the regions they are traveling from and to in advance of travel and notifying their OM prior to traveling in order to evaluate the impact on the business. Based on state/local guidelines you may be required to quarantine for 14 days from the time you have returned home.

Work-Related Travel

The Project Team (i.e., PM & PP) and field staff who will be traveling are responsible for checking the local/state quarantine guidance for the regions they are traveling from and to in advance of travel and notifying their OM prior to traveling in order to evaluate the impact to the business. Additionally, health and safety considerations shall be reviewed by the OM in consultation with the CHSM regarding logistics and overnight accommodations. Based on state/local guidelines, you may be required to quarantine for 14 days from the time you have returned home.

8. WORKPLACE CONTROLS

During the project planning phase, worksite evaluations shall be carried out by the PP and OM in consultation with the CHSM to determine risk exposure levels for work activities. If it is determined there is a medium exposure risk level or higher, additional workplace controls shall be evaluated and implemented as required in addition to the basic infection prevention measures outlined below in Section 8. Additional workplace controls can include engineering controls (i.e., ventilation, physical barriers), administrative controls (i.e., minimizing contact between workers, rotating shifts, site specific training), and additional personal protective equipment (i.e., respiratory protection). If exposure risk cannot be mitigated, potential project postponement may be necessary at the discretion of the OM in consultation with the CHSM.

A Job Safety Analysis (JSA) has been developed and is provided in Appendix B, which summarizes and applies concepts within this guidance including the infection prevention measures listed below. This JSA shall be required for all field work in areas where there is community-based transmission of COVID-19.

9. INFECTION PREVENTION MEASURES

The following is basic infection prevention and personal hygiene practices which shall be implemented for all Roux field activities as well as in the office setting.

- ***Personal Hygiene***
  - Wash your hands often with soap and water for at least 20 seconds.
    - If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol.
    - Key times to wash your hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
  - Do not touch your eyes, face, nose and mouth with unwashed hands.
  - Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow.
  - Throw potentially contaminated items (e.g., used tissues) in the trash.
- ***Avoid Close Contact/Secondary Contact with People and Potentially Contaminated Surfaces***
  - Apply appropriate social distance (6+ feet).
  - Stop handshaking—use and utilize other noncontact methods for greeting.
  - Do not work in areas with limited ventilation with other Site workers (e.g., small work trailer which lacks HVAC system). If working in a trailer, the following conditions must be met: limited to 4 workers, large enough to have the ability to apply social distance and has open windows and/or operational HVAC to ensure proper ventilation of the workspace.
  - Morning tailgate/safety meetings shall occur outside and not within work trailers.
    - Do not require employees or subcontractors to sign in using the same tailgate form. The Site Supervisor/SHSO should record names of those in attendance on the form.
    - If the Site has more than 10 workers, separate tailgate meetings should be performed in smaller groups.
  - Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g., nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically.
  - If receiving labware or other equipment disinfect to the extent feasible. If there are concerns for contaminating labware please wear appropriate PPE (e.g., gloves) to minimize contact.
  - Contact your lab/equipment vendor to confirm equipment is properly disinfected prior to being shipped.
  - Do not carpool with others (e.g., clients, coworkers).
  - For company owned vehicles limit sharing of vehicles with coworkers. If unable to limit sharing of company owned vehicles, properly disinfect vehicle before driving with a focus on commonly touched surfaces (e.g., steering wheels, shifters, buttons, etc.).
  - Use caution when using public restrooms, portable toilets. Use paper towel as a barrier when touching door handles and faucets.
- ***Cleaning and Disinfecting***
  - Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, sinks, and field equipment (i.e., photo-ionization detector, field equipment).
  - **Hard (Non-porous) Surfaces**
    - If surfaces are dirty, they should be cleaned with a detergent/soap and water prior to disinfection.

- Refer to the manufacturer's instructions to ensure safe and effective use of the product and wear appropriate personal protective equipment (e.g., gloves, safety glasses, face shield).
- Many products require:
  - Keeping surface wet for a period of time (i.e., contact time)
    - Refer to manufacturer's instructions outlining adequate contact time.
  - Precautions such as wearing gloves and making sure you have good ventilation during use of the product.
- Disposable gloves should be removed aseptically and discarded after cleaning. Wash hands immediately following removal of gloves. Refer to Appendix C for how to remove gloves aseptically.
- For disinfection, diluted household bleach solutions, alcohol solutions with at least 70% alcohol, and most common EPA-registered household disinfectants should be effective.
  - Diluted household bleach solutions can be used if appropriate for the surface. Follow manufacturer's instructions for application and proper ventilation. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted. Leave the solution on the surface for at least 1 minute.
    - Prepare a bleach solution by mixing:
      - 5 tablespoons (1/3 cup) bleach per gallon of water or
      - 4 teaspoons bleach per quart of water
- Products with EPA-approved emerging viral pathogen claims are expected to be effective against COVID-19. Follow the manufacturer's instructions for all cleaning and disinfecting products (e.g., concentration, application method and contact time, etc.).

- **Soft (Porous) Surfaces**
  - For soft (porous) surfaces, remove visible contamination if present and clean with appropriate cleaners indicated for use on the surfaces. After cleaning:
    - Launder items as appropriate in accordance with the manufacturer's instructions. If possible, launder using the warmest appropriate water setting for the item and dry items completely; or
    - Use products with the EPA-approved emerging viral pathogens that claim they are suitable for porous surfaces.
- **Electronics**
  - For electronics such as tablets, touch screens, keyboards, remote controls, etc. remove visible contamination if present.
    - Follow the manufacturer's instructions for all cleaning and disinfection products.
    - Consider use of wipeable covers for electronics.
    - If no manufacturer guidance is available, consider the use of alcohol-based wipes or sprays containing at least 70% alcohol to disinfect touch screens. Dry surfaces thoroughly to avoid pooling of liquids.
- ***Linens, Clothing, and Other Items that Go in the Laundry***
  - Although it is unlikely field clothing would become potentially contaminated with COVID-19, it is recommended that field staff regularly launder field clothing following any field event upon returning home.
  - In order to minimize the possibility of dispersing the virus from potentially contaminated clothing, do not shake dirty laundry.
  - Wash items as appropriate in accordance with the manufacturer's instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely.
  - Clean and disinfect hampers or other containers used for transporting laundry according to guidance listed above.

10. CLOTH FACE COVERINGS

The CDC recommends the use of cloth face coverings in public settings where other social distancing measures are difficult to maintain, such as grocery stores and pharmacies, and especially in areas of significant community-based transmission. This recommendation is based on recent studies and an understanding that a significant portion of asymptomatic, as well as pre-symptomatic, individuals can shed the virus to others before showing symptoms. Studies indicate that COVID-19 can spread among people interacting in close proximity through speaking, coughing, or sneezing. The purpose of the cloth covering is NOT to provide protection to the wearer, but to protect the wearer from unknowingly infecting others if they are asymptomatic/pre-symptomatic. The use of cloth face coverings is to supplement and NOT replace the existing practices outlined above.

Based on existing studies and on-going recommendations and/or requirements from federal, state, and local entities, Roux is recommending the use of cloth face coverings, when appropriate. Appropriate use is defined when local authorities or clients require the use of cloth face coverings in conjunction with established social distancing, or if an employee elects to use a cloth covering on their own accord. Roux will provide cloth face coverings that shall meet the basic requirements outlined by the CDC guidance.

Cloth Face Coverings should:

- Fit snugly but comfortably against the side of the face;
- Covers your nose and mouth and secure it under your chin;
- Include multiple layers of fabric;
- Allow for breathing without restriction; and
- Be able to be laundered and machine dried with no damage or change to shape.

When donning and doffing the cloth face covering, individuals should avoid touching their eyes, nose, and mouth. Following removal of the cloth face covering, employees should wash their hands immediately using the guidelines described in Section 8 above. Cloth face coverings should be routinely washed depending on the frequency of use.

The CDC does not recommend the use of gaiters or face shields. Evaluation of these face covers is on-going but effectiveness is unknown at this time. Masks with exhalation valves or vents should NOT be worn to help prevent the person wearing the mask from spreading COVID-19 to others (source control).

