AECOM

Flatbush Station A&B Former Gas Holder Site

BROOKLYN, KINGS COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 224061

Prepared for:

National Grid

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Certification Page

I, Michael L. Spera, certify that I am currently a NYS registered professional engineer (#073731) and that this Site Management Plan was prepared in accordance with all applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Signature Michael L Spera

Date: March 6, 2012

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List of Acronyms

ASP	Analytical Services Protocol
AWQSGV	Ambient Water Quality Standards and Guidelines Values
BGS	Below Ground Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
BUG	Brooklyn Union Gas
CAMP	Community Air Monitoring Plan
CCS	Composite Cover System
COC	Certificate of Completion
DNAPL	Dense Non Aqueous Phase Liquid
DER-10	NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation
DUSR	Data Usability Summary Report
EC	Engineering Controls
ECL	Environmental Conservation Law
EDR	Environmental Data Resources
ELAP	Environmental Laboratory Approval Program
EWP	Excavation Work Plan
ft	Feet
HASP	Health and Safety Plan
IC	Institutional Controls
MGP	Manufactured Gas Plant
MNA	Monitored Natural Attenuation
NYCRR	New York Codes Rules and Regulations
NYC	New York City
NYS	New York State

NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OCAS	Order on Consent Index and Administrative Settlement
PAHs	Polycyclic Aromatic Hydrocarbons
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
ROW	Right of Way
SC	Site Characterization
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objectives
SMP	Site Management Plan
SUNY	State University of New York
SVI	Soil Vapor Intrusion
SVOCs	Semi Volatile Organic Compounds
USEPA	United Stated Environmental Protection Agency
USGS	United States Geological Society
VOCs	Volatile Organic Compounds

1.0 Introduction and Description of Remedial Program

1.1 Introduction

This document is required as an element of the remedial program at the Flatbush Station A&B Former Gas Holder site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the Department of Environmental Conservation (NYSDEC). The remedial program was implemented at the site in accordance with Order on Consent Index and Administrative Settlement (OCAS) # A2-0552-0606, Site # 224061, which was executed on March 2007 (NYSDEC, 2007). The OCAS covers the operation of the former Flatbush Gas Works facility located in the Flatbush area of Brooklyn, New York.

1.1.1 General

National Grid entered into an OCAS with the NYSDEC to implement a remedial program at the location of the former Flatbush Gas Works facility in Brooklyn, Kings County, New York. The site is illustrated on a portion of the United States Geological Society (USGS) 7.5 Minute Jamaica Quadrangle map in Figure 1-1. This OCAS required the Remedial Party, National Grid, to investigate and remediate media contaminated with residual manufactured gas plant (MGP) material at the site. For purposes of further discussion in this Site Management Plan (SMP), the term “Site” will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue. A parcel map of the Site is provided in Figure 1-2. A figure showing the Site layout and extent of the SMP is provided in Figure 1-3. The boundaries of the Site are more fully described in the metes and bounds site description (Appendix A) that is part of the Environmental Easement.

A Site Characterization (SC), conducted as part of the remedial program, identified residual MGP contamination in the Site subsurface soils and groundwater. This residual MGP contamination is located in the deeper soils at the Site and do not have the potential for day to day contact. The locations of the site characterization activities are shown in Figure 1-4. This SMP was prepared to manage the residual MGP contamination at the Site until the Environmental Easement is extinguished in accordance with NYS Environmental Conservation Law (ECL) Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by AECOM, on behalf of National Grid, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (DER-10), dated June, 2010 (NYSDEC, 2010), and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Institutional Controls (ICs) and Engineering Controls (ECs) that are required by the Environmental Easement for the site. A copy of the Environmental Easement is included in Appendix B.

1.1.2 Purpose

The Site contains residual MGP contamination identified during the SC process. ECs have been incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site and to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the Kings County Clerk, will require compliance with this SMP and all ECs and ICs placed on the Site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. This SMP specifies the methods necessary to ensure compliance with all ECs and ICs required by the Environmental Easement for contamination that is present at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage the residual MGP contamination at the Site including: (1) implementation and management of all EC/ICs; (2) media monitoring; (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (4) defining criteria for termination of media monitoring.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; and (2) a Monitoring Plan for implementation of Site Monitoring.

This SMP also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the environmental easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law (ECL) and 6 NYCRR Part 375, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this SMP will be proposed in writing to the NYSDEC's project manager. In accordance with the Environmental Easement for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 Site Background

1.2.1 Site Location and Description

The Site is located in Brooklyn, Kings County, New York and is identified as Block 4827, Lots 24 and 30, portion of Block 4828 Lot 21, Block 4828 Lot 22, and portion of Parkside Avenue and Clarkson Avenue on the New York City (NYC) Tax Map. The Site is an approximately 5-acre area bounded by Winthrop Street to the north, Clarkson Avenue to the south, and commercial properties to the east and to the west (see Figure 1-3). Parkside Avenue dissects the Site into two parcels – a northern parcel consisting of Block 4827 Lots 24 and 30 and a southern parcel consisting of Block 4828 Lots 21 and 22 and portion of Clarkson Avenue. The portion of the Site north of Parkside Avenue consists of a paved parking lot. The portion south of Parkside Avenue includes 760 Parkside Avenue property which consists of a paved parking lot, an unpaved parking lot, and a two story building known as SUNY Downstate Incubator Medical Facility; 329 Clarkson Avenue which includes an open paved parking lot and driveways and an enclosed paved parking lot; and portion of Clarkson Avenue.

The current parcels are listed by the NYC Department of Finance as Building Class G2 and G6 - garage and licensed parking lot and I9 - miscellaneous hospital or healthcare facility. The NYC Department of City Planning has listed the zone classification for this area as M1, which indicates the Site is zoned for light manufacturing and commercial buildings.

The current property owners are listed below based on NYC Department of Finance website information obtained from the NYC Open Accessible Space Information System Cooperative (OASIS) on-line database. Figure 1-2 shows a parcel map of the Site.

Parcel	Owner	Parcel Address	Land Use
Block 4827 Lot 24 (northern portion of the Site)	Beneficial Fund for the Downstate Medical Center of SUNY, Inc.	324 Winthrop Street, Brooklyn, NY 11226	Parking facilities
Block 4827 Lot 30 (northern portion of the Site)	Brooklyn Union Gas Co.	Winthrop Street, Brooklyn, NY 11225	Parking facilities and Gas regulator infrastructure
Block 4828 Lot 21 (southern portion of the Site)	Health Science Center	329 Clarkson Avenue, Brooklyn, NY 11226	Parking garage
Block 4828 Lot 22 (southern portion of the Site)	Health Science Center	760 Parkside Avenue, Brooklyn, NY 11226	Health center

The boundaries of the Site are more fully described in the metes and bounds description (Appendix A) attached to the Environmental Easement (Appendix B).

1.2.2 Site History

A summary of the Site history was developed based on a review of the historic Sanborn Fire Insurance maps, aerial photographs, historical photographs, historical drawings, and historical topographical maps for the Site, as well as a review of the database report provided by Environmental Data Resources (EDR).

The first indication of gas manufacturing activity at the Site is believed to be around 1873 when the Flatbush Gas Works operated at the Site location. Two gas holders, GH#1 (150,000 cubic yard capacity) and GH#2 (1 million cubic yard capacity), are believed to have been constructed at the

Site between 1890 and 1905. Review of the Brown's Directory indicated that the Flatbush Gas Co. ceased the MGP operations in 1904 and purchased gas from Brooklyn Union Gas Co. (BUG) for distribution. Two additional 5 million cubic foot gas holders (GH#3 and GH#4) are believed to have been constructed on the northern portion of the Site in 1908 and 1923 respectively. The smaller Gasometer (Gasholder # 1) was demolished sometime between 1912 and 1917.

By 1929 the ownership of the facility has been transferred to BUG. Between 1947 and 1954, the 1 million cu ft holder and associated structures located south of Parkside Avenue were removed. An unspecified number of gas tanks are depicted along the southwestern border of the Site abutting the adjacent metal products manufacturing building (former auto garage). By 1958, the area has been developed into parking lots, a tobacco and candy distribution center, and manufacturing. The distributor and manufacturing operations are replaced by medical facilities in 1995, and continue to occupy the parcel. The twin gas holders and associated structures remain unchanged on the northern parcel until they are decommissioned between 1979 and 1980, however available data was insufficient to identify when gas storage and distribution activities were discontinued. Following the removal of the northern holders and structures, the parcel was converted to a parking lot, and has remained in this configuration to the present day. Figure 1-5 shows the approximate boundaries and structures of the former Flatbush Gas Works facility.

Residential properties have been consistently located along Nostrand Avenue and the north side of Winthrop Avenue located to the west and north of the Site, respectively. In the early 1900s, parking lots, auto repair garages, and manufacturing buildings were intermixed with the residences, but by 2000, the area along these avenues was almost exclusively residences with a few private medical facilities. The lot immediately to the west of the northern holders was previously occupied by a green house and a bowling alley, and is currently occupied by the State University of New York (SUNY) Health Science Center. The New York City Department of Sanitation garage (Brooklyn East 14) has consistently occupied the lot to the east of the northern holders since 1929 through the present. The lot to the east of the southern holder remained vacant until the holder was decommissioned between 1979 and 1980. A gasoline service station was constructed on the lot at this time. An auto body shop was constructed on the lot to the west of the southern holder at this time as well. The shop was replaced by a Health Center sometime between 1995 and 2001. The area directly south of the health center has remained a mix of auto repair garages and metal manufacturing.

1.2.3 Geologic Conditions

Site Geology

The Site geology consists of four unconsolidated units varying widely in thickness and distribution across the Site. These units consist of fill, sand, silty sand, and gravel. The sand unit, which is the most extensive unit beneath the Site, consists of two subunits, well-graded sand and poorly-graded sand. Geologic sections are shown in Figure 1-6.

Fill

The fill thickness ranges from 3.5 to 17 feet with the thickest layers present beneath the 760 Parkside Avenue property and 324 Winthrop Avenue property. The primary component of the fill is coarse to fine sand with some angular to sub-angular gravel, and lesser amounts of clay, silt, and cobbles. While the unit closely resembles the underlying sand unit, the fill unit at the Site was typically defined by the presence of anthropogenic materials, such as whole and crushed brick, pieces of concrete, wood fibers, and other non-native materials, and cobbles.

Sand

The most extensive unit beneath the fill is sand, which consists of subunits of well-graded and poorly-graded sands. The well-graded sand is composed of fine to coarse sand with lesser amounts of silt, sand and gravel. Well-graded sands were typically encountered directly below the fill unit, and generally range in thickness from 9 feet to over 40 feet with the unit thinnest to the north and west and thickest to the south. The poorly-graded sand is composed of predominately fine sand, although medium sand and trace gravel are observed occasionally. The unit is encountered directly below the well-graded sand, although pockets of the unit and some interfingering of the unit in the well-graded sand occurs beneath 760 Parkside Avenue.

Silty Sand

The silty sand unit occurs as 2 to 10 foot thick discontinuous lenses or pockets that cannot be clearly connected across the Site. However, there does appear to be a shallow unit encountered at approximately 20 feet (ft) below ground surface (bgs) at the northwest corner and along the southeastern Site boundary. A deeper unit is encountered at approximately 70 ft bgs beneath the southwestern as well as beneath the northeastern portions of the Site. The unit is composed of fine sand with greater than 30 percent silt and is non-plastic or cohesive.

Gravel

The gravel unit consists of subangular to subrounded fine to coarse gravel with some sand, and few cobbles. The unit is discontinuous, and is encountered in lenses or pockets 5 to 12 feet thick, and is not encountered deeper than 34 ft bgs.

Site Hydrogeology

Groundwater was encountered in the overburden at depths ranging from approximately 46 to 51 ft bgs. Groundwater contour maps (Figure 1-7) have been prepared for two rounds of data (March 9, 2011 and July 28, 2011). As shown on these figures, the groundwater flow is from north to south beneath the Site, including a very slight westward flow component along the southern site boundary. Table 1-1 summarizes the screen intervals and the depths to groundwater measured in the monitoring wells installed on the Site respectively.

1.3 Summary of Site Characterization Findings

A SC was performed to characterize the nature and extent of contamination at the Site. The results of the SC are described in detail in the Site Characterization Report dated December 2011 (AECOM, 2011).

To determine whether the soil, groundwater, and soil vapor contain residual MGP contamination at levels of concern, data from the SC were compared to the following standards, criteria and guidance (SCGs):

- Groundwater SCGs are based on the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGV) and Part 5 of the NYS Sanitary Code.

- Soil SCGs are based on the NYSDEC Division of Environmental Remediation, 6 NYCRR Part 375 Restricted Commercial Use Soil Cleanup Objectives (SCOs), as well as NYSDEC's alternative polycyclic aromatic hydrocarbons (PAH) criterion for non-residential sites, total PAH of 500 mg/Kg, specified in DEC Policy CP-51 Soil Cleanup Guidance, October 2010.
- Indoor air SCGs are based on the NYS Department of Health (NYSDOH) Database summary of indoor and outdoor air sample results in control homes collected and analyzed by DOH from 1989 through 1996.

Generally, the SC determined that that there were no ongoing exposures to residual MGP contamination from the Site. The Site surface is mostly covered which further reduces the likelihood of direct contact with soil contaminated with residual MGP waste. Exposure to groundwater contaminated with residual MGP waste is not occurring as there are no supply wells located in the contaminated area. Soil vapor samples from the Site have shown evidence of MGP-related contamination but in concentrations low enough not to cause an indoor air pathway.

Many soil, groundwater, and ambient and soil vapor samples were collected during the SC to characterize the nature and extent of residual MGP contamination. The main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The principal human health and environmental risks posed by this Site relate to the presence of highly weathered MGP (coal) tar located at depths greater than 15 ft bgs on a portion of the Site mainly the western portion of the 760 Parkside Avenue property and Parkside Avenue.

MGP tar belongs to a group of organic contaminants known as dense non-aqueous phase liquids, commonly abbreviated as DNAPL. DNAPLs do not readily dissolve in water and tend to sink to the bottom of water bodies and aquifers. When released into the subsurface, these liquids can spread out in complex directions that may or may not be the same direction as groundwater flow. MGP tar is an unusual DNAPL because its density is only slightly greater than water. Although MGP tar does tend to sink, the relatively slight difference in density between tar and water makes this sinking effect somewhat unpredictable.