Note, the cloth face coverings recommended are not surgical masks or N-95 respirators. Those are critical supplies that must continue to be reserved for healthcare workers and other medical first responders, as recommended by current CDC guidance. Should there be a requirement for workers to be in respiratory protection (e.g., full-face respirator w/cartridges, P100, N95 respirators), it shall be addressed during the project pre-planning phase, which includes discussions with the PP and OM in consultation with CHSM.

11. HOTEL SELECTION PROCESS AND OVERNIGHT/REMOTE WORK

Hotel Selection

Due to the current COVID-19 situation, Roux is recommending overnight travel be limited to the extent possible. If there is a project requiring the overnight stay at a hotel, accommodations shall be made only after the hotel and hotel's location have been vetted in accordance with Roux's established guidance as defined below. The Project Team, which includes the Project Manager (PM) and PP along with the OM, in consultation with the CHSM, shall verify the hotel has appropriate protocols in place to limit the potential exposure and spread of COVID- 19 through proper cleaning and disinfection practices. Discussions with the hotel shall include, but are not limited to, measures taken to keep guests safe during their stay, guest room sanitization schedule, training of staff regarding disinfecting protocols using EPA-approved disinfectants, hotel staff fitness for duty requirements, etc. Some example questions are listed below. Following the initial hotel assessment by the Project Team, the OM and the CHSM shall review the hotel assessment findings prior to the CHSM's authorization that the hotel may be used by any Roux employees.

Sample Questions for Evaluating Hotels

1. Is there an established COVID-19 guidance/policy your location is following?
2. What additional measures are being implemented to keep workers and customers safe?; (e.g. signs/placards, social-distancing/mask reminders)
3. Is there a guest room sanitization schedule?
4. Have staff been trained on properly cleaning/disinfecting areas?
5. What types of disinfectants are in use at your location?
6. How are you evaluating staff fitness for duty? (e.g., temperature checks, not reporting to work when sick, etc.)

Employees staying overnight should abide by the following guidance:

- Ensure you properly disinfect your room upon arrival. This should include a wipe down of all commonly touched surfaces with an approved disinfectant. Use appropriate PPE (e.g., nitrile gloves) when disinfecting surfaces.
- Place the "Do Not Disturb" placard on the room while away and consider limiting hotel housekeeping service to the extent feasible (e.g., not having the room cleaned each day) to minimize potential secondary contact with others.
- Do not spend any more time in hotel common areas (i.e., lobby, hallways, etc.) than is necessary.
- Follow proper Infection Prevention Measures found within Section 8 above.
- Have meals in your hotel room after disinfecting outer package surfaces, as outlined in Section 8 above. Do not eat in public spaces or restaurants.
- If the hotel has a restaurant or café, do not have your meal in a common area; instead order food to be picked up or delivered to your room. If delivered, opt for contactless delivery (left outside the door, delivery person knocks and leaves). Always use your own pen if you need to sign something.
- Employees may also pick up food from takeout locations, order groceries or food for delivery to the hotel. Call local restaurants to order food for delivery (call the hotel lobby for recommendations) or use food ordering apps. Some apps have options for contactless delivery.

12. TRANSPORTATION-RENTAL CARS AND ROUX-OWNED VEHICLES

Rental Cars

Due to the current COVID-19 situation, Roux recommends rental car usage be limited to the extent possible. If there is a project requiring the use of a rental car (e.g. truck/van), accommodations shall be made only after the rental car company and their store's location have been vetted in accordance with Roux's established guidance, as defined below. The Project Team (PM and PP) and OM in consultation with the CHSM shall verify the rental company where you are picking up your vehicle has appropriate protocols in place to limit the potential exposure and spread of COVID- 19 through proper cleaning and disinfection practices. Discussions with the rental car company shall include, but are not limited to, measures to be taken to keep customers safe during pickup/drop-off, rental car disinfection protocols, training of staff regarding disinfecting protocols using EPA-approved disinfectants, rental car company staff fitness for duty requirements, etc. Some example questions are listed below. Following the initial rental car company store assessment by the Project Team, the OM and the CHSM shall review the rental car company assessment findings prior to the CHSM's authorization that the rental car company store may be used by any Roux employees.

Sample Questions for Evaluating Rental Car Companies

1. Is there an established COVID-19 guidance your location is following?
2. What additional measures are being implemented to keep workers and customers safe?
3. Is there a car sanitization schedule?

4. Have staff been trained on properly cleaning/disinfecting vehicles?
5. What types of disinfections are in use at your location?
6. How are you evaluating staff fitness for duty? (e.g., temperature checks, not reporting to work when sick, etc.)

Upon vehicle pickup, employees shall don nitrile gloves and safety glasses and clean/disinfect all high-touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (following manufacturer's instructions). Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. Due to social distancing requirements, personnel shall not carpool to destinations.

Roux-Owned Vehicles

Due to the current COVID-19 situation, Roux-owned vehicles should be dedicated to individual employees to the extent feasible, and if authorized by the OM. In the case this cannot be accommodated, employees shall don nitrile gloves and safety glasses, and clean/disinfect all high-touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (following manufacturer's instructions). This cleaning and disinfection shall occur before and after each use of the vehicle. Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. Due to social distancing requirements, personnel shall not carpool to destinations.

APPENDIX A

Roux Subcontractor Work Crew

COVID-19 Daily Health Screening Questionnaire

Subcontractor Work Crew
COVID-19 Daily Health Attestation

Date:
Company Name:
Supervisor Name: Signature:
Project Name:
Site Address:
Number of Workers on site:

Prior to entry onto a field site, the following questions shall be asked by the Subcontractor Supervisor to their work crew.

It is preferred this questionnaire is completed for each individual prior to their arrival at the field site. If the answer to any of these questions is YES, the worker is not to report to the field site and seek proper medical advice, in accordance with CDC Guidelines.

The Subcontractor Supervisor must provide this form on a daily basis to the Roux primary contact for the project and notify Roux of any YES responses.

1. Have you experienced any signs/symptoms of COVID-19 such as fever (≥100.4°F), cough, shortness of breath, chills, fatigue, muscle/body aches, headache, new loss of taste or smell, sore throat, congestion or runny nose, nausea/vomiting or diarrhea in the last 14 days?

2. Have you been in close contact* with someone who is suspected or confirmed to have COVID-19 or who is under investigation for COVID-19 within the last 14 days?

*Close contact is defined as someone who was within 6 feet of an infected person for at least 15 minutes or coming into direct contact with secretions (e.g. sharing utensils, being coughed on) from an infected person.

3. Have you traveled outside of the country, been on a cruise ship and/or traveled to areas within the United States which have state mandated travel restrictions in the last 14 days?

4. Have you tested positive for COVID-19 within the last 14 days?

Please list the crew member's names on site for the day.

1.	9.
2.	10.
3.	11.
4.	12.
5.	13.
6.	14.
7.	15.
8.	16.

APPENDIX B

Job Safety Analysis-Working in Areas Affected by COVID-19

JOB SAFETY ANALYSIS	Ctrl. No. CVD-19	DATE: 04/16/2020	☒ NEW ☐ REVISED	PAGE 1 of 2

JSA TYPE CATEGORY	WORK TYPE	WORK ACTIVITY (Description)
Generic	**Fieldwork**	**Working in Areas Affected by Coronavirus**

DEVELOPMENT TEAM	POSITION / TITLE	REVIEWED BY:	POSITION / TITLE
Kristina DeLuca	Health and Safety Specialist	Brian Hobbs	CHSM

REQUIRED AND / OR RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT

☐ LIFE VEST	☐ GOGGLES	☐ AIR PURIFYING RESPIRATOR	☒ GLOVES – Leather/cut-resistant in field and nitrile as needed
☒ HARD HAT – In field	☐ FACE SHIELD	☐ SUPPLIED RESPIRATOR	
☐ LIFELINE / BODY HARNESS	☐ HEARING PROTECTION	☒ PPE CLOTHING – High visibility vest in field	☐ OTHER
☒ SAFETY GLASSES – In field	☒ SAFETY SHOES – Steel/composite toe in fie		

REQUIRED AND / OR RECOMMENDED EQUIPMENT

Cloth face covering, nitrile gloves, hand soap, water source, hand sanitizer, disinfectant spray and disinfectant wipes.

Commitment to Safety – All personnel onsite will actively participate in SPSA performance by verbalizing SPSAs throughout the day.

SOCIAL DISTANCING: Maintain 6' of distance between yourself and all other people at all times. If you do not believe the scope of work can be conducted while maintaining this distance, contact your Project Manager immediately.