Two classes of chemical compounds contained in the MGP tar are of concern:

> (1) Benzene, toluene, ethylbenzene, and xylenes (collectively known as the BTEX compounds) are VOCs, which are also commonly found in unleaded gasoline, paint thinners, and other solvents. They are somewhat soluble in water. Consequently, groundwater which comes into contact with MGP tar often becomes contaminated with these compounds. This contaminated groundwater is then free to move away from the source along with the ordinary groundwater flow through the subsurface.
>
> (2) Polycyclic aromatic hydrocarbons, commonly abbreviated as (PAH). This is a large group of SVOCs with several hundred different individuals known to exist. They are far less soluble than the BTEX compounds, and consequently are far less likely to cause groundwater contamination. They are also far less likely to be digested by soil bacteria, and thus are very persistent in the environment. The United States Environmental Protection Agency (EPA) has identified 17 of the PAHs as hazardous materials, and these are the ones used to define the extent of PAH contamination at the Site.

An inorganic contaminant of concern is cyanide. Cyanide, bound to iron to form ferric-ferrocyanide, is a component of some MGP tars.

Table 1-2 and Table 1-3 summarize the analytical data for the contaminants of concern in subsurface soil and groundwater; and compare the data with the SCGs for the Site. The locations of all the samples are noted on Figure 1-4.

Below is a summary of site conditions when the SC was performed in 2011:

Waste

The waste material associated with the Site is highly weathered coal tar. The highly weathered coal tar is present in the western portion of 760 Parkside Avenue and western portion of Parkside Avenue at depths greater than 15 ft bgs. Tar impacts included tar-like odors, tar-like staining, trace tar sheens, tar coatings of soil grains (tar observed on soil grains but not in the pore spaces), and trace tar blebs. Due to the highly weathered nature of the coal tar, it is not believed to be an ongoing source of contamination for soil and groundwater. The extent of the residual MGP tar contamination is shown on Figure 1-8.

Soil

PAH and BTEX contamination of subsurface soils was detected in areas where visible-weathered coal tar contamination was present. Thus, the highest levels of soil contamination are found in the deeper subsurface soils (greater than 15 ft bgs) in the western portion of 760 Parkside Avenue and western portion of Parkside Avenue. Outside of the zones of tar contamination, PAH and BTEX concentrations decrease rapidly. Total BTEX concentrations ranged from not detectable to 198 ppm, and PAH concentrations ranged from not detectable to 763.8 ppm. Benzo(a)pyrene was the only PAH detected above the SCGs in the upper 8 ft of fill. Cyanide was detected in only a few subsurface samples, at low levels. The highest value, 72.9 ppm, was found in fill area on the northern portion of the Site away from visible-weathered coal tar indicating the presence of urban fill. The material in the upper 15 ft of fill contains compounds related to both MGP and non MGP processes. Material, such as slag, ash, and purifier waste, indicative of MGP activities was absent. Therefore, the fill material in the upper 15 ft predominately is more consistent with typical urban fill. A summary of compounds detected in subsurface soils are provided in Table 1-2.

Concentrations of BTEX, PAHs, metals and cyanide were detected in subsurface soils above the 6NYCRR Part 375 Commercial Use Soil Cleanup Objectives as shown in Figure 1-9.

Site-Related Groundwater

Groundwater beneath the majority of the Site does not contain MGP-related constituents at concentrations exceeding the AWQSGVs. Tetrachlorethane, a chlorinated solvent unrelated to MGP operations, is present in the southwestern portion and along the southwestern boundary of the Site. Toluene, ethylbenzene, xylene, naphthalene, and/or acenaphthene were detected at concentrations exceeding the AWQSGVs in the southeastern portion and along the southeastern property boundary. Although these compounds are typically found at MGP sites, the distribution of these compounds indicates an Off-Site source(s). A summary of compounds detected in Site groundwater are provided in Table 1-3. Concentrations of compounds detected in groundwater above AWQSGVs are shown in Figure 1-10.

Site-Related Soil Vapor Intrusion

Soil vapor samples were collected during the SC to determine the soil vapor intrusion pathway for the 760 Parkside Avenue property. Laboratory testing of exterior soil vapor revealed that concentrations of VOCs were detected above the Upper 95th Percentile Values of the NYSDOH Background Outdoor Air values. Soil vapor and ambient air results are summarized on Table 1-4. Given that the depth to groundwater at the Site is approximately 50 ft bgs, the source of these compounds in soil gas is considered to be from impacts within the fill material and not related to dissolved phase constituents. A definite source of the impacts cannot be determined based on the VOCs detected. For instance, while benzene, toluene, and ethylbenzene are common at MGP Sites, they can also be related to petroleum releases or the disposal of solvents, paints, etc. Other compounds, such as chloroform, freon, and trichloroethene, etc., are not associated with MGP Sites.

The USEPA conducted a study of randomly selected public and commercial office buildings and compiled a database of typical indoor air concentrations for several constituents. These concentrations, known as “background indoor air concentrations,” are recommended for comparison to indoor air results in the NYSDOH “Guidance for Evaluating Soil Vapor Intrusion in the State of New York” (NYSDOH, 2006), and are include on Table 1-4. While a comparison of these background concentrations to the soil vapor results is not meaningful, some general conclusions are possible. Primarily, soil vapor concentrations of all constituents are less than or within three times the back ground values. Therefore, it is reasonable to assume that soil vapor that did migrate to the ground surface would attenuate to the point of being consistent with the background indoor air concentrations. Concentrations of compounds detected in soil vapor above NYSDOH standards are shown in Figure 1-11.

2.0 Engineering and Institutional Control Plan

2.1 Introduction

2.1.1 General

Since residual MGP contaminated soil and groundwater exists beneath the Site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Easement (Appendix B);
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan [Appendix C, (EWP)] for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 760 Parkside Avenue Property

2.2.1 Engineering Controls

2.2.1.1 Engineering Control System

Composite Cover System

Exposure to residual MGP contamination in soil/fill at the 760 Parkside Avenue property is prevented by a composite cover system (CCS) present over the 760 Parkside Avenue property. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to contaminated subsurface soils and groundwater present at the 760 Parkside Avenue property. The CCS is comprised of a minimum of 6 inches of soils not contaminated by MGP residuals, asphalt pavement, concrete-covered sidewalks, and concrete building slabs and 14.5 feet of soils not contaminated by MGP residuals (Figure 2-1). The CCS at the 760 Parkside Avenue is a permanent control that must remain intact above the residual MGP contamination. The EWP that appears in Appendix C outlines the procedures required to be implemented in the event the CCS is breached, penetrated or temporarily removed, and any underlying residual MGP contamination is disturbed. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 3 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the 760 Parkside Avenue property, occurs.

Monitored Natural Attenuation

Groundwater monitoring activities to assess monitored natural attenuation (MNA) will be completed on a semi-annual basis. The details of the groundwater monitoring program are provided in Section 3.

2.2.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

Composite Cover System

The CCS is a permanent control and the quality and integrity of this system will be inspected annually till perpetuity.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over three (3) consecutive years of monitoring. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.2.2 Institutional Controls

A series of ICs are required by the Decision Document to: (1) implement, maintain and monitor the CCS (Figure 2-1) and MNA; (2) control disturbances of the subsurface residual MGP contamination (Figures 1-8, 1-9, and 1-10); and, (3) limit the use and development of the 760 Parkside Avenue property to Restricted Commercial Use only. Adherence to these ICs on the 760 Parkside Avenue property is required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor’s successors and assigns with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP by the 760 Parkside Avenue property owner (s) and National Grid jointly;
- All ECs must be inspected and certified by National Grid at a frequency and in a manner defined in the SMP;

- Groundwater and indoor air monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP.

ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The 760 Parkside Avenue property has a series of ICs in the form of property restrictions. Adherence to these ICs is required by the Environmental Easement. Property restrictions that apply to the 760 Parkside Avenue property are:

- The 760 Parkside Avenue property may only be used for Restricted Commercial Use provided that the long-term ECs/ICs included in this SMP are employed;
- The 760 Parkside Avenue property may not be used for a higher level of use, such as Restricted Residential Use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the 760 Parkside Avenue property that will disturb residual MGP contaminated material below the CCS must be conducted in accordance with this SMP;
- The use of the groundwater underlying the 760 Parkside Avenue property is prohibited without the approval of the NYSDEC;
- The potential for vapor intrusion must be evaluated prior to any modification of the existing building and for any buildings developed on the 760 Parkside Avenue property, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the 760 Parkside Avenue property are prohibited.

National Grid will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the 760 Parkside Avenue property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the 760 Parkside Avenue property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3 329 Clarkson Avenue Property

2.3.1 Engineering Controls

2.3.1.1 Engineering Control Systems

Composite Cover System

Exposure to potential residual MGP contamination in soil/fill at the 329 Clarkson Avenue property is prevented by a CCS present over the 329 Clarkson Avenue property. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to potentially contaminated subsurface soils and groundwater present at the 329 Clarkson Avenue property. The CCS is comprised of asphalt pavement, concrete-covered sidewalks, and concrete building slabs (Figure 2-1). The CCS at the 329 Clarkson Avenue property is a permanent control that must remain intact above the potential residual MGP contamination. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 3 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the 329 Clarkson Avenue property, occurs.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will be completed on a semi-annual basis. The details of the groundwater monitoring program are provided in Section 3.

2.3.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

Composite Cover System

The CCS is a permanent control and the quality and integrity of this system will be inspected annually till perpetuity.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over three (3) consecutive years of monitoring. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.3.2 Institutional Controls

A series of ICs is required by the Decision Document to: (1) monitor the CCS and MNA; and (2) limit the use and development of the 329 Clarkson Avenue property to Restricted Commercial Use only. Adherence to these ICs on the 329 Clarkson Avenue property is required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor’s successors and assigns with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP by the 329 Clarkson Avenue property owner(s) and National Grid jointly;
- All ECs must be inspected and certified by National Grid at a frequency and in a manner defined in the SMP;
- Groundwater and indoor air monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The 329 Clarkson Avenue property has a series of ICs in the form of property restrictions. Adherence to these ICs is required by the Environmental Easement. Property restrictions that apply to the 329 Clarkson Avenue property are:

- The 329 Clarkson Avenue property may only be used for Restricted Commercial Use provided that the long-term ECs/ICs included in this SMP are employed;
- The 329 Clarkson Avenue property may not be used for a higher level of use, such as Restricted Residential Use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- The use of the groundwater underlying the 329 Clarkson Avenue property is prohibited without the approval of the NYSDEC;
- The potential for vapor intrusion must be evaluated prior to any modification of the existing building and for any buildings developed on the 329 Clarkson Avenue property, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the 329 Clarkson Avenue property are prohibited;

National Grid will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the 329 Clarkson Avenue property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the 329 Clarkson Avenue property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.4 324 Winthrop Street Property

2.4.1 Engineering Controls

2.4.1.1 Engineering Control Systems

Composite Cover System

Exposure to residual MGP contamination in soil/fill at the 324 Winthrop Street property is prevented by a CCS present over the 324 Winthrop Street property. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to contaminated subsurface soils and groundwater present at the 324 Winthrop Street property. The CCS is comprised of a minimum of 6 inches of asphalt pavement (Figure 2-1). The CCS at the 324 Winthrop Street property is a permanent control that must remain intact above the residual MGP contamination. The EWP that appears in Appendix C outlines the procedures required to be implemented in the event the CCS is breached, penetrated or temporarily removed, and any underlying residual MGP contamination is disturbed. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 3 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the 324 Winthrop Avenue property, occurs.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will be completed on a semi-annual basis. The details of the groundwater monitoring program are provided in Section 3.

2.4.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

Composite Cover System

The CCS is a permanent control and the quality and integrity of this system will be inspected annually till perpetuity.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over three (3) consecutive years of monitoring. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

2.4.2 Institutional Controls

A series of ICs are required by the Decision Document to: (1) implement, maintain and monitor the CCS (Figure 2-1) and MNA; (2) control disturbances of the subsurface contamination (Figures 1-8, 1-9, and 1-10); and, (3) limit the use and development of the 324 Winthrop Street property to Restricted Commercial Use only. Adherence to these ICs on the 324 Winthrop Street property is required by the Environmental Easement and will be implemented under this SMP. These ICs are:

- Compliance with the Environmental Easement and this SMP by the Grantor and the Grantor's successors and assigns with all elements of this SMP;
- All ECs must be operated and maintained as specified in this SMP by the 324 Winthrop Street property owner(s) and National Grid jointly;
- All ECs must be inspected and certified by National Grid at a frequency and in a manner defined in the SMP;
- Groundwater and indoor air monitoring must be performed as defined in this SMP; and
- Data and information pertinent to Site Management must be reported at the frequency and in a manner defined in this SMP.

Institutional Controls identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement.

The 324 Winthrop Street property has a series of ICs in the form of property restrictions. Adherence to these ICs is required by the Environmental Easement. Site restrictions that apply to the 324 Winthrop Street property are:

- The 324 Winthrop Street property may only be used for Restricted Commercial Use provided that the long-term ECs/ICs included in this SMP are employed;
- The 324 Winthrop Street property may not be used for a higher level of use, such as Restricted Residential Use without additional remediation and amendment of the Environmental Easement, as approved by the NYSDEC;
- All future activities on the 324 Winthrop Street property that will disturb residual MGP contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the 324 Winthrop Street property is prohibited without the approval of the NYSDEC;
- The potential for vapor intrusion must be evaluated prior to any modification to the existing conditions and for any buildings developed on the 324 Winthrop Street property, and any potential impacts that are identified must be monitored or mitigated; and
- Vegetable gardens and farming on the 324 Winthrop Street property are prohibited.

National Grid will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the 324 Winthrop Street property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access the 324 Winthrop Street property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.5 New York City Right of Way Properties

The New York City (NYC) Right of Way (ROW) properties include:

- Parkside Avenue from the west boundary of 324 Winthrop Street property to the east boundary of 324 Winthrop Street property
- Clarkson Avenue from the west boundary of 329 Clarkson Avenue to the east boundary of 329 Clarkson Avenue

These ROW areas will collectively be referred to as the NYC ROW areas and individually as NYC ROW–Parkside Avenue area and NYC ROW-Clarkson Avenue area respectively.

2.5.1 Engineering Controls

2.5.1.1 Engineering Control Systems

<u>Composite Cover System on NYC ROW–Parkside Avenue area</u>

Exposure to residual MGP contamination in soil/fill at the NYC ROW–Parkside Avenue area is prevented by a CCS present over most of the NYC ROW–Parkside Avenue area. Figure 2-1 provides a summary of the CCS present on the NYC ROW–Parkside Avenue area. The CCS is an EC that provides a physical barrier that limits potential human and environmental exposures to contaminated subsurface soils and groundwater present at the NYC ROW–Parkside Avenue area. The CCS is comprised of a minimum of 12 inches of asphalt pavement and concrete sidewalks and 14 feet of soils not contaminated by residual MGP below the asphalt pavement and concrete sidewalks (Figure 2-1). The CCS at the NYC ROW–Parkside Avenue area is a permanent control that must remain intact above the residual MGP contamination. The EWP that appears in Appendix C outlines the procedures required to be implemented in the event the CCS is breached, penetrated or temporarily removed, and any underlying residual MGP contamination is disturbed. Procedures for the inspection and maintenance of this CCS are provided in the Monitoring Plan included in Section 3 of this SMP.

Procedures for monitoring the CCS are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the NYC ROW–Parkside Avenue area, occurs.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will be completed on a semi-annual basis on the NYC ROW areas. The details of the groundwater monitoring program are provided in Section 3.

2.5.1.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

Composite Cover System

The CCS is a permanent control and the quality and integrity of this system will be inspected annually till perpetuity.

Monitored Natural Attenuation

Groundwater monitoring activities to assess MNA will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over three (3) consecutive years of monitoring. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures will be evaluated.

Copies of this SMP will be supplied to all applicable NYC agencies and departments and utility companies that operate on the NYC ROWs. All ECs will be visually inspected at a frequency and in a manner defined in the SMP.

2.6 Excavation Work Plan

The Site has been characterized for Restricted Commercial Use. Any future intrusive work that will penetrate the CCS, or encounter or disturb the residual MGP contamination, including any modifications or repairs to the existing CCS will be performed in compliance with the EWP that is attached as Appendix C to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site. A sample HASP is attached as Appendix D to this SMP that is in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The Owners of the various properties located within the limits of this SMP and discussed above, and associated parties preparing the remedial documents submitted to the NYSDEC, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The owner of each property located within the limits of this SMP will ensure that property development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.7 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain residual MGP contamination and the potential for soil vapor intrusion (SVI) has been identified (see Figure1-9), an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH “Guidance for Evaluating Vapor Intrusion in the State of New York”. Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner(s) within 30 days of validation.

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report.

2.8 Inspections and Notifications

2.8.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive Site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system.

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional as determined by NYSDEC.

2.8.2 Notifications

The following notifications will be submitted by the property owner(s) to National Grid and the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in property use that are required under the terms of the Environmental Easement, 6NYCRR Part 375, and/or ECL.
- 15-business day advance notice of any proposed ground-intrusive activities pursuant to the EWP.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other ECs and likewise any action to be taken to mitigate the damage or defect.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the affected property, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

National Grid will review and provide comments on all planned ground-intrusive activities. National Grid may have a representative on-site, as appropriate, during any ground-intrusive work activities to observe activities and document compliance with this SMP.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, National Grid and the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Environmental Easement, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the property, the new owner's name, contact representative, and contact information will be confirmed in writing.
- National Grid will notify the property owner of any change to the National Grid and NYSDEC contacts listed below.

All notifications will be submitted to:

National Grid Project Manager:

Name: Andrew Prophete
Address: 287 Maspeth Avenue, Brooklyn, New York 11221
Telephone: (718) 963-5412
Fax: (718) 963-5611
Email: Andrew.prophete@us.ngrid.com
NYSDEC Project Manager:

Name: Section Chief
Address: New York State Department of Environmental Conservation
Site Control Section, Bureau of Technical Support
625 Broadway Albany, New York 12233-7014
Telephone: (518) 402-9662
Fax: (518) 402-9679

2.9 Contingency Plan

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.9.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to AECOM. These emergency contact lists must be maintained in an easily accessible location at the site.

Table 2-1: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
Kings County Hospital	(718) 245-3131
Electric (Con Edison)	(800) 752-6633
Water/Sewer (NYCDEP)	(212) 639-9675
Gas (National Grid)	(718) 643-4050
Andrew Prophete, National Grid	(718) 963-5412
Shail Pandya, AECOM	(212) 798-8500

*** Note: Contact numbers subject to change and should be updated as necessary**

2.9.2 Map and Directions to Nearest Health Facility

Site Location: Flatbush Station Former A&B Holder Site

Nearest Hospital Name: Kings County Hospital

Hospital Location: 451 Clarkson Avenue, Brooklyn, NY 11203

Hospital Telephone: (718) 245-3131

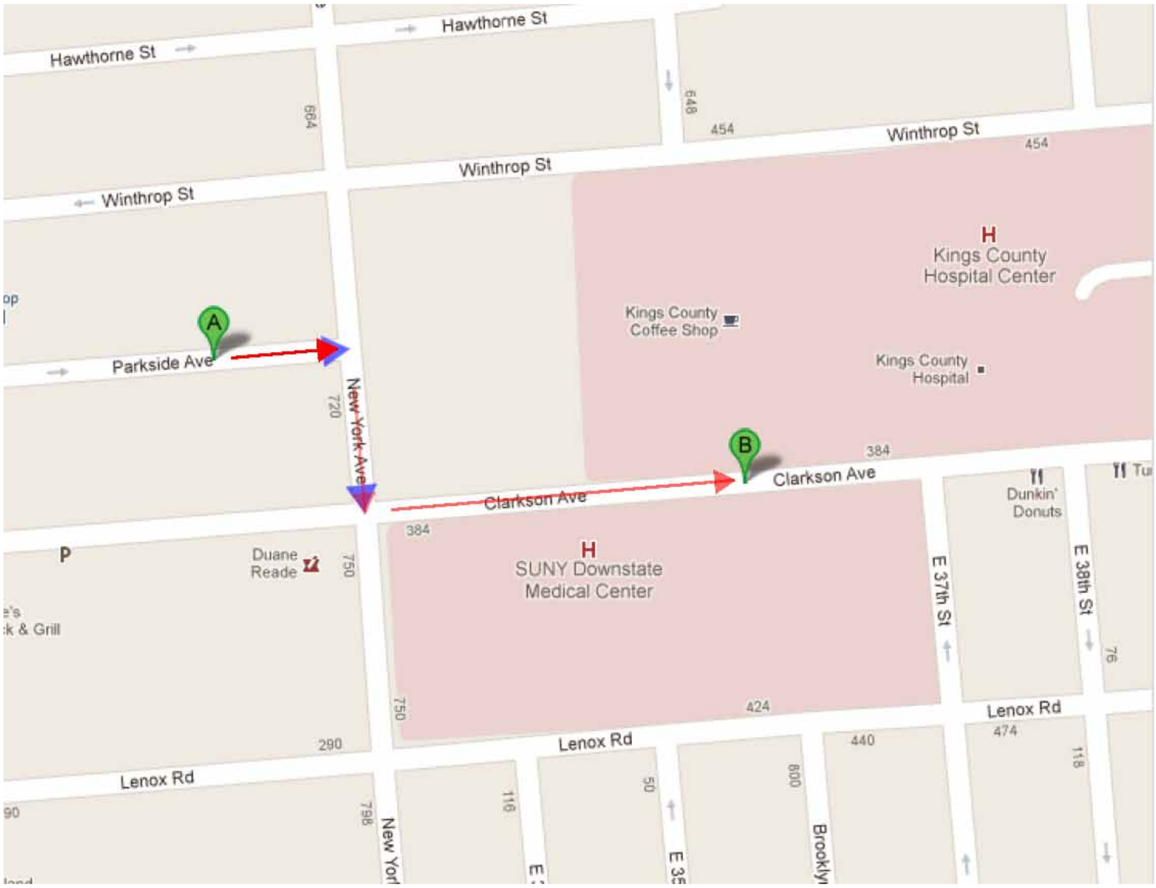
Directions to the Hospital:

1. Head East from the Site towards New York Avenue
2. Turn Right onto New York Avenue towards Clarkson Avenue
3. Turn the 1st Left onto Clarkson Avenue
4. Arrive at 451 Clarkson Avenue

Total Distance: 0.4 miles

Total Estimated Time: 1 minute

Map Showing Route from the site to the Hospital:



2.9.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 2-1). The list will also be posted prominently at the Site and made readily available to all personnel at all times.

2.9.3.1 Emergency Spill Response

Should a spill occur, immediately employ methods to control or stop the migration of the spilled material, if feasible. If the release is significant or has impacted soil or groundwater, immediately notify the appropriate response agency. The following information must be provided:

- Time and location of spill;
- Type and nature of material spilled;
- Amount of material spilled;
- Whether the spill has affected or has the potential to affect a waterway or sewer;
- A brief description of the affected areas/equipment; and
- The expected time of cleanup completion.

Cleanup procedures will be in accordance with applicable local, state and federal regulations. Spill cleanup kits, appropriate to the monitoring or redevelopment activities (i.e., absorbent pads, ground cover, speedy dry, etc.) must be made available on-site.

2.9.3.2 Fire

Fire extinguishers are to be made available on-site for trained personnel to use on minor, controllable fires without endangering the safety of others. If the nature of the fire is beyond control with a fire extinguisher, the fire department shall be notified immediately.

2.9.4 Personal Injury

General information regarding Site operations and worker health and safety is included in the HASP found in Appendix D. Minor cuts or abrasions are to be washed and treated immediately. First aid may be given on-site as deemed necessary. If needed, the individual will be decontaminated and transported to Kings County Hospital. The ambulance/rescue squad will be contacted (911) for transport as necessary in an emergency. In any life-threatening situation, the life-saving treatment of personnel is the immediate priority. The Emergency Coordinator, as defined in the HASP, or designee will be available to brief the rescue squad immediately upon their arrival to the location of the injured person(s), nature and extent of the injury(s), personnel involved, hazardous substances involved, and any other pertinent information. The Emergency Coordinator will supply chemical hazard information to appropriate medical personnel and complete an incident report on the accident or injury.

3.0 Site Monitoring Plan

3.1 Introduction

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate residual MGP contamination at the Site, including all ECs, and all affected site media identified below. ECs at the Site include CCS and MNA. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater, indoor air, soil vapor, soils);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil;
- Assessing achievement of the remedial performance criteria;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Semi-Annual and annual groundwater monitoring of the performance of the remedy and overall reduction in residual MGP contamination will be conducted for the first three (3) years. The frequency thereafter will be determined by NYSDEC. Trends in contaminant levels in air, soil, and/or groundwater in the affected areas, will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 3-1 and outlined in detail in Sections 3.2 and 3.3 below.

Table 3-1: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
CCS	Annually	Cap	Inspection
MNA	Semi-Annually for three years; annually thereafter	Groundwater	BTEX, PAHs, MNA Parameters
SVI/Indoor Air	Prior to any Building Renovation/Construction	Air	EPA Modified TO-15 Parameters
Excavation	Prior to Disposal	Soil	Disposal Facility Parameters

***The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH**

3.2 Composite Cover System Monitoring

The CCS EC will be inspected annually by a New York State licensed professional engineer or qualified environmental professional to confirm that the cover system is intact, remains unchanged, and continues to be protective of human health and the environment. The inspection will be completed by an individual that is familiar with the CCS and the Site. The annual inspections will be documented on the Annual Inspection and Certification Checklist provided in Appendix E. The form provides a checklist to document if there are any changes since the previous year's inspection and that the EC continues to operate as intended. A survey of the CCS will be completed if changes in the cover occur during the year or if changes are noted in the annual inspection. The survey will be completed by the New York State licensed surveyor and referenced NAVD 88 vertical datum to an accuracy of 0.01 ±foot and referenced to North American Datum (NAD 83).

If an emergency, such as a natural disaster or unforeseen failure of the EC occurs, an inspection of the affected property will be conducted by a qualified environmental professional within five business days of the event to verify the effectiveness of the composite cover.

3.3 Groundwater Monitoring Program

Groundwater monitoring will be performed on semi-annual for the first three (3) years and annual thereafter to assess the performance of natural attenuation. A network of monitoring wells (Figure 1-4) has been installed to monitor both up-gradient and down-gradient groundwater conditions at the Site. The network of wells has been designed based on the following criteria:

- Two monitoring wells (MW-01 and MW-02) were installed in the shallow-overburden aquifer underlying the Site to determine the upgradient groundwater conditions.
- Three monitoring wells (MW-03, MW-04, and MW-06) were installed in the shallow-overburden aquifer underlying the Site to determine the side-gradient groundwater conditions.

- Two monitoring wells (MW-05 and MW-09) were installed in the shallow-overburden aquifer underlying the Site to determine the Site groundwater conditions.
- Three monitoring wells (MW-07, MW-08, and MW-10) were installed in the shallow-overburden aquifer underlying the Site to determine the downgradient groundwater conditions.

Monitoring well boring and construction logs are included in Appendix F.

3.3.1 Monitoring Schedule

The monitoring well network will be monitored semi-annually for a period of three (3) years and annually thereafter. Groundwater samples will be collected for a minimum of three (3) years. Groundwater monitoring may be discontinued with the approval of NYSDEC in monitoring wells if concentrations decrease below NYS AWQSGVs for four consecutive sampling events or as directed by the NYSDEC.

The sampling frequency may be modified with the approval NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Standard Operating Procedures included in Appendix G. Other observations (e.g., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network. Each sample will be collected utilizing low flow groundwater sampling collection methods provided in the Field Sampling Plan (Appendix H). Each groundwater sample will be analyzed for BTEX via EPA Method 8260B and PAHs via EPA Method 8270 by a NYSDOH environmental laboratory approval program (ELAP)-certified laboratory. The groundwater samples will also be collected, handled, and analyzed according to the example Quality Assurance Project Plan [(QAPP), Appendix I].

3.3.1.2 Monitoring Well Repairs, Replacement and Decommissioning

If biofouling or silt accumulation occurs in any Site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.4 Site-Wide Inspection

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed (Appendix E). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that Site records are up to date.

3.5 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site (Appendix I). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
  - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
  - Sample holding times will be in accordance with the NYSDEC Analytical Services Protocol (ASP) requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures;
- Preparation of a Data Usability Summary Report (DUSR), which will present the results of data validation, including a summary assessment of laboratory data packages, sample

preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.

- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules; and
- Corrective Action Measures.

3.6 Monitoring Reporting Requirements

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared, subsequent to each sampling event. The report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in Table 3-2 below.

Table 3-2: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater Monitoring	Semi-Annual
Periodic Inspections	Annual

***The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH.**

4.0 Operation and Maintenance Plan

4.1 Introduction

The Site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

5.0 Inspections, Reporting, and Certifications

5.1 Site Inspections

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan of this SMP. At a minimum, a Site-wide inspection will be conducted annually. Inspections of CCS will also be conducted when a breakdown of CCS has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendix E. Additionally, a general Site-wide inspection form will be completed during the Site-wide inspection (see Appendix E). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all groundwater sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items; and
- The Site condition continues to be protective of public health and the environment and is performing as detailed in the Decision Document.

5.2 Certification of Engineering and Institutional Controls

Information about EC/ICs can be found in the Engineering and Institutional Control Plan portion of the SMP. Inspection of the EC/ICs will occur at a frequency described in Section 3 Monitoring Plan.