Assess [1]JOB STEPS	Analyze [2]POTENTIAL HAZARDS	Act [3]CRITICAL ACTIONS
1. Project Preplanning	N/A	• Review and follow COVID-19 CDC, Roux, Client and local orders/protocols. • Ensure all workers are fit for duty - anyone feeling sick should remain at home even if symptoms do not align with COVID-19. If a worker has been in contact with someone potentially positive or positive for COVID-19, contact your Office Manager. • Determine PPE needs and ensure adequate supply of disinfectant wipes/spray, soap and water or hand sanitizer at Site. Due to high demands and limited supply, plan ahead. • Use the minimum number of employees necessary to safely complete the work.
2. Mobilization	**Exposure:** Becoming infected or infecting co-workers	**Personal/Rental/Roux Owned Vehicle** • Do not carpool. • Use the same vehicle every day and do not share with co-workers. • Verify workers/other people are not approaching vehicle prior to exiting the vehicle. Maintain 6' of distance from others. • DO not valet your car or allow others to use your car. If necessary, don nitrile gloves and safety glasses and clean/disinfect all high touch surfaces (steering wheel, knobs, door handles, turn signals, radio, etc.) by wiping thoroughly with approved disinfectants (follow manufacturer's instructions). This cleaning and disinfection shall occur before and after each use of the vehicle. Aseptically remove gloves and dispose of them along with rags/wipes, appropriately. Wash hands or use hand sanitizer immediately after each episode of cleaning. **Public Transportation** • Public transit should not be used unless absolutely necessary. Consider renting a car rather than taking public transit. If public transit is required, wear appropriate PPE and apply social distancing (6 ft). Use proper donning and doffing procedures for nitrile gloves. Wash hands or use hand sanitizer immediately after. **Hotel Stay (Refer to COVID-19 H&S Guidance for more info)** • If a hotel stay is deemed necessary for the given field work, ensure that you disinfect your room upon initial arrival and returning each day. Disinfect all surfaces of your room with an appropriate disinfectant using nitrile gloves. Use proper donning and doffing procedures for nitrile gloves. • Place the "Do Not Disturb" placard on the room while away and limit housekeeping services to the extent feasible during your stay to minimize the reintroduction and spread of the virus from others. Minimize, or avoid entirely, time spent in hotel common areas (i.e., the lobby, dining areas, gyms, etc.). Wash hands or use hand sanitizer often.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.
[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards, energy source; Energy Source – electricity, pressure, compression/tension.
[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

3. Tailgate Meeting	**Exposure:** Becoming infected or infecting co-workers	• Must occur outside or remotely (i.e. video or conference call). • Maintain at least a 6+ ft distance between you and others. • Discuss primary infection prevention measures listed below. • Do not require employees or subcontractors to sign in, the Site Supervisor shall record names on the attendance form. • If the Site has more than 10 workers, separate tailgate meetings should be performed. • Discuss COVID-19 symptoms with coworkers and subcontractors to ensure fitness for duty. Anyone exhibiting signs or symptoms should be instructed to leave the Site, contact your Project Manager.
4. Site Activities	**Exposure:** Becoming infected or infecting co-workers	• Coordinate field activities at the beginning of the day (i.e. Tailgate meeting) to minimize time spent in crowded spaces or overlap while completing job tasks. • Don cloth face coverings as appropriate. • Apply social distancing (6+ ft) when interacting with others. If anyone comes within 6 ft of you while conducting work and your work prevents you from moving away, politely ask them to move back. If others are unable to move from your space, stop work and leave area. • Do not shake hands or touch others. • Do not share equipment or other items with co-workers and subcontractors unless wearing appropriate PPE (e.g. nitrile gloves). Assume equipment and other surfaces are potentially contaminated and remove gloves aseptically (See Appendix B of Roux Interim H&S Guidance for proper glove removal). • If anyone is coughing or sneezing in your vicinity, stop work and leave the area. • Do not work in areas with limited ventilation with others. • Cover your mouth and nose with tissue or paper towel or with your elbow when coughing or sneezing and wash hands or use hand sanitizer immediately after. If sick contact SHSO/PM and leave Site immediately. • Disinfect work surfaces/areas with approved disinfectant you're responsible for (ex: desk, office doorknob, computer, etc.) at least once at the beginning of your shift and at least once at the end of your shift with either sanitizing wipes or disinfectant spray. • Phones should be operated hands free to extent feasible. Sanitize your phone on a regular basis. Disinfection should also take place whenever suspected contaminated material comes in contact with any work surfaces/areas. Wash hands or use hand sanitizer immediately after. • Avoid public spaces and going out to eat by bringing your own lunch to the Site. If performing work in high density urban areas, it is recommended all food must be consumed at or in your vehicle. Wash hands or use hand sanitizer before eating and immediately after.

Primary Infection Prevention Measures

- Wash your hands often with soap and water for at least 20 seconds.
  - If soap and water are not available, use an alcohol-based sanitizer that contains at least 60% ethanol or 70% isopropanol. Key times to wash hands include after blowing your nose, coughing or sneezing, after using the restroom, and before eating or preparing food.
- Do not touch your eyes, face, nose and mouth with unwashed hands.
- Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Throw potentially contaminated items (e.g. used tissues) in the trash.
- Avoid close contact/secondary contact with people and potentially contaminated surfaces.
  - Apply appropriate social distance (6+ feet).
  - Stop handshaking/touching others and use caution when accessing public spaces.
- Clean and disinfect frequently touched surfaces daily. Commonly touched items can include but are not limited to tables, doorknobs, light switches, countertops, handles, desks, phones, keyboard, toilets, sinks and field equipment. If surfaces are dirty, they should be cleaned with soap and water prior to disinfection. If surface cannot be cleaned/disinfected, then wash hands or use sanitizer as soon as possible.

[1] Each Job or Operation consists of a set of tasks / steps. Be sure to list all the steps needed to perform job.

[2] A hazard is a potential danger. Break hazards into six types: Contact - victim is struck by or strikes an object; Caught - victim is caught on, caught in or caught between objects; Fall - victim falls to ground or lower level (includes slips and trips); Exertion - excessive strain or stress / ergonomics / lifting techniques; Exposure - inhalation/skin hazards; Energy source – electricity, pressure, compression/tension.

[3] Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the risk. List the recommended safe operating procedures. Say exactly what needs to be done - such as "use two persons to lift". Avoid general statements such as, "be careful".

APPENDIX C

How to Remove Gloves

How to Remove Gloves

To protect yourself, use the following steps to take off gloves

1

Grasp the outside of one glove at the wrist. Do not touch your bare skin.

2

Peel the glove away from your body, pulling it inside out.

3

Hold the glove you just removed in your gloved hand.

4

Peel off the second glove by putting your fingers inside the glove at the top of your wrist.

5

Turn the second glove inside out while pulling it away from your body, leaving the first glove inside the second.

6

Dispose of the gloves safely. Do not reuse the gloves.

7

Clean your hands immediately after removing gloves.

APPENDIX E

Personal Protective Equipment (PPE) Management Program

PERSONAL PROTECTIVE EQUIPMENT MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**01/19**
REVISION NUMBER	**:**	**4**

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1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has instituted the following program to establish guidelines for the selection of personal protective equipment (PPE) for use by Roux personnel performing field activities in hazardous environments. PPE is not meant to be a substitute for engineering, work practice, and/or administrative controls, but PPE should be used in conjunction with these controls to protect the employees in the work place. Clothing, body coverings, and other accessories designed to prevent worker exposure to workplace hazards are all types of PPE. To ensure adequate PPE employee-owned PPE is evaluated on a case-by-case basis to insure its adequacy, maintenance and sanitation.

2. SCOPE AND APPLICABILITY

These guidelines apply to all PPE selection decisions to be made in implementing the Roux program. The foundations for this program are the numerous Occupational Health and Safety Administration (OSHA) standards related to PPE cited in 29 CFR 1910 Subpart I, 29 CFR 1926 Subpart E, and the hazardous environment work employee protection requirements under the OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) standard at 29 CFR 1910.120 and 1926.65. To ensure hazard assessments are documented the levels of protection, types of protection and tasks requiring protection are covered in site-specific Health and Safety Plans (HASPs) and Job Safety Analyses (JSAs).

3. PROCEDURES

Due to the varied nature of site activities and the different potential hazards associated with different sites, several aspects must be considered when selecting PPE. The following text describes PPE selection logic and provides guidelines and requirements for the appropriate selection and use of PPE.

3.1 Introduction

To harm the body, chemicals must first gain entrance. The intact skin and the respiratory tract are usually the first body tissues attacked by chemical contaminants. These tissues provide barriers to some chemicals but in many cases, are damaged themselves or are highly permeable by certain chemical compounds. Personal protective equipment therefore is used to minimize or eliminate chemical compounds coming into contact with these first barrier tissues.

The proper selection of equipment is important in preventing exposures. The PM making the selection will have to take several factors into consideration. The level of protection, type and kind of equipment selected depends on the hazardous conditions and in some cases cost, availability, compatibility with other equipment, and performance. An accurate assessment of all these factors must be made before work can be safely carried out.

3.2 Types of PPE

The type and selection of PPE must meet certain general criteria and requirements as required under OSHA 29 CFR 1910.132 and 1926.95. In addition to these general requirements, specific requirements and specifications exist for some types of PPE that form the basis of the protective clothing scheme. Following is a list of the common types of specific PPE and the specific requirements for the PPE type, where applicable:

1. Hard Hats - Regulated by 29 CFR 1910.135 and 1926.100; and, specified in ANSI Z89.1.

2. Face Shields and Safety Glasses - Regulated by 29 CFR 1910.133 and 1926.102; and, specified in ANSI Z87.1.
3. Respiratory Protection - Regulated by 29 CFR 1910.134 and 1926.103.
4. Hand Protection - Not specifically regulated.
5. Foot Protection - Regulated by 29 CFR 1910.136 and 1926.96; and, specified in ANSI Z41.1.
6. Protective Clothing (e.g., fully encapsulated suits, aprons) - Not specifically regulated.

3.3 Protective Clothing Selection Criteria

3.3.1 Chemicals Present

The most important factor in selecting PPE is the determination of what chemicals the employee may be exposed to. On field investigations, the number of chemicals may range from a few to several hundred. The exact chemicals or group of chemicals present at the site (certain groups tend to require similar protection) can be determined by collecting and analyzing samples of the air, soil, water, or other site media. When data are lacking, research into the materials used or stored at the site can be used to infer chemicals possibly on the site.

Once the known or suspected chemicals have been identified, and taking into consideration the type of work to be performed, the most appropriate clothing shall be selected.

Protective garments are made of several different substances for protection against specific chemicals. There is no universal protective material. All will decompose, be permeated by, or otherwise fail to protect under given circumstances. Fortunately, most manufacturers make guides to the use of their products (i.e., Dupont's Tyvek™ Permeation Guide). These guides are usually for gloves and coveralls and typically provide information regarding chemical degradation rates (failure of the material to maintain structural integrity when in contact with the chemical), and may provide information on the permeation rate (whether or not the material allows the chemical to pass through). When permeation tables are available, they shall be used in conjunction with degradation tables to determine the most appropriate protective material.

During most site work, chemicals are usually in mixed combinations and the protective materials are not in continuous contact with pure chemicals for long periods of time; therefore, the selected material may be adequate for the particular chemical and type of work being performed, yet not the "best" protecting material for all site chemicals and activities. Selection shall depend upon the most hazardous chemicals based on their hazards and concentrations. Sometimes layering, using several different layers of protective materials, affords the best protection.

3.3.2 Concentration of the Chemical(s)

One of the major criteria for selecting protective material is the concentration of the chemical(s) in air, liquid, and/or solid state. Airborne and liquid chemical concentrations should be compared to the OSHA standards and/or American Conference of Governmental Industrial Hygienists (ACGIH) and National Institute for Occupational Safety and Health (NIOSH) guidelines to determine the level of skin or other absorptive surface (e.g., eyes) protection needed. While these standards are not designed specifically for skin exposed directly to the liquid, they may provide skin designations indicative of chemicals known to have significant skin or dermal absorption effects. For example, airborne levels of PCB on-site may be

low because it is not very volatile, so the inhalation hazard may be minimal; however, PCB-containing liquid coming in direct contact with the skin may cause overexposure. Thus, PCB has been assigned a skin designation in both the OSHA and ACGIH exposure limit tables.

3.3.3 Physical State

The characteristics of a chemical may range from nontoxic to extremely toxic depending on its physical state. Inorganic lead in soil would not be considered toxic to site personnel, unless it became airborne, since it is generally not absorbed through the intact skin. Organic lead in a liquid could be readily absorbed. Soil is frequently contaminated with hazardous materials. Concentrations will vary from a few parts per million to nearly one hundred percent. The degree of hazard is dependent on the type of soil and concentration of the chemical. Generally speaking, "dry" soils do not cause a hazard to site personnel if they take minimal precautions such as wearing some type of lightweight gloves.

3.3.4 Length of Exposure

The length of time a material is exposed to a chemical increases the probability of breakthrough. Determinations of actual breakthrough times for short-term exposures indicate that several different materials can be used which would be considered inadequate under long-term exposures. It should be kept in mind that during testing, a pure (100% composition) liquid is usually placed in direct contact with the material producing a worst-case situation.

3.3.5 Abrasion

When selecting protective clothing, the job the employee is engaged in must be taken into consideration. Persons moving drums or performing other manual tasks may require added protection for their hands, lower chest and thighs. The use of leather gloves and a heavy apron over the other normal protective clothing will help prevent damage to the normal PPE and thus reduce worker exposures.

3.3.6 Dexterity

Although protection from skin and inhalation hazards is the primary concern when selecting PPE, the ability to perform the assigned task must be maintained. For example, personnel cannot be expected to perform work that requires fine dexterity if they must wear a thick glove. Therefore, the PPE selection process must consider the task being performed and provide PPE alternatives or techniques that allow dexterity to be maintained while still protecting the worker (e.g., wearing tight latex gloves over more bulky hand protection to increase dexterity).

3.3.7 Ability to Decontaminate

If disposable clothing cannot be used, the ability to decontaminate the materials selected must be taken into consideration. Once a chemical contacts the material, it must be cleaned before it can be reused. If the chemical has completely permeated the material, it is unlikely that the clothing can be adequately decontaminated and the material should be discarded.

3.3.8 Climactic Conditions

The human body works best with few restraints from clothing. Protective clothing adds a burden by adding weight and restricting movement as well as preventing the natural cooling process. In severe situations, a modified work program must be used.

Some materials act differently when they are very hot and very cold. For example, PVC becomes almost brittle in very cold temperatures. If there are any questions about the stability of the protective materials under different conditions, the manufacturer should be contacted.

3.3.9 Work Load

Like climactic conditions, the type of work activity may affect work duration and the ability or personnel to perform certain tasks. Similarly, the amount of protective materials a person wears will affect their ability to perform certain tasks. For example, a person in a total encapsulating suit, even at 72 ^{o}F, cannot work for more than a short period of time without requiring a break.

The work schedule should be adjusted to maintain the health of the employees. Special consideration should be given to the selection of clothing that both protects and adds the least burden when personnel are required to perform strenuous tasks. Excessive bodily stress frequently represents the most significant hazard encountered during field work.

3.4 Types of Protective Materials

1. Cellulose or Paper
2. Natural and Synthetic Fibers
    a. Tyvek™
    b. Nomex™
3. Elastomers
    a. Polyethylene
    b. Saran
    c. Polyvinyl Chloride (PVC)
    d. Neoprene
    e. Butyl Rubber
    f. Viton

3.5 Protection Levels

3.5.1 Level A Protection

Level A protection (a fully encapsulated suit) is used when skin hazards exist or when there is no known data that positively rule out skin and other absorption hazards. Since Level A protection is extremely physiologically and psychologically stressful, the decision to use this protection must be carefully considered. At no time will Level A work be performed without the consent of the OM. The following conditions suggest a need for Level A protection:

- confined facilities where probability of skin contact is high;
- sites containing known skin hazards;
- sites with no established history to rule out skin and other absorption hazards;
- atmosphere immediately dangerous to life and health (IDLH) through the skin absorption route;
- site exhibiting signs of acute mammalian toxicity (e.g., dead animals, illnesses associated with past entry into site by humans);

- sites at which sealed drums of unknown materials must be opened;
- total atmospheric readings on the Photoionization Detector (PID), Flame Ionization Detector (FID), and similar instruments indicate 500 to 1,000 ppm of unidentified substances; and
- extremely hazardous substances (e.g., cyanide compounds, concentrated pesticides, Department of Transportation Poison "A" materials, suspected carcinogens and infectious substances) are known or suspected to be present and skin contact is possible.