5.2.1 Owner's Certification

After the last inspection of the reporting period, the property owner shall have a qualified environmental professional prepare the following certification:

For each IC/EC identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the IC/EC, relevant to the composite cover system, required by the remedial program was performed under my direction;

- The IC/EC, relevant to the composite cover system, employed at this Site is unchanged from the date the control was put in place, or last approved by the NYSDEC;

- Nothing has occurred that would impair the ability of the control to protect the public health and environment;

- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;

- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;

- Use of the Site is compliant with the environmental easement;

- The EC, relevant to the composite cover system, is performing as anticipated and is effective;

- The information presented in this report is accurate and complete;

- I certify that all information and statements in this certification form are true;

- I understand that a false statement made herein is punishable as a Class “A” misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner’s Representative] for the Site.

The signed certification shall be submitted by the property owner to National Grid for inclusion into the Periodic Review Report.

For each IC identified for the Site, I certify that all of the following statements are true:

- The IC employed at this Site is unchanged from the date the control was put in place, or last approved by the NYSDEC;

- Nothing has occurred that would impair the ability of the control to protect the public health and environment;

- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;

- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;

- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;

- Use of the Site is compliant with the environmental easement.

5.2.2 National Grid's Certification

After the last inspection of the reporting period, a qualified environmental professional or Professional Engineer licensed to practice in New York State will prepare the following certification:

For each EC/IC identified for the Site, I certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the EC/ICs required by the remedial program was performed under my direction;
- The EC/ICs employed at this Site is unchanged from the date the control was put in place, or last approved by the NYSDEC;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access is available to the Site by the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- Use of the Site is compliant with the environmental easement;
- The EC systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices;
- The information presented in this report is accurate and complete; and
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

The signed certifications will be included in the Periodic Review Report described below.

5.3 Periodic Review Report

A Periodic Review Report will be submitted to the NYSDEC every year, beginning eighteen months after the COC or equivalent document is issued. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Groundwater sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site;
- Results of the required annual Site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the

applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format; and
- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the Decision Document;
  - Any new conclusions or observations regarding Site residual MGP contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
  - The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Central Office and Regional Office in which the Site is located, and in electronic format to NYSDEC Central Office, Regional Office and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

6.0 References

AECOM, 2011. Site Characterization Report, Flatbush Station A&B Former Gas Holder Site, Brooklyn, New York, Prepared for National Grid, Brooklyn, NY. December 2011

New York State Department of Environmental Conservation (NYSDEC), 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, Division of Water Technical and Operational Guidance Series (1.1.1), June 1998

NYSDEC, 2007. Order on Consent and Administrative Settlement - In the matter of the Development and Implementation of Remedial Programs for Former MGPs and Gas Holder Locations Under Article 27, Title 13 of the ECL by Brooklyn Union, Index # A2-0552-0606, March 2007

NYSDEC, 2010. DER-10, Technical Guidance for Site Investigation and Remediation.

Tables

Table 1-1
Monitoring Well Construction Summary
Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

MW ID	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Date Installed	Well Diameter	Screen Slot	Screened Interval (ft bgs)	Sump Interval (ft bgs)	09-Mar-11		28-Jul-11		Groundwater Elevation (ft)	
								DTW	DTB	DTW	DTB	9-Mar-11	28-Jul-11
MW-1	57.36	57.09	1/25/11	2" pvc	0.010	48-58	58-60	48.57	59.90	48.12	59.87	8.52	8.97
MW-2	55.41	55.03	1/26/11	2" pvc	0.010	47-57	57-59	46.52	58.80	46.08	58.72	8.51	8.95
MW-3	58.23	57.83	2/9/11	2" pvc	0.010	47-57	57-59	49.48	58.60	49.03	58.70	8.35	8.80
MW-4	56.58	56.25	2/15/11	2" pvc	0.010	47-57	57-59	47.88	59.00	47.43	58.95	8.37	8.82
MW-5	59.58	59.15	1/20/11	2" pvc	0.010	47-57	57-59	50.97	59.50	50.52	59.47	8.18	8.63
MW-6	57.82	57.49	1/18/11	2" pvc	0.020	47-57	57-59	49.22	58.80	48.80	58.78	8.27	8.69
MW-7	58.23	57.86	1/20/11	2" pvc	0.020	47-57	57-59	49.71	59.10	49.17	59.14	8.15	8.69
MW-8	57.62	57.30	2/16/11	2" pvc	0.010	47-57	57-59	49.18	59.30	48.72	59.22	8.12	8.58
MW - 9	58.30	57.93	7/7/11	2" pvc	0.010	47-57	57-59	NA	NA	49.17	60.16	NA	8.76
MW - 10	58.02	57.61	7/13/11	2" pvc	0.010	47-57	57-59	NA	NA	48.96	58.50	NA	8.65

Notes:

DTW = Depth to water from the top of casing/pvc

DTB = Depth to bottom of the well from the top of casing/pvc

bgs = Below Ground Surface

NA - Not available

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-01	SB-01	SB-01	SB-01	SB-02	SB-02	SB-02	SB-03	SB-03	SB-03	SB-03	SB-03	SB-04	SB-04	SB-04	SB-05
Sample Date			1/24/2011	1/24/2011	1/24/2011	1/24/2011	1/25/2011	1/25/2011	1/26/2011	2/8/2011	2/9/2011	2/9/2011	2/9/2011	2/9/2011	2/10/2011	2/10/2011	2/10/2011	1/4/2011
Sample ID			SB-1(4.5-5)012411	SB-1(44-46.5)012411	DUP-2-012411	SB-1(59-61.5)012411	SB-2(3.5-12)012511	SB-2(46.5-49)012511	SB-2(56.5-59)012611	SB-3(1.5-3)020811	SB-3(31.5-34)020911	SB-3(46.5-49)020911	SB-3(56.5-59)020911	DUP-3-020911	SB-4(2.5-5)021011	SB-4 (47.5-50)021011	SB-4 (64-67)021011	SB/MW-5(4.5-5)010411
Depth Interval			4.5-5	44-46.5	44-46.5	59-61.5	3.5-4	46.5-49	56.5-59	1.5-3	31.5-34	46.5-49	56.5-59	56.5-59	2.5-5	47.5-50	64-67	4.5-5
BTEX (mg/Kg)																		
Benzene	71-43-2	44	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Ethylbenzene	100-41-4	390	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
m&p-Xylene	1330-20-7-M,P	NL	<0.0021 U	<0.0019 U	<0.0018 U	<0.0022 U	<0.0020 U	<0.0019 U	<0.0023 U	<0.0025 U	<0.0020 U	<0.0019 U	<0.0023 U	<0.0022 U	<0.0020 U	<0.0022 U	<0.0023 U	<0.0023 U
o-Xylene	95-47-6	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Toluene	108-88-3	500	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Total Xylenes		500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total BTEX		NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VOC (mg/Kg)																		
1,1,1-Trichloroethane	71-55-6	500	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,1,2,2-Tetrachloroethane	79-34-5	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,1,2-Trichloroethane	79-00-5	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,1-Dichloroethane	75-34-3	240	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,1-Dichloroethene	75-35-4	500	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2,3-Trichlorobenzene	87-61-6	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2,4-Trichlorobenzene	120-82-1	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 UJ	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2-Dibromo-3-Chloropropane	96-12-8	NL	<0.0010 UJ	<0.00093 UJ	<0.00092 UJ	<0.0011 UJ	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2-Dibromoethane	106-93-4	NL	<0.0010 UJ	<0.00093 UJ	<0.00092 UJ	<0.0011 UJ	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2-Dichlorobenzene	95-50-1	500	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2-Dichloroethane	107-06-2	30	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,2-Dichloropropane	78-87-5	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,3-Dichlorobenzene	541-73-1	280	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,4-Dichlorobenzene	106-46-7	130	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
1,4-Dioxane	123-91-1	NL	<0.052 UJ	<0.046 UJ	<0.046 UJ	<0.055 UJ	<0.049 UJ	<0.047 UJ	<0.056 UJ	<0.063 UJ	<0.049 UJ	<0.048 UJ	<0.057 UJ	<0.056 UJ	<0.050 UJ	<0.054 UJ	<0.059 UJ	<0.058 UJ
2-Butanone	78-93-3	500	<0.010 U	<0.0093 U	<0.0092 U	<0.011 U	**0.0019 J**	<0.0093 U	<0.011 U	R	R	R	R	R	R	R	R	R
2-Hexanone	591-78-6	NL	<0.010 U	<0.0093 U	<0.0092 U	<0.011 U	<0.0098 U	<0.0093 U	<0.011 U	<0.013 U	<0.0098 U	<0.0095 U	<0.011 U	<0.011 U	<0.010 U	<0.011 U	<0.012 U	<0.012 U
4-Methyl-2-pentanone	108-10-1	NL	<0.010 UJ	<0.0093 UJ	<0.0092 UJ	<0.011 UJ	<0.0098 U	<0.0093 U	<0.011 U	<0.013 U	<0.0098 U	<0.0095 U	<0.011 U	<0.011 U	<0.010 U	<0.011 U	<0.012 U	<0.012 U
Acetone	67-64-1	500	**0.033 J**	**0.016 J**	**0.013 J**	**0.040 J**	**0.038 J**	R	**0.011 J**	**0.014 J**	**0.0062 J**	R	**0.0045 J**	**0.0065 J**	R	R	R	**0.016 J**
Bromochloromethane	74-97-5	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Bromodichloromethane	75-27-4	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Bromoform	75-25-2	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 UJ	<0.00098 UJ	<0.00095 UJ	<0.0011 UJ	<0.0011 UJ	<0.0010 UJ	<0.0011 UJ	<0.0012 UJ	<0.0012 U
Bromomethane	74-83-9	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Carbon disulfide	75-15-0	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Carbon tetrachloride	56-23-5	22	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Chlorobenzene	108-90-7	500	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Chloroethane	75-00-3	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Chloroform	67-66-3	350	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	**0.00046 J**	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Chloromethane	74-87-3	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
cis-1,2-Dichloroethene	156-59-2	500	<0.0010 U	<0.00093 U	<0.00092 UJ	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
cis-1,3-Dichloropropene	10061-01-5	NL	<0.0010 UJ	<0.00093 UJ	<0.00092 U	<0.0011 UJ	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Cyclohexane	110-82-7	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Dibromochloromethane	124-48-1	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Dichlorodifluoromethane	75-71-8	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Freon TF	76-13-1	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Isopropylbenzene	98-82-8	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Methyl acetate	79-20-9	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	R
Methylcyclohexane	108-87-2	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Methylene Chloride	75-09-2	500	<0.0010 U	<0.00093 U	<0.00092 U	**0.0015**	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	**0.00061 J**	**0.0013**	<0.0010 U	<0.0011 U	<0.0012 U	**0.0042**
MTBE	1634-04-4	500	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Styrene	100-42-5	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Tetrachloroethene	127-18-4	150	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
trans-1,2-Dichloroethene	156-60-5	500	<0.0010 U	<0.00093 U	<0.00092 UJ	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
trans-1,3-Dichloropropene	10061-02-6	NL	<0.0010 UJ	<0.00093 UJ	<0.00092 U	<0.0011 UJ	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Trichloroethene	79-01-6	200	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	**0.0022**
Trichlorofluoromethane	75-69-4	NL	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Vinyl chloride	75-01-4	13	<0.0010 U	<0.00093 U	<0.00092 U	<0.0011 U	<0.00098 U	<0.00093 U	<0.0011 U	<0.0013 U	<0.00098 U	<0.00095 U	<0.0011 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0012 U	<0.0012 U
Total VOCs		NL	**0.033**	**0.016**	**0.013**	**0.0415**	**0.0399**	ND	**0.011**	**0.014**	**0.0062**	ND	**0.00557**	**0.0078**	ND	ND	ND	**0.0224**