The following items constitute Level A protection:

- open circuit, pressure-demand self-contained breathing apparatus (SCBA);
- totally encapsulated suit;
- gloves, inner (surgical type);
- gloves, outer;
- chemical protective;
- boots, chemical protective, steel toe and shank;
- radiation detector (if applicable); and
- communications.

3.5.2 Level B Protection

Level B protection is utilized when the highest level of respiratory protection is needed but hazardous material exposure to the few unprotected areas of the body is unlikely.

The following conditions suggest a need for Level B protection:

- the type and atmospheric concentration of toxic substances have been identified and they require the highest level of respiratory protection;
- IDLH atmospheres where the substance or concentration in the air does not present a severe skin hazard;
- the type and concentrations of toxic substances do not meet the selection criteria permitting the use of air purifying respirators; and
- it is highly unlikely that the work being done will generate high concentrations of vapors, gases or particulates, or splashes of materials that will affect the skin of personnel.

Personal protective equipment for Level B includes:

- open circuit, pressure-demand SCBA;
- chemical protective clothing:
- overalls and long-sleeve jacket; or
- coveralls;
- gloves, inner (surgical type); gloves, outer, chemical protective;
- boots, chemical protective, steel toe and shank; and
- communications optional.

3.5.3 Level C Protection

Level C protection is utilized when both skin and respiratory hazards are well defined and the criteria for the use of negative pressure respirators have been fulfilled (i.e., known contaminants and contaminant concentrations, acceptable oxygen levels, approved filter/cartridge available, known cartridge service life, etc.). Level C protection may require carrying an emergency escape respirator during certain initial entry and site reconnaissance situations, or when applicable thereafter.

Personal protective equipment for Level C typically includes:

- full facepiece air-purifying respirator;
- emergency escape respirator (optional);
- chemical protective clothing:
  - overalls and long-sleeved jacket; or
  - coveralls;
- gloves, inner (surgical type);
- gloves, outer, chemical protective; and
- boots, chemical protective, steel toe and shank.

3.5.4 Level D Protection

Level D is the basic work uniform. Personal protective equipment for Level D includes:

- coveralls;
- safety boots/shoes;
- eye protection;
- hand protection;
- reflective traffic safety vest (mandatory for traffic areas or railyard);
- hard hat (with face shield is optional); and
- emergency escape respirator is optional.

3.5.5 Level E Protection

Level E protection is used when radioactivity above 10 mr/hr is detected at the site. Personal protective equipment for Level E includes:

- coveralls;
- air purifying respirator;
- time limits on exposure;
- appropriate dermal protection for the type of radiation present; and
- radiation dosage monitoring.

3.5.6 Additional Considerations

Field work will contain a variety of situations due to chemicals in various concentrations and combinations. These situations may be partially ameliorated by following the work practices listed below:

1. Some sort of foot protection is needed on a site. If the ground to be worked on is contaminated with liquid and it is necessary to walk in the chemicals, some sort of protective "booties" can be worn over the boots. This cuts down on decontamination requirements. They are designed with soles to help prevent them from slipping around. If non-liquids are to be encountered, a Tyvek™ bootie could be used. If the ground contains any sharp objects, the advantage of booties is questionable. Boots should be worn with either cotton or wool socks to help absorb the perspiration.

2. If the site situation requires the use of hard hats, chin straps should be used if a person will be stooping over where his/her hat may fall off. Respirator straps should not be placed over the hard hats. This will affect the fit of the respirator.

   Some types of protective materials conduct heat and cold readily. In cold conditions, natural material clothing should be worn under the protective clothing. Protective clothing should be removed prior to allowing a person "to get warm". Applying heat, such as a space heater, to the outside of the protective clothing may drive the contaminants through. In hot weather, under clothing will absorb sweat. It is recommended that workers use all cotton undergarments.

3. Body protection should be worn and taped to prevent anything from running into the top of the boot. Gloves should be worn and taped to prevent substances from entering the top of the glove. Duct tape is preferred, but masking tape can be used. When aprons are used, they should be taped across the back for added protection. However, this should be done in such a way that the person has mobility.

4. Atmospheric conditions such as precipitation, temperature, wind direction, wind velocity, and pressure determine the behavior of contaminants in air or the potential for volatile material getting into the air. These parameters should be considered in determining the need for and the level of protection.

5. A program must be established for periodic monitoring of the air during site operations. Without an air monitoring program, any changes would go undetected and might jeopardize response personnel. Monitoring can be done with various types of air pumps and filtering devices followed by analysis of the filtration media; personnel dosimeters; and periodic walk-throughs by personnel carrying real-time survey instruments.

6. For operations in the exclusion zone, different levels of protection may be selected, and various types of chemical-resistant clothing may be worn. This selection should be based on the job function, reason for being in the area, and the potential for skin contact with, or inhalation of, the chemicals present.

7. Escape masks must be readily available when levels of respiratory protection do not include a SCBA and the possibility of an IDLH atmosphere exists. Their use can be made on a case-by-case basis. Escape masks could be strategically located at the site in areas that have higher possibilities of vapors, gases or particulates.

APPENDIX F

Subsurface Utility Clearance Management Program

SUBSURFACE UTILITY CLEARANCE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	**:**	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	**:**	**01/19**
REVISION NUMBER	**:**	**2**

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APPENDICES

1. PURPOSE

Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") has instituted the following program for completing proper utility mark-outs and for conducting subsurface clearance activities. This establishes a method to ensure, to the greatest extent possible, that utilities have been identified and contact and/or damage to underground utilities and other subsurface structures will be avoided.

2. SCOPE AND APPLICABILITY

The Subsurface Utility Clearance Management Program applies to all Roux employees, its contractors and subcontractors. Employees are expected to follow this program for all intrusive work involving Roux or other personnel (e.g., contractors/subcontractors) working for Roux unless the client's requirements are more stringent. Deviation from the program regardless of the specific work activity or work location must be pre-approved based on client's site knowledge, site experience and client's willingness for the use of this program. Any and all exceptions shall be documented and pre-approved by the Project Principal and the Office Manager.

3. PROCEDURES

3.1 Before Intrusive Activities

During the project kick-off meeting for intrusive activities the PM will review the Roux Subsurface Utility Clearance Checklist and Utility Verification (Appendix C) / Site Walkthrough Record (Appendix D) and the below bullet points with the project field team:

(Please note that these are intended as general reminders only and should not be solely relied upon.)

- Ensure the Mark-out / Stake-out Request Information Sheet (or one-call report) is complete and accurate for the site including address and cross streets and review for missing utilities. (Note: utility mark-out organizations do not have contracts with all utilities and it is often necessary to contact certain utilities separately such as the local water and sewer authorities).
- Have written confirmation prior to mobilizing to the site that the firm or Roux personnel performing the intrusive activity has correctly completed the mark-out notification process including requesting mark-outs, waiting for mark-outs to be applied to ground surfaces at the site, and receiving written confirmation of findings (via fax or email) from utility operators for all known or suspected utilities in the proposed area of intrusive activity, and provided utility owner written confirmation to Roux personnel for review and project files documentation.
- Do not begin any intrusive activity until all utilities mark-out has been completed (i.e., did all utilities mark-out the site?) and any unresolved mark-out issues are finalized. Perform a site walk to review the existing utilities and determine if said utilities have been located by the utility locators.

  (Note: The Tolerance Zone is defined as two feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks and other non-cylindrical utilities) of a utility and two feet from the outside edge of any subsurface structure.)
- Install Pre-Clearance exploratory test holes (e.g., hand-dug test holes or other soft digging techniques) for the first 5-ft below land surface (BLS) at each location prior to conducting mechanized intrusive activities. The size of the pre-clearance exploratory test hole should be at a minimum twice the diameter of any downhole tool or boring device. (Note: Pre-Clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for PM and PP to evaluate alternative approaches for the project. Alternative approaches will need to be pre-approved by the OM.

- For excavations, all utilities need to be marked and then exposed by hand following the protocols in this program. Pre-clearing for excavations may be performed by the "moat" technique (i.e., soft digging around the perimeter). In these cases, dig in small lifts (<12" for first 5 feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes performed to expose the utility. Once structures have been verified a minimum clearance of two feet must be maintained between the utility and any powered equipment.
- In addition, the following activities should be conducted:
  - Review the work scope to be performed with the site owner/tenant to determine if it may impact any utilities;
  - Attempt to procure any utility maps or historic drawings of subsurface conditions of the site;
  - **Determine the need for utility owner companies to be contacted or to have their representatives on site**;
  - Where mark-outs terminate at the property boundary, consider the use of private utility locating / GPR / geophysical-type services which may be helpful in locating utilities. Use of private utility locating firms, however, does not eliminate the legal requirement for the Excavator firm to submit a request for Public Utility Mark-outs. Also, the information provided by the service may be inaccurate and unable to locate subsurface utilities and structures in urban areas, landfills, urban fill areas and below reinforced slabs, etc. They should not be relied upon as the only means of performing utility clearance;
  - Documented description of the dig site which is included in the projects Health and Safety Plan (HASP) and one call report will be maintained in the field and distributed amongst Roux personnel its contractors and subcontractors; and
  - Documentation of the actual placement of mark outs in the field shall be collected using dated pictures, videos and/or sketches with distance from markings to fixed objects. All documentation shall be maintained within the project file.

3.2 During Intrusive Activities

The PM, field team lead or personnel performing oversight is to:

- Ensure the mark-out remains valid. (In certain states there are limits regarding the duration of time after the mark-out was applied to the ground surface work can be started or interrupted.) Additionally, the mark-outs must be maintained, documented, and in many cases refreshed periodically to be considered valid, this will be accomplished through calls to the one call center.
- Ensure intrusive activities are only performed within the safe boundaries of the mark-out as detailed in the One-Call Report.
- Halt all work if intrusive activities have resulted in discovery of an unmarked utility. Roux personnel shall notify the facility owner/operator and the one call center. All incidents such as this will be reported as per Roux Incident Investigation and Reporting Management Program.
- Halt all work if intrusive activities must take place outside of the safe boundaries of a mark-out and only proceed after new mark-outs are performed.
- Halt the intrusive activities and immediately consult with the PP if an unmarked utility is encountered.
- Completing any subsurface utility clearance incident reports that are necessary.

- If a utility cannot be found as marked Roux personnel shall notify the facility owner/operator directly or through the one call center. Following notification, the excavation may continue, unless otherwise specified in state law.
- Contractors/subcontractors must contact the one-call center to refresh the ticket when the excavation continues past the life of the ticket. Ticket life shall be dictated by state law however at a maximum ticket life shall not exceed 20 working days.

3.3 Stop Work Authority

Each Roux employee has Stop Work Authority which he or she will execute upon determination of any imminent safety hazard, emergency situation, or other potentially dangerous situation, such as hazardous weather conditions. This Stop Work Authority includes subsurface clearance issues such as the adequacy of a mark-out or identification during intrusive operations of an unexpected underground utility. Authorization to proceed with work will be issued by the PM/PP after such action is reviewed and resolved. The PM will initiate and execute all management notifications and contact with emergency facilities and personnel when this action is appropriate.

Appendix A - Definitions

Intrusive Work Activities	All activities such as digging or scraping the surface, including but not limited to, excavation, test pitting or trenching, soil vapor sampling or the installation of soil borings, soil vapor monitoring points and wells, or monitoring wells, and drilling within the basement slab of a recently demolished building.
Mark-out / Stake Out	The process of contracting with a competent and qualified company to confirm the presence or absence of underground utilities and structures. This process will clearly mark-out and delineate utilities that are identified so that intrusive work activities can be performed without causing disturbance or damage to the subsurface utilities and structures. After utility mark-outs are completed the soft digging will be completed prior to intrusive work.
Tolerance Zone	Defined as two feet on either side of the designated centerline of an identified utility, plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct backs and other non-cylindrical utilities) of that utility and two feet from the outside edge of any subsurface structure.
Structure	For the purpose of this program a structure is defined as any underground feature that may a present potential source(s) of energy such as, but not limited to, utility vaults, bunkers, piping, electrical boxes, wires, conduits, culverts, utility lines, underground tanks and ducts.
Soft Digging	The safest way to remove material from unknown obstructions or services is by using tools such as a vactor or air knife, non-mechanical tools, or hand tools. The methods are clean and non-evasive and used for uncovering and exposing buried services, excavating and for providing a quick method of soil removal from sensitive areas.
Verification	Exploratory test-hole dug with hand tools within the Tolerance Zone to expose and verify the location, type, size, direction-of-run and depth of a utility or subsurface structure. Vacuum excavation (soft dig) methods can further facilitate exposure of a subsurface utility and accurately provide its location and identification prior to intrusive work approaching the Tolerance Zone.

Appendix B - Example of Completed One Call Report

Example Completed One-Call Report

New York 811

Send To: C_EMAIL Seq No: 744

Ticket No: 133451007 ROUTINE

Start Date: 12/16/13 Time: 7:00 AM Lead Time: 20

State: NY County: QUEENS Place: QUEENS
Dig Street: 46TH AVE Address:
Nearest Intersecting Street: VERNON BLVD
Second Intersecting Street: 11TH ST

Type of Work: SOIL BORINGS
Type of Equipment: GEOPROBE
Work Being Done For: ROUX

In Street: X On Sidewalk: X Private Property: Other:
On Property Location if Private: Front: Rear: Side:

Location of Work: MARK THE ENTIRE NORTH SIDE OF THE STREET AND SIDEWALK OF: 46TH AVE BETWEEN VERNON BLVD AND 11TH STREET

Remarks:

Nad: Lat: Lon: Zone:
ExCoord NW Lat: 40.7475399 Lon: -73.9534811 SE Lat: 40.7457406 Lon: -73.9493680

Company : ZEBRA ENVIROMENTAL Best Time: 6AM-5PM
Contact Name: DAVID VINES Phone: (516)596-6300
Field Contact: DAVID VINES Phone: (516)596-6300
Caller Address: 30 N PROSPECT AVE Fax Phone: (516)596-4422
LYNBROOK, NY 11563
Email Address: david@zebraenv.com

Additional Operators Notified:
ATTNY01 AT&T CORPORATION (903)753-3145
CEQ CONSOLIDATED EDISON CO. OF N.Y (800)778-9140
MCINY01 MCI (800)289-3427
PANYNJ01 PORT AUTHORITY OF NY & NJ (201)595-4841
VZQ VERIZON COMMUNICATIONS (516)297-1602

Link to Map for C_EMAIL: http://ny.itic.occinc.com/XGMZ-DF2-L23-YAY

Original Call Date: 12/11/13 Time: 1:15 PM Op: webusr
IMPORTANT NOTE: YOU MUST CONTACT ANY OTHER UTILITIES DIRECTLY

Appendix C - Roux Subsurface Utility Clearance Checklist

Roux Subsurface Utility Clearance Checklist ***Date of Revision – 12/3/14***

Work site set-up and work execution

ACTIVITY	Yes	No	N/A	COMMENTS INCLUDING JUSTIFICATION IF RESPONSE IS NO OR NOT APPLICABLE
Daily site safety meeting conducted, SPSAs performed, JSAs reviewed, appropriate work permits obtained.				
HASP is available and reviewed by site workers / visitors.				
Subsurface Utility Clearance Procedure has been reviewed with all site workers.				
Work area secured; traffic control established as needed. Emergency shut-off switch located. Fire extinguishers / other safety equipment available as needed.				
Utility mark-outs (public / private) clear and visible. Provide Excavator's Stake-Out Reference Number / Request Date / Time.				
Tolerance zone work identified.				
Work execution plan reviewed and adhered to (ground disturbance methods, clearance depths, any special utility protection requirements, or any other execution requirements; especially for Tolerance Zone work).				
Verbal endorsement received from Roux PM for any required field deviations to work execution plan.				

Key reminders for execution:

The Subsurface Utility Clearance Protocol should be referenced to determine all requirements while executing subsurface work. The bullet points below are intended as general reminders only and should not be solely relied upon.