Notes:
[*1] = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = Not Listed
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-05	SB-05	SB-05	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-08	SB-08	SB-08	SB-09	SB-09	SB-09	SB-10
Sample Date			1/19/2011	1/19/2011	1/19/2011	1/17/2011	1/18/2011	1/18/2011	1/20/2011	1/20/2011	1/20/2011	2/16/2011	2/16/2011	2/16/2011	1/28/2011	1/28/2011	1/28/2011	2/1/2011
Sample ID			SB-5 (31-33)011911	SB-5 (47-49)011911	SB-5 (69-71)011911	SB-6 (4.5-5)011711	SB-6(50-52)011811	SB-6(66.5-69)011811	SB-7 (4.5-5)012011	SB-7 (51.5-54)012111	SB-7 (66.5-69)012011	SB-8 (3-5)021611	SB-8 (43-46)021611	SB-8 (56-59)021611	SB-9(2-3)012811	SB-9(6-7)012811	SB-9(8-10)012811	SB-10(1.5-3)020111
Depth Interval			31-33	47-49	69-71	4.5-5	50-52	66.5-69	4.5-5	51.5-54	66.5-69	3-5	43-46	56-59	2-3	6-7	8-10	1.5-3
BTEX (mg/Kg)																		
Benzene	71-43-2	44	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.0064**	**0.026**	<0.00094 U	**0.01**
Ethylbenzene	100-41-4	390	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	**1.2**	**0.00033 J**	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.0077**	**0.0056**	<0.00094 U	**0.00031 J**
m&p-Xylene	1330-20-7-M,P	NL	<0.0018 U	<0.0018 U	<0.0021 U	<0.0024 U	**2.7**	**0.00082 J**	<0.0020 U	<0.0020 U	<0.0020 U	<0.0024 U	<0.0019 U	<0.0022 U	**0.014**	**0.018**	<0.0019 U	**0.00091 J**
o-Xylene	95-47-6	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	**0.56**	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.0095**	**0.015**	<0.00094 U	<0.0012 U
Toluene	108-88-3	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.015**	**0.015**	<0.00094 U	**0.00068 J**
Total Xylenes		500	ND	ND	ND	ND	**3.26**	**0.00082**	ND	ND	ND	ND	ND	ND	**0.0235**	**0.033**	ND	**0.00091**
Total BTEX		NL	ND	ND	ND	ND	**4.46**	**0.00115**	ND	ND	ND	ND	ND	ND	**0.0526**	**0.0796**	ND	**0.0119**
VOC (mg/Kg)																		
1,1,1-Trichloroethane	71-55-6	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,1,2,2-Tetrachloroethane	79-34-5	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,1,2-Trichloroethane	79-00-5	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,1-Dichloroethane	75-34-3	240	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,1-Dichloroethene	75-35-4	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 UJ	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2,3-Trichlorobenzene	87-61-6	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2,4-Trichlorobenzene	120-82-1	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2-Dibromo-3-Chloropropane	96-12-8	NL	<0.00091 U	<0.00090 UJ	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 UJ	<0.0010 UJ	<0.00098 UJ	<0.0012 UJ	<0.00096 UJ	<0.0011 UJ	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2-Dibromoethane	106-93-4	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2-Dichlorobenzene	95-50-1	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2-Dichloroethane	107-06-2	30	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,2-Dichloropropane	78-87-5	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,3-Dichlorobenzene	541-73-1	280	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,4-Dichlorobenzene	106-46-7	130	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
1,4-Dioxane	123-91-1	NL	<0.046 UJ	<0.045 UJ	<0.053 U	<0.061 UJ	<4.700 U	<0.046 UJ	<0.051 UJ	<0.051 UJ	<0.049 UJ	<0.061 UJ	<0.048 UJ	<0.055 UJ	<0.050 UJ	<0.062 UJ	<0.047 UJ	<0.059 UJ
2-Butanone	78-93-3	500	R	R	R	R	<0.930 U	R	R	R	R	**0.0081 J**	R	R	**0.0024 J**	**0.0021 J**	R	**0.012 J**
2-Hexanone	591-78-6	NL	<0.0091 U	<0.0090 UJ	<0.011 UJ	<0.012 UJ	R	<0.0092 UJ	<0.010 UJ	<0.010 UJ	<0.0098 UJ	<0.012 U	<0.0096 U	<0.011 U	<0.010 U	<0.012 U	<0.0094 U	<0.012 U
4-Methyl-2-pentanone	108-10-1	NL	<0.0091 U	<0.0090 UJ	<0.011 UJ	<0.012 UJ	<0.930 UJ	<0.0092 UJ	<0.010 UJ	<0.010 UJ	<0.0098 UJ	<0.012 U	<0.0096 U	<0.011 U	<0.010 U	<0.012 U	<0.0094 U	<0.012 U
Acetone	67-64-1	500	**0.0052 J**	**0.0061 J**	**0.048 J**	<0.013 U	R	**0.016 J**	**0.010 J**	**0.022 J**	**0.012 J**	**0.047 J**	R	**0.0080 J**	**0.031 J**	**0.024 J**	**0.014**	**0.150 J**
Bromochloromethane	74-97-5	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Bromodichloromethane	75-27-4	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Bromoform	75-25-2	NL	<0.00091 UJ	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 UJ	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 UJ	<0.00096 UJ	<0.0011 UJ	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Bromomethane	74-83-9	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Carbon disulfide	75-15-0	NL	<0.00091 U	<0.00090 UJ	<0.0011 U	<0.0012 U	<0.093 U	**0.00090 J**	<0.0010 UJ	<0.0010 UJ	<0.00098 UJ	<0.0012 U	<0.00096 U	<0.0011 U	**0.00092 J**	**0.0016 J**	<0.00094 U	**0.0078**
Carbon tetrachloride	56-23-5	22	<0.00091 U	<0.00090 UJ	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 UJ	<0.0010 UJ	<0.00098 UJ	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Chlorobenzene	108-90-7	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Chloroethane	75-00-3	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Chloroform	67-66-3	350	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Chloromethane	74-87-3	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
cis-1,2-Dichloroethene	156-59-2	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
cis-1,3-Dichloropropene	10061-01-5	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 UJ	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Cyclohexane	110-82-7	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.00093 J**	**0.004**	<0.00094 U	**0.0019**
Dibromochloromethane	124-48-1	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 UJ	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Dichlorodifluoromethane	75-71-8	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Freon TF	76-13-1	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Isopropylbenzene	98-82-8	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	**0.23**	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.00026 J**	**0.017**	<0.00094 U	**0.0023**
Methyl acetate	79-20-9	NL	R	R	R	R	R	R	R	R	R	R	R	R	<0.0010 U	<0.0012 U	R	<0.0012 U
Methylcyclohexane	108-87-2	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	**0.052 J**	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.0016**	**0.0021**	<0.00094 U	**0.0035**
Methylene Chloride	75-09-2	500	**0.00046 J**	**0.00050 J**	**0.0045**	**0.00074 J**	<0.093 U	**0.00053 J**	**0.00059 J**	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.00053 J**	**0.00060 J**	**0.00063 J**	**0.0012**
MTBE	1634-04-4	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Styrene	100-42-5	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 UJ	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	**0.00043 J**	**0.0033**	<0.00094 U	<0.0012 U
Tetrachloroethene	127-18-4	150	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
trans-1,2-Dichloroethene	156-60-5	500	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
trans-1,3-Dichloropropene	10061-02-6	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Trichloroethene	79-01-6	200	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Trichlorofluoromethane	75-69-4	NL	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 UJ	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Vinyl chloride	75-01-4	13	<0.00091 U	<0.00090 U	<0.0011 U	<0.0012 U	<0.093 U	<0.00092 U	<0.0010 U	<0.0010 U	<0.00098 U	<0.0012 U	<0.00096 U	<0.0011 U	<0.0010 U	<0.0012 U	<0.00094 U	<0.0012 U
Total VOCs		NL	**0.00566**	**0.0066**	**0.0525**	**0.00074**	**4.742**	**0.01858**	**0.01059**	**0.022**	**0.012**	**0.0551**	ND	**0.008**	**0.09067**	**0.1343**	**0.01463**	**0.1906**

Notes:

*1 = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-12	SB-13	SB-13	SB-13	SB-14	SB-14	SB-14
Sample Date			2/1/2011	2/2/2011	2/2/2011	1/31/2011	1/31/2011	1/31/2011	2/3/2011	2/4/2011	2/4/2011	2/4/2011	2/7/2011	2/7/2011	1/3/2011	1/5/2011	1/6/2011
Sample ID			SB-10(5-7.5)020111	SB-10(60-62.5)020211	SB-10(80-82.5)020211	SB-11(1-2)013111	SB-11(35.6-40)013111	SB-11(40.6-43)013111	SB-12(3.5-4.5)020311	SB-12(69-72)020411	SB-12(75-77)020411	SB-13(0-1.5)020411	SB-13(64-66.5)020711	SB-13(77-79)020711	SB-14(5-5.5)010311	SB-14(48-50)010511	SB-14(56-58)010611
Depth Interval			5-7.5	60-62.5	80-82.5	1-2	35.6-40	40.6-43	3.5-4.5	69-72	75-77	0-1.5	64-66.5	77-79	5-5.5	48-50	56-58
BTEX (mg/Kg)																	
Benzene	71-43-2	44	**0.066**	<0.0010 U	<0.0011 U	**0.00098 J**	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	**0.001**	<0.0011 U	<0.0011 U
Ethylbenzene	100-41-4	390	**0.26**	<0.0010 U	**0.00054 J**	**0.00064 J**	<0.00094 U	<0.00096 U	**0.00030 J**	<0.00098 U	<0.0011 U	<0.0011 U	**0.25**	**0.00075 J**	<0.0010 U	<0.0011 U	**0.0017**
m&p-Xylene	1330-20-7-M,P	NL	**0.4**	<0.0021 U	<0.0021 U	**0.0011 J**	<0.0019 U	<0.0019 U	**0.00087 J**	<0.0020 U	<0.0022 U	**0.00056 J**	**0.38**	**0.00095 J**	<0.0021 U	<0.0021 U	<0.0022 U
o-Xylene	95-47-6	NL	**0.22**	<0.0010 U	<0.0011 U	**0.00088 J**	<0.00094 U	<0.00096 U	**0.00050 J**	<0.00098 U	<0.0011 U	**0.002**	**0.54**	**0.0015**	<0.0010 U	**0.00042 J**	**0.0010 J**
Toluene	108-88-3	500	**0.12**	**0.0015**	<0.0011 U	**0.00056 J**	<0.00094 U	<0.00096 U	**0.0014**	**0.0026**	**0.00035 J**	<0.0011 U	<0.110 U	**0.00070 J**	**0.00080 J**	<0.0011 U	<0.0011 U
Total Xylenes		500	**0.62**	ND	ND	**0.00198**	ND	ND	**0.00137**	ND	ND	**0.00256**	**0.92**	**0.00245**	ND	**0.00042**	**0.001**
Total BTEX		NL	**1.066**	**0.0015**	**0.00054**	**0.00416**	ND	ND	**0.00307**	**0.0026**	**0.00035**	**0.00256**	**1.17**	**0.0039**	**0.0018**	**0.00042**	**0.0027**
VOC (mg/Kg)																	
1,1,1-Trichloroethane	71-55-6	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,1,2,2-Tetrachloroethane	79-34-5	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,1,2-Trichloroethane	79-00-5	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,1-Dichloroethane	75-34-3	240	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,1-Dichloroethene	75-35-4	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2,3-Trichlorobenzene	87-61-6	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2,4-Trichlorobenzene	120-82-1	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2-Dibromo-3-Chloropropane	96-12-8	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2-Dibromoethane	106-93-4	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2-Dichlorobenzene	95-50-1	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2-Dichloroethane	107-06-2	30	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,2-Dichloropropane	78-87-5	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,3-Dichlorobenzene	541-73-1	280	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,4-Dichlorobenzene	106-46-7	130	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
1,4-Dioxane	123-91-1	NL	<0.055 UJ	<0.051 UJ	<0.053 UJ	<0.052 UJ	<0.047 UJ	<0.048 UJ	<0.059 UJ	<0.049 UJ	<0.055 UJ	<0.053 UJ	<5.700 UJ	<0.055 UJ	<0.052 UJ	<0.053 UJ	<0.054 UJ
2-Butanone	78-93-3	500	**0.0077 J**	**0.0012 J**	R	**0.014**	<0.0094 U	<0.0096 U	**0.0025 J**	R	R	R	R	R	R	R	R
2-Hexanone	591-78-6	NL	<0.011 U	<0.010 U	<0.011 UJ	<0.010 U	<0.0094 U	<0.0096 U	<0.012 U	<0.0098 U	<0.011 U	<0.011 U	<1.100 U	<0.011 U	<0.010 U	<0.011 UJ	<0.011 UJ
4-Methyl-2-pentanone	108-10-1	NL	<0.011 U	<0.010 U	<0.011 U	<0.010 U	<0.0094 U	**0.00088 J**	<0.012 U	<0.0098 U	<0.011 U	R	<1.100 U	R	<0.010 U	<0.011 U	<0.011 U
Acetone	67-64-1	500	**0.085 J**	**0.0076 J**	**0.0063 J**	**0.120 J**	R	<0.0096 UJ	**0.014**	**0.0042 J**	**0.0059 J**	R	R	R	**0.0046 J**	<0.011 U	<0.011 U
Bromochloromethane	74-97-5	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Bromodichloromethane	75-27-4	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Bromoform	75-25-2	NL	<0.0011 U	<0.0010 U	<0.0011 UJ	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 UJ	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 UJ	<0.0010 U	<0.0011 UJ	<0.0011 UJ
Bromomethane	74-83-9	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Carbon disulfide	75-15-0	NL	**0.015**	<0.0010 U	**0.0026**	**0.0021**	<0.00094 U	<0.00096 U	**0.00055 J**	<0.00098 U	**0.0012**	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 UJ	<0.0011 UJ
Carbon tetrachloride	56-23-5	22	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Chlorobenzene	108-90-7	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Chloroethane	75-00-3	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Chloroform	67-66-3	350	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Chloromethane	74-87-3	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
cis-1,2-Dichloroethene	156-59-2	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
cis-1,3-Dichloropropene	10061-01-5	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Cyclohexane	110-82-7	NL	**0.0018**	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	**0.00035 J**	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Dibromochloromethane	124-48-1	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Dichlorodifluoromethane	75-71-8	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 UJ	<0.110 U	<0.0011 UJ	<0.0010 U	<0.0011 U	<0.0011 U
Freon TF	76-13-1	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Isopropylbenzene	98-82-8	NL	**0.043**	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	**0.25**	<0.0011 U	<0.0010 U	**0.00047 J**	**0.0043**
Methyl acetate	79-20-9	NL	<0.0011 U	R	R	<0.0010 U	<0.00094 U	<0.00096 U	R	R	R	R	NS	R	R	R	R
Methylcyclohexane	108-87-2	NL	**0.0026**	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	**0.00035 J**	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Methylene Chloride	75-09-2	500	**0.015**	<0.0010 U	<0.0011 U	**0.002**	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	**0.00056 J**	<0.110 U	**0.0022**	**0.00095 J**	<0.0011 U	<0.0011 U
MTBE	1634-04-4	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Styrene	100-42-5	NL	**0.016**	**0.0038**	**0.0010 J**	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	**0.0083**	**0.0011**	<0.0011 U	<0.110 U	**0.0022**	<0.0010 U	<0.0011 U	<0.0011 U
Tetrachloroethene	127-18-4	150	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
trans-1,2-Dichloroethene	156-60-5	500	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
trans-1,3-Dichloropropene	10061-02-6	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Trichloroethene	79-01-6	200	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Trichlorofluoromethane	75-69-4	NL	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 U	<0.110 U	<0.0011 U	<0.0010 U	<0.0011 U	<0.0011 U
Vinyl chloride	75-01-4	13	<0.0011 U	<0.0010 U	<0.0011 U	<0.0010 U	<0.00094 U	<0.00096 U	<0.0012 U	<0.00098 U	<0.0011 U	<0.0011 UJ	<0.110 U	<0.0011 UJ	<0.0010 U	<0.0011 U	<0.0011 U
Total VOCs		NL	**1.2521**	**0.0141**	**0.01044**	**0.14226**	ND	**0.00088**	**0.02082**	**0.0151**	**0.00855**	**0.00312**	**1.42**	**0.0083**	**0.00735**	**0.00089**	**0.007**

Notes:

*1 = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = Not Listed
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
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J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID Sample Date Sample ID Depth Interval	**CAS #**	**NYSDEC PART 375-6 Commercial USE**	**SB-15 1/3/2011 SB-15(4-5.5)010311 4-5.5**	**SB-15 1/10/2011 SB-15(66-68)011011 66-68**	**SB-15 1/11/2011 SB-15(78-80)011011 78-80**	**SB-16 1/22/2011 SB-16(4-5)012211 4-5**	**SB-16 1/22/2011 SB-16(47-50)012211 47-50**	**SB-16 1/22/2011 SB-16(68-70)012211 68-70**	**SB-17 1/4/2011 DUP-1-010411 4.5-5**	**SB-17 1/4/2011 SB-17(4.5-5)010411 4.5-5**	**SB-17 1/17/2011 SB-17(31-33)011711 31-33**	**SB-17 1/17/2011 SB-17(49-51)011711 49-51**	**SB-17 1/17/2011 SB-17(67-69)011711 67-69**	**SB-18 6/23/2011 SB-18(4-5)062311 4-5**	**SB-18 6/27/2011 SB-18(42.5-45)062411 42.5-45**	**SB-18 6/27/2011 SB-18(27.5-30)062411 27.5-30**	**SB-18 6/27/2011 SB-18(70-72.5)062411 70-72.5**	**SB-19 6/23/2011 SB-19(4-5)062311 4-5**
BTEX (mg/Kg)																		
Benzene	71-43-2	44	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	**0.0015 J**	**0.0053 J**	**0.064 J**	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Ethylbenzene	100-41-4	390	<0.0010 U	**87**	**0.0016**	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	**0.093 J**	<0.0010 U	**0.00035 J**	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
m&p-Xylene	1330-20-7-M,P	NL	<0.0021 U	**70**	**0.005**	<0.0020 U	<0.0020 U	<0.0024 U	<0.0020 U	**0.0012 J**	**1.7**	**0.00066 J**	**0.0035**	<0.0021 U	<0.0023 U	<0.0021 U	<0.0023 U	<0.0027 U
o-Xylene	95-47-6	NL	<0.0010 U	**38**	**0.0049**	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	**0.00055 J**	**2**	**0.00051 J**	**0.0026**	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Toluene	108-88-3	500	<0.0010 U	**3**	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	**0.00073 J**	**0.0048 J**	**0.170 J**	<0.0010 U	**0.00046 J**	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Total Xylenes		500	ND	**108**	**0.0099**	ND	ND	ND	ND	**0.00175**	**3.7**	**0.00117**	**0.0061**	ND	ND	ND	ND	ND
Total BTEX		NL	ND	**198**	**0.0115**	ND	ND	ND	**0.00223**	**0.01185**	**4.027**	**0.00117**	**0.00691**	ND	ND	ND	ND	ND
VOC (mg/Kg)																		
1,1,1-Trichloroethane	71-55-6	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,1,2,2-Tetrachloroethane	79-34-5	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,1,2-Trichloroethane	79-00-5	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,1-Dichloroethane	75-34-3	240	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,1-Dichloroethene	75-35-4	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2,3-Trichlorobenzene	87-61-6	NL	<0.0010 U	<1.000 UJ	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2,4-Trichlorobenzene	120-82-1	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2-Dibromo-3-Chloropropane	96-12-8	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2-Dibromoethane	106-93-4	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2-Dichlorobenzene	95-50-1	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2-Dichloroethane	107-06-2	30	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,2-Dichloropropane	78-87-5	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,3-Dichlorobenzene	541-73-1	280	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,4-Dichlorobenzene	106-46-7	130	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
1,4-Dioxane	123-91-1	NL	<0.052 UJ	<52.000 UJ	<0.056 UJ	<0.049 UJ	<0.049 UJ	<0.060 UJ	<0.051 UJ	<0.055 UJ	<9.800 UJ	<0.050 UJ	<0.063 UJ	<0.052 UJ	<0.058 UJ	<0.052 UJ	<0.058 UJ	<0.066 UJ
2-Butanone	78-93-3	500	R	<10.000 U	R	R	R	R	R	R	**0.250 J**	R	R	R	R	<0.010 UJ	R	R
2-Hexanone	591-78-6	NL	<0.010 U	<10.000 U	<0.011 U	<0.0098 UJ	<0.0098 UJ	<0.012 UJ	<0.010 U	<0.011 U	R	<0.010 UJ	<0.013 UJ	<0.010 U	<0.012 U	<0.010 U	<0.012 U	<0.013 U
4-Methyl-2-pentanone	108-10-1	NL	<0.010 U	<10.000 U	<0.011 U	<0.0098 UJ	<0.0098 UJ	<0.012 UJ	<0.010 U	<0.011 U	<2.000 UJ	<0.010 UJ	<0.013 UJ	<0.010 U	<0.012 U	<0.010 UJ	<0.012 U	<0.013 U
Acetone	67-64-1	500	**0.021 J**	<10.000 U	<0.011 UJ	**0.0077 J**	**0.0056 J**	**0.013 J**	**0.018 J**	**0.0066 J**	R	<0.010 U	<0.013 U	<0.010 U	**0.039 J**	**0.0078 J**	<0.014 UJ	<0.013 U
Bromochloromethane	74-97-5	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Bromodichloromethane	75-27-4	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 UJ	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 UJ
Bromoform	75-25-2	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 UJ	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 UJ
Bromomethane	74-83-9	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Carbon disulfide	75-15-0	NL	<0.0010 U	<1.000 U	**0.0084**	<0.00098 UJ	<0.00098 UJ	<0.0012 UJ	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Carbon tetrachloride	56-23-5	22	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 UJ	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 UJ
Chlorobenzene	108-90-7	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Chloroethane	75-00-3	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Chloroform	67-66-3	350	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	**0.00033 J**	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Chloromethane	74-87-3	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
cis-1,2-Dichloroethene	156-59-2	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
cis-1,3-Dichloropropene	10061-01-5	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 UJ	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Cyclohexane	110-82-7	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Dibromochloromethane	124-48-1	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 UJ	<0.0010 U	<0.0013 U	<0.0010 UJ	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 UJ
Dichlorodifluoromethane	75-71-8	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Freon TF	76-13-1	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Isopropylbenzene	98-82-8	NL	<0.0010 U	**11**	**0.002**	<0.00098 U	<0.00098 U	**0.00057 J**	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Methyl acetate	79-20-9	NL	R	<2.100 U	<0.0011 U	R	R	R	R	R	R	R	R	<0.0010 U	R	<0.0010 U	R	<0.0013 U
Methylcyclohexane	108-87-2	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Methylene Chloride	75-09-2	500	**0.0053**	<1.000 U	<0.0011 U	**0.00073 J**	<0.00098 U	**0.0014**	**0.0035**	**0.0037**	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	**0.0025**	**0.0035**	**0.014**	<0.0013 U
MTBE	1634-04-4	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Styrene	100-42-5	NL	<0.0010 U	<1.000 U	**0.00098 J**	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	**0.190 J**	**0.00046 J**	**0.0025**	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Tetrachloroethene	127-18-4	150	<0.0010 U	<1.000 U	**0.00083 J**	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
trans-1,2-Dichloroethene	156-60-5	500	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
trans-1,3-Dichloropropene	10061-02-6	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Trichloroethene	79-01-6	200	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Trichlorofluoromethane	75-69-4	NL	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Vinyl chloride	75-01-4	13	<0.0010 U	<1.000 U	<0.0011 U	<0.00098 U	<0.00098 U	<0.0012 U	<0.0010 U	<0.0011 U	<0.200 U	<0.0010 U	<0.0013 U	<0.0010 U	<0.0012 U	<0.0010 U	<0.0012 U	<0.0013 U
Total VOCs		NL	**0.0263**	**209**	**0.02371**	**0.00843**	**0.0056**	**0.0153**	**0.02373**	**0.02215**	**4.467**	**0.00163**	**0.00941**	ND	**0.0415**	**0.0113**	**0.014**	ND

Notes:

*1 = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

AECOM

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-19	SB-19	SB-20	SB-20	SB-20	SB-20	SB-21	SB-21	SB-21	SB-22	SB-22	SB-22	SB-22	SB-23	SB-23
Sample Date			6/24/2011	6/24/2011	6/23/2011	6/28/2011	6/28/2011	6/29/2011	6/23/2011	6/29/2011	6/29/2011	7/6/2011	7/6/2011	7/6/2011	7/6/2011	7/13/2011	7/13/2011
Sample ID			SB-19(72.5-75)062411	SB-19(75-77.5)062411	SB-20 (4-5)062311	SB-20(15-17.5)062411	SB-20(62.5-65)062411	SB-20(87.5-90)062411	SB-21(4.5-5)062311	SB-21(72.5-75)062411	SB-21(92.5-95)062411	SB-22(1-2)062411	DUP 1-062411	SB-22(82.5-85)062411	SB-22(92.5-95)062411	SB-23(77.5-80)062411	SB-23(92.5-95)062411
Depth Interval			72.5-75	75-77.5	4-5	15-17.5	62.5-65	87.5-90	4.5-5	72.5-75	92.5-95	1-2	0-0	82.5-85	92.5-95	77.5-80	92.5-95
BTEX (mg/Kg)																	
Benzene	71-43-2	44	<0.0012 U	<0.0011 U	<0.0011 U	**0.0018**	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Ethylbenzene	100-41-4	390	<0.0012 U	<0.0011 U	<0.0011 U	**0.00058 J**	<0.120 U	<0.0014 U	<0.00094 U	**0.048**	**0.028**	<0.0012 U	<0.0011 U	**0.00033 J**	<0.0012 U	<0.0011 U	**0.15**
m&p-Xylene	1330-20-7-M,P	NL	<0.0025 U	<0.0021 U	<0.0022 U	**0.0035**	<0.240 U	<0.0027 U	<0.0019 U	**0.05**	**0.0072**	<0.0023 U	<0.0021 U	**0.00060 J**	<0.0023 U	<0.0022 U	**0.081**
o-Xylene	95-47-6	NL	<0.0012 U	<0.0011 U	<0.0011 U	**0.00087 J**	<0.120 U	<0.0014 U	<0.00094 U	**0.07**	**0.017**	<0.0012 U	<0.0011 U	**0.00069 J**	<0.0012 U	<0.0011 U	**0.1**
Toluene	108-88-3	500	<0.0012 U	<0.0011 U	<0.0011 U	**0.0024**	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	**0.00053 J**
Total Xylenes		500	ND	ND	ND	**0.00437**	ND	ND	ND	**0.12**	**0.0242**	ND	ND	**0.00129**	ND	ND	**0.181**
Total BTEX		NL	ND	ND	ND	**0.00915**	ND	ND	ND	**0.168**	**0.0522**	ND	ND	**0.00162**	ND	ND	**0.33153**
VOC (mg/Kg)																	
1,1,1-Trichloroethane	71-55-6	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,1,2,2-Tetrachloroethane	79-34-5	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 UJ	<0.0012 U	<0.0011 U	<0.0012 U
1,1,2-Trichloroethane	79-00-5	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,1-Dichloroethane	75-34-3	240	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,1-Dichloroethene	75-35-4	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,2,3-Trichlorobenzene	87-61-6	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,2,4-Trichlorobenzene	120-82-1	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 UJ	<0.0012 U	<0.0011 U	<0.0012 U
1,2-Dibromo-3-Chloropropane	96-12-8	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,2-Dibromoethane	106-93-4	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,2-Dichlorobenzene	95-50-1	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,2-Dichloroethane	107-06-2	30	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,2-Dichloropropane	78-87-5	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,3-Dichlorobenzene	541-73-1	280	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,4-Dichlorobenzene	106-46-7	130	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
1,4-Dioxane	123-91-1	NL	<0.061 UJ	<0.053 UJ	<0.054 UJ	<0.055 UJ	<6.100 UJ	<0.068 UJ	<0.047 UJ	<0.062 UJ	<0.064 UJ	<0.058 UJ	<0.053 UJ	<0.060 UJ	<0.058 UJ	<0.055 U	<0.061 U
2-Butanone	78-93-3	500	R	<0.011 UJ	R	R	R	R	R	R	R	<0.012 U	<0.011 U	<0.012 U	<0.012 U	<0.011 U	<0.012 UJ
2-Hexanone	591-78-6	NL	<0.012 U	<0.011 U	<0.011 U	<0.011 U	<1.200 U	<0.014 U	<0.0094 U	<0.012 U	<0.013 U	<0.012 U	<0.011 U	<0.012 UJ	<0.012 U	<0.011 U	<0.012 U
4-Methyl-2-pentanone	108-10-1	NL	<0.012 U	<0.011 U	<0.011 U	<0.011 U	<1.200 U	<0.014 U	<0.0094 U	<0.012 U	<0.013 U	<0.012 U	<0.011 U	<0.012 UJ	<0.012 U	<0.011 U	<0.012 U
Acetone	67-64-1	500	<0.012 U	<0.011 U	<0.011 U	<0.015 UJ	R	<0.014 UJ	<0.0094 U	<0.021 UJ	<0.013 UJ	R	<0.011 UJ	**0.012 J**	**0.015 J**	**0.015**	**0.0091 J**
Bromochloromethane	74-97-5	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Bromodichloromethane	75-27-4	NL	<0.0012 UJ	<0.0011 UJ	<0.0011 UJ	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 UJ	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Bromoform	75-25-2	NL	<0.0012 UJ	<0.0011 UJ	<0.0011 UJ	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 UJ	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 UJ
Bromomethane	74-83-9	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Carbon disulfide	75-15-0	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	**0.007**	<0.0012 U	<0.0011 U	**0.00061 J**	<0.0012 U	<0.0011 U	<0.0012 U
Carbon tetrachloride	56-23-5	22	<0.0012 UJ	<0.0011 UJ	<0.0011 UJ	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 UJ	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 UJ
Chlorobenzene	108-90-7	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Chloroethane	75-00-3	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Chloroform	67-66-3	350	<0.0012 U	**0.00088 J**	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	**0.00039 J**	**0.0018**	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Chloromethane	74-87-3	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
cis-1,2-Dichloroethene	156-59-2	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
cis-1,3-Dichloropropene	10061-01-5	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 UJ	<0.0012 U	<0.0011 U	<0.0012 U
Cyclohexane	110-82-7	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Dibromochloromethane	124-48-1	NL	<0.0012 UJ	<0.0011 UJ	<0.0011 UJ	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 UJ	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Dichlorodifluoromethane	75-71-8	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Freon TF	76-13-1	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Isopropylbenzene	98-82-8	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	**0.2**	<0.0014 U	<0.00094 U	**0.0021**	**0.0018**	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	**0.0038**
Methyl acetate	79-20-9	NL	<0.0012 U	<0.0011 U	<0.0011 U	R	<0.240 U	<0.0014 U	<0.00094 U	R	R	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Methylcyclohexane	108-87-2	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Methylene Chloride	75-09-2	500	<0.0012 U	<0.0012 U	<0.0011 U	**0.0047**	<0.120 U	**0.0039**	<0.00094 U	**0.011**	**0.0029**	**0.002**	**0.0033**	**0.0027**	**0.0052**	**0.015 B**	**0.019**
MTBE	1634-04-4	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Styrene	100-42-5	NL	<0.0012 U	<0.0011 U	<0.0011 U	**0.0049**	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	**0.0014**	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Tetrachloroethene	127-18-4	150	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	**0.00059 J**	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
trans-1,2-Dichloroethene	156-60-5	500	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
trans-1,3-Dichloropropene	10061-02-6	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Trichloroethene	79-01-6	200	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Trichlorofluoromethane	75-69-4	NL	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Vinyl chloride	75-01-4	13	<0.0012 U	<0.0011 U	<0.0011 U	<0.0011 U	<0.120 U	<0.0014 U	<0.00094 U	<0.0012 U	<0.0013 U	<0.0012 U	<0.0011 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0012 U
Total VOCs		NL	ND	**0.00088**	ND	**0.01875**	**0.2**	**0.0039**	ND	**0.18208**	**0.0671**	**0.002**	**0.0033**	**0.01693**	**0.0202**	**0.03**	**0.36343**