- Tolerance zone is defined as two feet plus half of the diameter or half of the greatest dimension (for elliptical sewers, duct banks and other non-cylindrical utilities) of a utility and two feet from the outside of any subsurface structure.
- Install Pre-Clearance exploratory test holes (e.g., hand-dug test holes or vacuum excavation) must be performed for the first five feet below land surface (BLS) at each location prior to conducting mechanized intrusive activities. The size of the pre-clearance exploratory test hole should be at a minimum twice the diameter of any downhole tool or boring device. (Note: Pre-clearance exploratory test holes should be defined in the SOW/proposal provided to the client to prevent project delays and to allow adequate time for PM and PP to evaluate alternative approaches for the project. Alternate approaches will need to be pre-approved by the OM.
- For excavations, all utilities need to be marked and then exposed by hand following the protocols in this program. Pre-clearing for excavations may be performed by the "moat" technique (i.e., soft

digging around the perimeter). In these cases, dig in small lifts (<12" for first five feet) using a dedicated spotter.) For Tolerance Zone work, unless otherwise agreed upon with the Utility Operator, work within the tolerance zone requires verification by means of hand-dug test holes to expose the utility. Once structures have been verified a minimum clearance of two feet must be maintained between the utility and any powered equipment.

Appendix D - Utility Verification/Site Walkthrough Record

Employee Name: _____

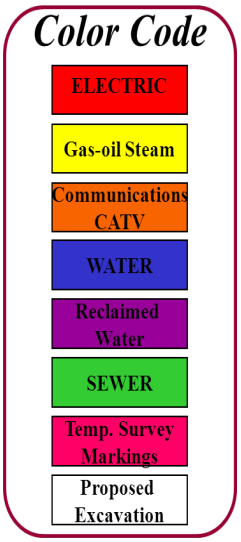
Date: _____

Instructions: For each utility suspected at the job site, indicate location on the job site, approximate burial depth, and means of detecting the utility. Leave blank if that utility is not believed to be present.

Utility	Description of Utility Location Identified Onsite	Approx. Depth (bls)	Method / Instrumentation used to determine Utility Location	Utility Owner Response (Date/Time)	Mark Out Indicates (Clear / Conflict)
Electrical Lines					
Gas Lines					
Pipelines					
Steam Lines					
Water Lines					
Sanitary and Stormwater Sewer lines					
Pressured Air-Lines					
Tank Vent Lines					
Fiber Optic Lines					
Underground Storage Tanks					
Phone Lines/ Other					

* bls - below land surface

Site Sketch Showing Utilities:



Other Comments / Findings:

Completed by: _____

Signature: _____ Date: _____

APPENDIX G

Heavy Equipment Exclusion Zone Policy

HEAVY EQUIPMENT EXCLUSION ZONE MANAGEMENT PROGRAM

CORPORATE HEALTH AND SAFETY MANAGER	:	**Brian Hobbs, CIH, CSP**
EFFECTIVE DATE	:	**01/2019**
REVISION NUMBER	:	**1**

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1. PURPOSE

The purpose of the Exclusion Zone Management Program is to establish the minimum clearance distance that must be maintained between workers and heavy equipment while equipment is in operation (i.e., engaged or moving). The intent is to have no personnel or equipment entering the Exclusion Zone while the equipment is in operation or moving to ensure that Roux and Subcontractor employees are not unnecessarily exposed to the hazards of the equipment.

2. SCOPE AND APPLICABILITY

This Management Program applies to all Roux Associates, Inc. and its affiliated companies, Roux Environmental Engineering and Geology, D.P.C, and Remedial Engineering (collectively, "Roux") employees and their subcontractors who are performing field work and are potentially exposed to heavy equipment. For the purpose of this program, heavy equipment includes, but is not necessarily limited to: excavation equipment, drill rigs, vacuum trucks, forklifts, lull telehandlers, man lifts, bobcats, delivery trucks, etc.

3. PROCEDURES

As specified in the following sections of this Program, an Exclusion Zones must be established and maintained during activities involving the movement/operation of heavy equipment. The Exclusion Zone requirements apply to all personnel on the site but are primarily focused on those personnel who are required to be working in the vicinity of the equipment. The exclusion zone is in effect when heavy equipment is moving or engaged (ex. movement of an arm or bucket of an excavator, rotation of an auger, lifting of a load with a forklift, raising/lowering of a man lift, etc.).

1. The Exclusion Zone must meet the following minimum requirements:
   - A minimum distance of 10 feet from all heavy equipment and loads being moved by the equipment;
   - Greater than the swing/reach radius of any moving part on the heavy equipment (i.e., for large equipment this may mean an exclusion zone distance larger than 20 feet);
   - Greater than the tip-over distance of the heavy equipment; and
   - Greater than the radius of blind spots.

   The size of the Exclusion Zone will need to be determined on a task-specific basis considering the size of the heavy equipment in use and the task being performed. Prior to all heavy equipment operations, the Exclusion Zone(s) distance must be specifically identified in the Job Safety Analysis (JSA).
2. The spotter (or another individual) should be assigned responsibility for enforcing the Exclusion Zone. The spotter should be positioned immediately outside of the Exclusion Zone within a clear line of sight of the equipment operator. The spotter must signal the operator to stop work if anyone or anything has the potential to enter or compromise the Exclusion Zone. The operator should stop work if the spotter is not within his/her line of sight. If multiple pieces of equipment are being used, each piece of equipment must have its own Exclusion Zone and spotter. For large excavation and demolition projects the spotter should be in constant radio contact (not cell phone) with the machine driver.
3. If an individual must enter the Exclusion Zone, the designated Spotter must signal the Equipment Operator to stop the equipment. Once the equipment is no longer moving (ex. movement of an arm of an excavator is STOPPED, lifting of a load with a forklift STOPPED, raising/lowering of a man lift is

STOPPED, etc.), the operator must DISENGAGE THE CONTROLS and STOP and SIGNAL BY "SHOWING HIS HANDS". This signal will indicate that it is safe for the personnel to enter the limits of the Exclusion Zone to perform the required activity. The equipment must remain completely stopped/disengaged until all personnel have exited the limits of the Exclusion Zone and the designated Spotter has signaled by "SHOWING HIS HANDS" to the Equipment Operator that it is safe to resume operations.

4. When entering the limits of the Exclusion Zone, personnel must at a minimum:
   - Establish eye contact with the operator and approach the heavy equipment in a manner that is in direct line of sight to the Equipment Operator;
   - Never walk under any suspended loads or raised booms/arms of the heavy equipment; and
   - Identify a travel path that is free of Slip/Trip/Fall hazards.
5. The Exclusion Zone should be delineated using cones with orange snow fence or solid poles between the cones, barrels, tape or other measures. For work in rights-of-way rigid barriers, such as Jersey barriers or temporary chain link fence should be used. For certain types of wide-spread or moving/mobile equipment operations, such delineation may not be practicable around pieces of equipment or individual work areas. In such instances, it is expected that the entire operation will be within a larger secure work area or that additional means will be utilized to ensure security of the work zone.

All subcontractors who provide heavy equipment operations to field projects must implement a program that meets or exceeds the expectations described above as well as any additional requirements that may be required on a client or site-specific basis.

3.1 Exceptions

It is recognized that certain heavy equipment activities may require personnel to work within the limits of the Exclusion Zone as specified in this program. Such activities may include certain excavation clearance tasks, drill crew activities or construction tasks. However, any such activity must be pre-planned with emphasis on limiting the amount and potential exposure of any activity required within the zone. The critical safety steps to mitigate the hazards associated with working within the Exclusion Zone must be defined in the JSA and potentially other project-specific plans (i.e., critical lift plans, etc.), and approved by the Roux Project Principal and client representative, if required, prior to implementation.

4. TRAINING

Many Roux projects have different requirements that are client-specific or site-specific in nature. It is the responsibility of the Project Principal (or Project Manager if delegated this responsibility by the Project Principal) to ensure that the workers assigned to his/her projects are provided orientation and training with respect to these client and/or site-specific requirements.

APPENDIX H

Generic Community Air Monitoring Program

APPENDIX H

New York State Department of Health
Generic Community Air Monitoring Plan

Overview

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 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 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 DEC/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 basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. 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.

1. 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.