Notes:

[*1] = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = Not Listed
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-24	SB-24	SB-25	SB-25^{*1}	SB-25^{*1}	TP-1	TP-1	TP-1	TP-2
Sample Date			6/30/2011	6/30/2011	7/7/2011	7/11/2011	7/11/2011	6/23/2011	6/23/2011	6/23/2011	6/23/2011
Sample ID			SB-24(32.5-35)062411	SB-24(4-5)062411	SB-25(4-5)062411	SB-25(90-92.5)062411	SB-25(82.5-85)062411	TP-1(1-2)062311	TP-1(8)062311	TP-1(INSIDE NO VALVE HO.)062311	TP-2(8')062311
Depth Interval			32.5-35	4-5	4-5	82.5-85	90-92.5	1-2	8	0	8
BTEX (mg/Kg)											
Benzene	71-43-2	44	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Ethylbenzene	100-41-4	390	<0.0010 U	<0.0012 U	<0.0013 U	**33**	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
m&p-Xylene	1330-20-7-M,P	NL	<0.0020 U	<0.0024 U	<0.0025 U	**20**	<0.0024 U	<0.0024 U	<0.0023 U	<0.0022 U	<0.0020 U
o-Xylene	95-47-6	NL	<0.0010 U	<0.0012 U	<0.0013 U	**21**	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Toluene	108-88-3	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Total Xylenes		500	ND	ND	ND	**41**	ND	ND	ND	ND	ND
Total BTEX		NL	ND	ND	ND	**74**	ND	ND	ND	ND	ND
VOC (mg/Kg)											
1,1,1-Trichloroethane	71-55-6	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,1,2,2-Tetrachloroethane	79-34-5	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,1,2-Trichloroethane	79-00-5	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,1-Dichloroethane	75-34-3	240	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,1-Dichloroethene	75-35-4	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2,3-Trichlorobenzene	87-61-6	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 UJ	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2,4-Trichlorobenzene	120-82-1	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 UJ	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2-Dibromo-3-Chloropropane	96-12-8	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2-Dibromoethane	106-93-4	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2-Dichlorobenzene	95-50-1	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2-Dichloroethane	107-06-2	30	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,2-Dichloropropane	78-87-5	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,3-Dichlorobenzene	541-73-1	280	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,4-Dichlorobenzene	106-46-7	130	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
1,4-Dioxane	123-91-1	NL	<0.050 UJ	<0.060 UJ	<0.063 UJ	<58.000 UJ	<0.061 UJ	<0.060 UJ	<0.058 U	<0.056 UJ	<0.051 UJ
2-Butanone	78-93-3	500	R	R	<0.013 U	R	R	R	R	R	R
2-Hexanone	591-78-6	NL	<0.010 U	<0.012 U	<0.013 U	<12.000 U	<0.012 U	<0.012 U	<0.012 U	<0.011 U	<0.010 U
4-Methyl-2-pentanone	108-10-1	NL	<0.010 U	<0.012 U	<0.013 U	<12.000 U	<0.012 U	<0.012 U	<0.012 U	<0.011 U	<0.010 U
Acetone	67-64-1	500	<0.010 UJ	<0.012 UJ	R	R	**0.0070 J**	<0.012 U	<0.012 U	R	R
Bromochloromethane	74-97-5	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Bromodichloromethane	75-27-4	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 UJ	<0.0012 UJ	<0.0011 U	<0.0010 U
Bromoform	75-25-2	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 UJ	<0.0012 UJ	<0.0012 UJ	<0.0011 UJ	<0.0010 UJ
Bromomethane	74-83-9	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Carbon disulfide	75-15-0	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Carbon tetrachloride	56-23-5	22	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 UJ	<0.0012 UJ	<0.0012 UJ	<0.0011 U	<0.0010 U
Chlorobenzene	108-90-7	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Chloroethane	75-00-3	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Chloroform	67-66-3	350	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Chloromethane	74-87-3	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
cis-1,2-Dichloroethene	156-59-2	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
cis-1,3-Dichloropropene	10061-01-5	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Cyclohexane	110-82-7	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Dibromochloromethane	124-48-1	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 UJ	<0.0012 UJ	<0.0011 U	<0.0010 U
Dichlorodifluoromethane	75-71-8	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Freon TF	76-13-1	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Isopropylbenzene	98-82-8	NL	<0.0010 U	<0.0012 U	<0.0013 U	**6.9**	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Methyl acetate	79-20-9	NL	R	R	<0.0013 U	<2.300 U	<0.0012 U	<0.0012 U	<0.0012 U	R	R
Methylcyclohexane	108-87-2	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Methylene Chloride	75-09-2	500	<0.0010 U	**0.0031**	**0.00065 J**	<1.200 U	<0.0023 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
MTBE	1634-04-4	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Styrene	100-42-5	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Tetrachloroethene	127-18-4	150	<0.0010 U	<0.0012 U	<0.0013 U	**0.300 J**	<0.0012 U	**0.0012**	**0.00063 J**	<0.0011 U	<0.0010 U
trans-1,2-Dichloroethene	156-60-5	500	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
trans-1,3-Dichloropropene	10061-02-6	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Trichloroethene	79-01-6	200	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Trichlorofluoromethane	75-69-4	NL	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Vinyl chloride	75-01-4	13	<0.0010 U	<0.0012 U	<0.0013 U	<1.200 U	<0.0012 U	<0.0012 U	<0.0012 U	<0.0011 U	<0.0010 U
Total VOCs		NL	ND	**0.0031**	**0.00065**	**81.2**	**0.007**	**0.0012**	**0.00063**	ND	ND

Notes:

^{*1} = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID Sample Date Sample ID Depth Interval	CAS #	NYSDEC PART 375-6 Commercial USE	SB-01 1/24/2011 SB-1(4.5-5)012411 4.5-5	SB-01 1/24/2011 SB-1(44-46.5)012411 44-46.5	SB-01 1/24/2011 DUP-2-012411 44-46.5	SB-01 1/24/2011 SB-1(59-61.5)012411 59-61.5	SB-02 1/25/2011 SB-2(3.5-12)012511 3.5-4	SB-02 1/25/2011 SB-2(46.5-49)012511 46.5-49	SB-02 1/26/2011 SB-2(56.5-59)012611 56.5-59	SB-03 2/8/2011 SB-3(1.5-3)020811 1.5-3	SB-03 2/9/2011 SB-3(31.5-34)020911 31.5-34	SB-03 2/9/2011 SB-3(46.5-49)020911 46.5-49	SB-03 2/9/2011 SB-3(56.5-59)020911 56.5-59	SB-03 2/9/2011 DUP-3-020911 56.5-59	SB-04 2/10/2011 SB-4(2.5-5)021011 2.5-5	SB-04 2/10/2011 SB-4 (47.5-50)021011 47.5-50	SB-04 2/10/2011 SB-4 (64-67)021011 64-67
PAH (mg/Kg)																	
2-Methylnaphthalene	91-57-6	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Acenaphthene	83-32-9	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**0.280 J**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Acenaphthylene	208-96-8	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Anthracene	120-12-7	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**0.76**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Benzo[a]anthracene	56-55-3	5.6	<0.036 U	<0.036 U	<0.036 U	<0.042 U	**1.9**	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Benzo[a]pyrene	50-32-8	1	<0.036 U	<0.036 U	<0.036 U	<0.042 U	**1.5**	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Benzo[b]fluoranthene	205-99-2	5.6	**0.011 J**	<0.036 U	<0.036 U	<0.042 U	**1.6**	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Benzo[g,h,i]perylene	191-24-2	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**1.6**	<0.350 U	<0.440 U	<0.460 UJ	<0.370 UJ	<0.350 UJ	<0.410 UJ	<0.410 UJ	<0.360 UJ	<0.390 U	<0.390 U
Benzo[k]fluoranthene	207-08-9	56	<0.036 U	<0.036 U	<0.036 U	<0.042 U	**0.56**	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Chrysene	218-01-9	56	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**2.1**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Dibenz(a,h)anthracene	53-70-3	0.56	<0.036 U	<0.036 U	<0.036 U	<0.042 U	**0.23**	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Fluoranthene	206-44-0	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**3.9**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Fluorene	86-73-7	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**0.250 J**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Indeno[1,2,3-cd]pyrene	193-39-5	5.6	<0.036 U	<0.036 U	<0.036 U	<0.042 U	**1.6**	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Naphthalene	91-20-3	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Phenanthrene	85-01-8	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**3.8**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Pyrene	129-00-0	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**3.1**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Total PAHs	CALC-PAH	500^{A}	**2.081**	2.088 U	2.088 U	2.436 U	**23.735**	2.03 U	2.552 U	2.668 U	2.146 U	2.03 U	2.378 U	2.378 U	2.088 U	2.262 U	2.262 U
SVOC (mg/Kg)																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 UJ	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,4,5-Trichlorophenol	95-95-4	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,4,6-Trichlorophenol	88-06-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,4-Dichlorophenol	120-83-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,4-Dimethylphenol	105-67-9	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2,4-Dinitrophenol	51-28-5	NL	<1.100 UJ	<1.100 U	<1.100 U	<1.300 U	<1.100 U	<1.000 U	<1.300 UJ	<1.400 U	<1.100 UJ	<1.100 U	<1.300 U	<1.300 U	<1.100 U	<1.200 UJ	<1.200 U
2,4-Dinitrotoluene	121-14-2	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.080 U	<0.079 U
2,6-Dinitrotoluene	606-20-2	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.080 U	<0.079 U
2-Chloronaphthalene	91-58-7	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2-Chlorophenol	95-57-8	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2-Methylphenol	95-48-7	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
2-Nitroaniline	88-74-4	NL	<0.740 U	<0.730 U	<0.720 U	<0.850 U	<0.760 U	<0.700 U	<0.890 U	<0.930 U	<0.750 U	<0.710 U	<0.840 U	<0.840 U	<0.720 U	<0.800 U	<0.790 U
2-Nitrophenol	88-75-5	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
3,3'-Dichlorobenzidine	91-94-1	NL	<0.740 U	<0.730 U	<0.720 U	<0.850 U	<0.760 U	<0.700 U	<0.890 U	<0.930 U	<0.750 U	<0.710 U	<0.840 U	<0.840 U	<0.720 U	<0.800 U	<0.790 U
3-Nitroaniline	99-09-2	NL	<0.740 U	<0.730 U	<0.720 U	<0.850 U	<0.760 U	<0.700 U	<0.890 U	<0.930 U	<0.750 U	<0.710 U	<0.840 U	<0.840 U	<0.720 U	<0.800 U	<0.790 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<1.100 U	<1.100 U	<1.100 U	<1.300 U	<1.100 U	<1.000 U	<1.300 UJ	<1.400 U	<1.100 UJ	<1.100 U	<1.300 U	<1.300 U	<1.100 U	<1.200 U	<1.200 U
4-Bromophenyl phenyl ether	101-55-3	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
4-Chloro-3-methylphenol	59-50-7	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
4-Chloroaniline	106-47-8	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
4-Methylphenol	106-44-5	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 UJ	<0.370 UJ	<0.350 UJ	<0.410 UJ	<0.410 UJ	<0.360 UJ	<0.390 U	<0.390 U
4-Nitroaniline	100-01-6	NL	<0.740 U	<0.730 U	<0.720 U	<0.850 U	<0.760 U	<0.700 U	<0.890 U	<0.930 U	<0.750 U	<0.710 U	<0.840 U	<0.840 U	<0.720 U	<0.800 U	<0.790 U
4-Nitrophenol	100-02-7	NL	<1.100 U	<1.100 U	<1.100 U	<1.300 U	<1.100 U	<1.000 U	<1.300 U	<1.400 U	<1.100 U	<1.100 U	<1.300 U	<1.300 U	<1.100 U	<1.200 U	<1.200 U
Acetophenone	98-86-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Atrazine	1912-24-9	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Benzaldehyde	100-52-7	NL	<0.360 UJ	<0.360 UJ	<0.360 UJ	<0.420 UJ	<0.370 UJ	<0.350 UJ	<0.440 UJ	<0.460 UJ	<0.370 UJ	<0.350 UJ	<0.410 UJ	<0.410 UJ	<0.360 UJ	<0.390 UJ	<0.390 UJ
Bis(2-chloroethoxy)methane	111-91-1	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Bis(2-chloroethyl)ether	111-44-4	NL	<0.036 U	<0.036 U	<0.036 U	<0.042 U	<0.037 U	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Bis(2-ethylhexyl) phthalate	117-81-7	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Butyl benzyl phthalate	85-68-7	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Caprolactam	105-60-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 UJ	<0.390 UJ
Carbazole	86-74-8	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**0.240 J**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Dibenzofuran	132-64-9	350	<0.360 U	<0.360 U	<0.360 U	<0.420 U	**0.140 J**	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Diethyl phthalate	84-66-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Dimethyl phthalate	131-11-3	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Di-n-butyl phthalate	84-74-2	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Di-n-octyl phthalate	117-84-0	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Diphenyl	92-52-4	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Hexachlorobenzene	118-74-1	6	<0.036 U	<0.036 U	<0.036 U	<0.042 U	<0.037 U	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Hexachlorobutadiene	87-68-3	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.080 U	<0.079 U
Hexachlorocyclopentadiene	77-47-4	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Hexachloroethane	67-72-1	NL	<0.036 U	<0.036 U	<0.036 U	<0.042 U	<0.037 U	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
Isophorone	78-59-1	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Nitrobenzene	98-95-3	NL	<0.036 U	<0.036 U	<0.036 U	<0.042 U	<0.037 U	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
N-Nitrosodi-n-propylamine	621-64-7	NL	<0.036 U	<0.036 U	<0.036 U	<0.042 U	<0.037 U	<0.035 U	<0.044 U	<0.046 U	<0.037 U	<0.035 U	<0.041 U	<0.041 U	<0.036 U	<0.039 U	<0.039 U
N-Nitrosodiphenylamine	86-30-6	NL	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Pentachlorophenol	87-86-5	6.7	<1.100 U	<1.100 U	<1.100 U	<1.300 U	<1.100 U	<1.000 U	<1.300 U	<1.400 U	<1.100 U	<1.100 U	<1.300 U	<1.300 U	<1.100 U	<1.200 U	<1.200 U
Phenol	108-95-2	500	<0.360 U	<0.360 U	<0.360 U	<0.420 U	<0.370 U	<0.350 U	<0.440 U	<0.460 U	<0.370 U	<0.350 U	<0.410 U	<0.410 U	<0.360 U	<0.390 U	<0.390 U
Total SVOCs		NL	**0.011**	ND	ND	ND	**23.56**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

A. Green Shaded values exceed NYSDEC CP-51 Alternate Criteria of 500 mg/Kg for Total PAHs

For comparison to the CP-51 Alternate criteria, Total PAH numbers include detected concentrations plus have the analytical detection limit for non detected compounds. Total PAH numers qualified with a U indicate all concentrations were below detection limits.