2. 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.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) 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.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the 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/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 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/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

APPENDIX B

Community Air Monitoring Plan

Community
Air Monitoring Plan

Greenpoint Ferry Site
127-141 West Street (aka 14-28 India Street and 1-45 Java Street)
Brooklyn, New York

NYSDEC BCP Site No. C224272

March 4, 2021

Prepared for:

Lendlease Development Inc.
200 Park Avenue, 9th Floor
New York, New York 10166

Prepared by:

Roux Environmental Engineering and Geology, D.P.C.
209 Shafter Street
Islandia, New York 11749

3583.0001Y106/AT2-CV

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Appendix

1. Introduction

Roux Environmental Engineering and Geology, D.P.C. (Roux), on behalf of Lendlease Development Inc., have developed a project specific Community Air Monitoring Plan (CAMP) to implement real time monitoring at the Site, which occupies upland portions of Block 2538, Tax Lot 1 and excluding the area of former Tax Lot 51 of Block 2543, during remedial construction activities.

The monitoring program will be implemented at all times during which earth disturbance activities are occurring. The CAMP is designed to provide a measure of protection for the downwind community and on-Site workers not directly involved with the subject work activities from potential airborne contaminant releases as a direct result of remedial and construction activities. This plan is consistent with the New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan guidance document.

The specifics of the CAMP are presented in the following four sections:

- 1.1 VOC Monitoring Approach
- 1.2 Particulate Monitoring Approach
- 1.3 Meteorological Monitoring Approach
- 1.4 Available Suppression Techniques

1.1 VOC Monitoring Approach

Total VOC concentrations in air will be monitored continuously at a location downwind of the excavation activities during all ground intrusive activities. An upwind monitoring station will be set up adjacent to where the excavation is occurring. The VOC monitoring equipment will be located at temporary monitoring stations established daily based on Site logistics and weather conditions. The monitoring work will be conducted using MiniRAE 3000 (or equivalent) portable VOC monitors, or similar type monitors, for all VOC monitoring. The equipment will be calibrated at least once daily using isobutylene as the calibration gas. One (1) upwind and one (1) downwind monitor will be deployed each day. Each monitoring unit is equipped with an audible alarm to indicate exceedance of the action levels (as defined below and summarized in Table 1).

The equipment is capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total VOCs at the downwind perimeter of the Site 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 the ambient air concentration of total VOCs at the downwind perimeter of the Site persists at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of VOCs identified, suppression techniques employed to abate emissions, and monitoring continued. After these steps, work activities can resume if the total organic vapor level at the Site perimeter is below 5 ppm over the background concentration for the 15-minute average. If levels are in excess of 25 ppm above background, identified contributing ground-intrusive activities will be halted and vapor suppression techniques will be evaluated and modified until monitoring indicates VOC levels at the Site perimeter are below 5 ppm over background. Once VOC levels are below 5 ppm at the Site perimeter, work will resume with continued monitoring.
- All 15-minute readings will be recorded and available for State Regulator (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will be recorded. If

an exceedance of the action level occurs, an Action Limit Report (ALR) will be completed, identifying the monitoring device location, the measured VOC level, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. Additionally, the NYSDEC and NYSDOH will be notified within 24 hours of the VOC ALR generation. Daily monitoring equipment locations and meteorological conditions will also be documented on the daily CAMP Monitoring Location Plan. All documentation will be kept on file at the Site.

1.2 Particulate Monitoring, Response Levels and Actions

Particulate concentrations will be monitored continuously at temporary particulate monitoring stations set up at the sidewalk at upwind and downwind locations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action levels (as defined below and summarized in Table 1). Monitoring equipment will be MIE Data Ram monitors or equivalent. A minimum of one upwind and one downwind monitor will be deployed each day, equipped with an omni-directional sampling inlet and a PM-10 sample head. The data logging averaging period will be set to 15-minutes with time and date stamp recording. Alarm averaging will be set at 90 micrograms per cubic meter ($\mu g/m^3$) per 15-minute period. This setting will allow proactive evaluation of Site conditions prior to reaching Action Levels of 100 $\mu g/m^3$ above background. The equipment will be outfitted with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities. The monitoring will be used to compare values to the following:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the Site, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the Site.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped, a re-evaluation of activities initiated, and dust suppression techniques modified. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All 15-minute readings will be recorded and available for State Regulator (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will be recorded. If an exceedance of the action level occurs, an ALR will be completed, identifying the monitoring device location, the measured particulate concentration, the activity causing the exceedance, meteorological conditions, and the corrective actions taken, as provided in Appendix A. Daily monitoring equipment locations will also be documented on the daily CAMP Monitoring Location Plan. All documentation will be kept on file at the Site.

1.3 Meteorological Monitoring

Wind speed (estimated) and wind direction will be approximated based on field observations of on-Site personnel. Meteorological data consisting of temperature, barometric pressure, and relative humidity will be recorded in the field book based upon publically available information from local weather stations.

1.4 Available Suppression Techniques

Odor Control

Due to the nature of the project, with excavation occurring, the potential for generation of nuisance odors and the need for odor control may be necessary. 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.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; 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: (d) use of chemical odorants in spray or misting systems; and (e) use of staff to monitor odors in surrounding neighborhoods.

Dust Control

Due to the nature of the project, the potential for generation of nuisance dust and the need for dust control may be necessary. Dust suppression will be achieved through the use of water for wetting excavation areas, if required. Water will be available on-site at suitable supply and pressure for use in dust control.

1.5 Reporting

All recorded monitoring data will be downloaded, and field logged periodically, including action limit reports (ALRs) (if any) and daily CAMP monitoring location plans. All records will be maintained onsite and available for NYSDEC/NYSDOH review. CAMP readings, including any exceedances, will be provided in the Daily Reports. A summary of any action limit report will also be provided in the Monthly Reports. All CAMP monitoring records will be included in the overall Final Engineering Report that will be submitted to the NYSDEC and NYSDOH and will include all of the CAMP data collected, daily monitoring station location maps, and copies of the ALRs (if any). If an ALR is generated due to VOC or particulate exceedances, the NYSDEC and NYSDOH will be notified within 24 hours of the exceedance.

TABLE

1. Action Limit Summary for VOCs and Particulates

Table 1. Action Limit Summary for VOCs and Particulates, Greenpoint Ferry Site, Greenpoint, NY

Contaminant	Downwind Action Levels*	Action/Response
Volatile Organic Compounds (VOCs) (Monitoring Via Photoionization Detector and Odor Observation)	< 5 ppm	1. Resume work with continuing monitoring.
	5 ppm < level < 25 ppm	1. Work activities must be temporarily halted, source vapors must be identified, suppression techniques employed to abate emissions and monitoring continued. 2. After these steps, if VOC levels (200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or structure, whichever is less) is below 5 ppm over background, resume work.
	> 25 ppm	1. Identified contributing ground intrusive activities must be halted and vapor suppression techniques must be evaluated and modified until monitoring indicates VOC levels below the action level. 2. After these steps, if VOC levels (half the distance to the nearest potential receptor or structure) are below 5 ppm over background, resume work.
Particulates (Monitoring Via Particulate Meter and Observation)	< 100 ug/m^3	1. If dust is observed leaving the work area, then dust control techniques must be implemented or additional controls used.
	100 ug/m3 < level < 150 ug/m^3	1. Employ dust suppression techniques. 2. Work may continue with dust suppression techniques provided that downwind PM-10 particulate concentration do not exceed 150 ug/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
	> 150 ug/m^3	1. STOP work 2. Re-evaluate activities, modify dust suppression techniques. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 ug/m^3 of the upwind level and in preventing visible dust migration.

* Instantaneous readings above background. Particulate readings are based on the respirable (PM-10) fraction. Background readings are taken at upwind locations relative to Work Areas or Exclusion Zones.

APPENDIX A

Action Limit Report

ACTION LIMIT REPORT

Project Location: Greenpoint Ferry Site
127-141 West Street (aka 14-28 India Street and 1-45 Java Street)
Brooklyn, New York

Date: _____ Time: _____

Name: _____

Contaminant: PM-10: _____ VOC: _____

Wind Speed: _____ Wind Direction: _____

Temperature: _____ Barometric Pressure: _____

DOWNWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

UPWIND DATA

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

BACKGROUND CORRECTED LEVELS

Monitor ID #: _____ Location: _____ Level Reported: _____

Monitor ID#: _____ Location: _____ Level Reported: _____

ACTIVITY DESCRIPTION

CORRECTIVE ACTION TAKEN