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

*Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID Sample Date Sample ID Depth Interval	CAS #	NYSDEC PART 375-6 Commercial USE	SB-05 1/4/2011 SB/MW-5(4.5-5)01041 4.5-5	SB-05 1/19/2011 SB-5 (31-33)011911 31-33	SB-05 1/19/2011 SB-5 (47-49)011911 47-49	SB-05 1/19/2011 SB-5 (69-71)011911 69-71	SB-06 1/17/2011 SB-6 (4.5-5)011711 4.5-5	SB-06 1/18/2011 SB-6(50-52)011811 50-52	SB-06 1/18/2011 SB-6(66.5-69)011811 66.5-69	SB-07 1/20/2011 SB-7 (4.5-5)012011 4.5-5	SB-07 1/20/2011 SB-7 (51.5-54)012111 51.5-54	SB-07 1/20/2011 SB-7 (66.5-69)012011 66.5-69	SB-08 2/16/2011 SB-8 (3-5)021611 3-5	SB-08 2/16/2011 SB-8 (43-46)021611 43-46	SB-08 2/16/2011 SB-8 (56-59)021611 56-59	SB-09 1/28/2011 SB-9(2-3)012811 2-3	SB-09 1/28/2011 SB-9(6-7)012811 6-7
PAH (mg/Kg)																	
2-Methylnaphthalene	91-57-6	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	**0.170 J**	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.098 J**	**0.54**
Acenaphthene	83-32-9	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	**0.130 J**
Acenaphthylene	208-96-8	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.130 J**	<0.420 U
Anthracene	120-12-7	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.180 J**	**0.160 J**
Benzo[a]anthracene	56-55-3	5.6	**0.12**	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	**0.45**	**0.39**
Benzo[a]pyrene	50-32-8	1	**0.11**	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	**0.059**	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	**0.55**	**0.34**
Benzo[b]fluoranthene	205-99-2	5.6	**0.14**	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	**0.065**	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	**0.780 J**	**0.430 J**
Benzo[g,h,i]perylene	191-24-2	500	**0.061 J**	<0.350 U	<0.340 U	<0.380 UJ	<0.410 U	<0.360 U	<0.360 U	**0.048 J**	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.240 J**	**0.250 J**
Benzo[k]fluoranthene	207-08-9	56	**0.054**	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	**0.3**	**0.22**
Chrysene	218-01-9	56	**0.110 J**	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.6**	**0.5**
Dibenz(a,h)anthracene	53-70-3	0.56	<0.042 U	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	**0.089**	**0.063**
Fluoranthene	206-44-0	500	**0.150 J**	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.58**	**0.61**
Fluorene	86-73-7	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.120 J**	**0.230 J**
Indeno[1,2,3-cd]pyrene	193-39-5	5.6	**0.078**	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	**0.052**	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	**0.26**	**0.23**
Naphthalene	91-20-3	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	**0.180 J**	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.140 J**	**1.6**
Phenanthrene	85-01-8	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.84**	**0.64**
Pyrene	129-00-0	500	**0.130 J**	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.71**	**0.93**
Total PAHs	CALC-PAH	500[A]	**2.444**	2.03 U	1.972 U	2.204 U	2.378 U	**2.078**	2.088 U	**2.0265**	2.088 U	2.146 U	2.436 U	1.972 U	2.204 U	**6.252**	**7.473**
SVOC (mg/Kg)																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,4,5-Trichlorophenol	95-95-4	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,4,6-Trichlorophenol	88-06-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,4-Dichlorophenol	120-83-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,4-Dimethylphenol	105-67-9	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2,4-Dinitrophenol	51-28-5	NL	<1.300 U	<1.100 U	<1.000 U	<1.100 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.100 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.100 U	<1.300 U
2,4-Dinitrotoluene	121-14-2	NL	<0.084 U	<0.071 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.077 U	<0.075 U	<0.086 U
2,6-Dinitrotoluene	606-20-2	NL	<0.084 U	<0.071 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.077 U	<0.075 U	<0.086 U
2-Chloronaphthalene	91-58-7	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2-Chlorophenol	95-57-8	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2-Methylphenol	95-48-7	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
2-Nitroaniline	88-74-4	NL	<0.840 U	<0.710 U	<0.690 U	<0.760 U	<0.830 U	<0.720 U	<0.720 U	<0.710 U	<0.740 U	<0.760 U	<0.850 U	<0.700 U	<0.770 U	<0.750 U	<0.860 U
2-Nitrophenol	88-75-5	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
3,3'-Dichlorobenzidine	91-94-1	NL	<0.840 U	<0.710 U	<0.690 U	<0.760 U	<0.830 U	<0.720 U	<0.720 U	<0.710 U	<0.740 U	<0.760 U	<0.850 U	<0.700 U	<0.770 U	<0.750 U	<0.860 U
3-Nitroaniline	99-09-2	NL	<0.840 U	<0.710 U	<0.690 U	<0.760 U	<0.830 U	<0.720 U	<0.720 U	<0.710 U	<0.740 U	<0.760 U	<0.850 U	<0.700 U	<0.770 U	<0.750 U	<0.860 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<1.300 U	<1.100 U	<1.000 U	<1.100 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.100 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.100 U	<1.300 U
4-Bromophenyl phenyl ether	101-55-3	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
4-Chloro-3-methylphenol	59-50-7	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
4-Chloroaniline	106-47-8	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
4-Methylphenol	106-44-5	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
4-Nitroaniline	100-01-6	NL	<0.840 U	<0.710 U	<0.690 U	<0.760 U	<0.830 U	<0.720 U	<0.720 U	<0.710 U	<0.740 U	<0.760 U	<0.850 U	<0.700 U	<0.770 U	<0.750 U	<0.860 U
4-Nitrophenol	100-02-7	NL	<1.300 U	<1.100 UJ	<1.000 U	<1.100 U	<1.200 UJ	<1.100 U	<1.100 U	<1.100 U	<1.100 UJ	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.100 UJ	<1.300 UJ
Acetophenone	98-86-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Atrazine	1912-24-9	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Benzaldehyde	100-52-7	NL	<0.420 UJ	<0.350 UJ	<0.340 UJ	<0.380 UJ	<0.410 U	<0.360 UJ	<0.360 U	<0.350 UJ	<0.360 UJ	<0.370 UJ	<0.420 UJ	<0.340 UJ	<0.380 UJ	<0.370 UJ	<0.420 UJ
Bis(2-chloroethoxy)methane	111-91-1	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Bis(2-chloroethyl)ether	111-44-4	NL	<0.042 U	<0.035 UJ	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	<0.037 U	<0.042 U
Bis(2-ethylhexyl) phthalate	117-81-7	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	**0.170 J**
Butyl benzyl phthalate	85-68-7	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Caprolactam	105-60-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Carbazole	86-74-8	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.067 J**	<0.420 U
Dibenzofuran	132-64-9	350	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	**0.070 J**	**0.130 J**
Diethyl phthalate	84-66-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Dimethyl phthalate	131-11-3	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Di-n-butyl phthalate	84-74-2	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Di-n-octyl phthalate	117-84-0	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Diphenyl	92-52-4	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 UJ	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	**0.160 J**
Hexachlorobenzene	118-74-1	6	<0.042 U	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	<0.037 U	<0.042 U
Hexachlorobutadiene	87-68-3	NL	<0.084 U	<0.071 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.077 U	<0.075 U	<0.086 U
Hexachlorocyclopentadiene	77-47-4	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 UJ	<0.420 UJ
Hexachloroethane	67-72-1	NL	<0.042 U	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	<0.037 U	<0.042 U
Isophorone	78-59-1	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Nitrobenzene	98-95-3	NL	<0.042 U	<0.035 UJ	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 UJ	<0.034 U	<0.038 U	<0.037 UJ	<0.042 UJ
N-Nitrosodi-n-propylamine	621-64-7	NL	<0.042 U	<0.035 U	<0.034 U	<0.038 U	<0.041 U	<0.036 U	<0.036 U	<0.035 U	<0.036 U	<0.037 U	<0.042 U	<0.034 U	<0.038 U	<0.037 U	<0.042 U
N-Nitrosodiphenylamine	86-30-6	NL	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Pentachlorophenol	87-86-5	6.7	<1.300 U	<1.100 U	<1.000 U	<1.100 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.100 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.100 U	<1.300 U
Phenol	108-95-2	500	<0.420 U	<0.350 U	<0.340 U	<0.380 U	<0.410 U	<0.360 U	<0.360 U	<0.350 U	<0.360 U	<0.370 U	<0.420 U	<0.340 U	<0.380 U	<0.370 U	<0.420 U
Total SVOCs		NL	**0.953**	ND	ND	ND	ND	**0.35**	ND	**0.224**	ND	ND	ND	ND	ND	**6.204**	**7.723**

Notes:

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

A. Green Shaded values exceed NYSDEC CP-51 Alternate Criteria of 500 mg/Kg for Total PAHs

For comparison to the CP-51 Alternate criteria, Total PAH numbers include detected concentrations plus have the analytical detection limit for non detected compounds. Total PAH numers qualified with a U indicate all concentrations were below detection limits.

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

*Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID Sample Date Sample ID Depth Interval	CAS #	NYSDEC PART 375-6 Commercial USE	SB-09 1/28/2011 SB-9(8-10)012811 8-10	SB-10 2/1/2011 SB-10(1.5-3)020111 1.5-3	SB-10 2/1/2011 SB-10(5-7.5)020111 5-7.5	SB-10 2/2/2011 SB-10(60-62.5)020211 60-62.5	SB-10 2/2/2011 SB-10(80-82.5)020211 80-82.5	SB-11 1/31/2011 SB-11(1-2)013111 1-2	SB-11 1/31/2011 SB-11(35.6-40)013111 35.6-40	SB-11 1/31/2011 SB-11(40.6-43)013111 40.6-43	SB-12 2/3/2011 SB-12(3.5-4.5)020311 3.5-4.5	SB-12 2/4/2011 SB-12(69-72)020411 69-72	SB-12 2/4/2011 SB-12(75-77)020411 75-77	SB-13 2/4/2011 SB-13(0-1.5)020411 0-1.5	SB-13 2/7/2011 SB-13(64-66.5)020711 64-66.5	SB-13 2/7/2011 SB-13(77-79)020711 77-79	SB-14 1/3/2011 SB-14(5-5.5)010311 5-5.5
PAH (mg/Kg)																	
2-Methylnaphthalene	91-57-6	NL	<0.360 U	<0.420 U	**0.6**	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**0.98**	<0.380 U	<0.380 U	<0.370 U	**5**	<0.400 U	<0.380 U
Acenaphthene	83-32-9	500	<0.360 U	<0.420 U	<0.400 U	**0.150 J**	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**1.2**	<0.380 U	<0.380 U	**0.230 J**	<0.770 U	<0.400 U	<0.380 U
Acenaphthylene	208-96-8	500	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**0.130 J**	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Anthracene	120-12-7	500	<0.360 U	<0.420 U	<0.400 U	**0.86**	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**2.6**	<0.380 U	<0.380 U	**0.63**	<0.770 U	<0.400 U	<0.380 U
Benzo[a]anthracene	56-55-3	5.6	<0.036 U	**0.74**	**0.077**	**0.88**	<0.036 U	**0.14**	<0.034 U	<0.034 U	**3.5**	<0.038 U	<0.038 U	**1.9**	<0.077 U	<0.040 U	**0.18**
Benzo[a]pyrene	50-32-8	1	<0.036 U	**0.62**	**0.063**	**0.7**	<0.036 U	**0.14**	<0.034 U	<0.034 U	**3.8**	<0.038 U	<0.038 U	**1.7**	<0.077 U	<0.040 U	**0.17**
Benzo[b]fluoranthene	205-99-2	5.6	<0.036 U	**0.63**	**0.087**	**0.57**	<0.036 U	**0.15**	<0.034 U	<0.034 U	**3.6**	<0.038 U	<0.038 U	**1.9**	<0.077 U	<0.040 U	**0.26**
Benzo[g,h,i]perylene	191-24-2	500	<0.360 U	**0.320 J**	<0.400 U	**0.52**	<0.360 U	**0.110 J**	<0.340 U	<0.340 U	**2.6**	<0.380 U	<0.380 U	**1.3**	<0.770 U	<0.400 U	**0.150 J**
Benzo[k]fluoranthene	207-08-9	56	<0.036 U	**0.18**	<0.040 U	<0.036 U	<0.036 U	**0.071**	<0.034 U	<0.034 U	**1.6**	<0.038 U	<0.038 U	**0.84**	<0.077 U	<0.040 U	<0.038 U
Chrysene	218-01-9	56	<0.360 U	**0.99**	**0.087 J**	**0.75**	<0.360 U	**0.150 J**	<0.340 U	<0.340 U	**3.5**	<0.380 U	<0.380 U	**1.8**	<0.770 U	<0.400 U	**0.210 J**
Dibenz(a,h)anthracene	53-70-3	0.56	<0.036 U	**0.18**	<0.040 U	**0.063**	<0.036 U	<0.037 U	<0.034 U	<0.034 U	**0.49**	<0.038 U	<0.038 U	**0.17**	<0.077 U	<0.040 U	<0.038 U
Fluoranthene	206-44-0	500	<0.360 U	**0.57**	**0.170 J**	**1.9**	<0.360 U	**0.150 J**	<0.340 U	<0.340 U	**6.6**	<0.380 U	<0.380 U	**4.2**	<0.770 U	<0.400 U	**0.350 J**
Fluorene	86-73-7	500	<0.360 U	<0.420 U	<0.400 U	**0.330 J**	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**1.4**	<0.380 U	<0.380 U	**0.240 J**	<0.770 U	<0.400 U	<0.380 U
Indeno[1,2,3-cd]pyrene	193-39-5	5.6	<0.036 U	**0.16**	<0.040 U	**0.37**	<0.036 U	**0.1**	<0.034 U	<0.034 U	**2.1**	<0.038 U	<0.038 U	**1.7**	<0.077 U	<0.040 U	**0.16**
Naphthalene	91-20-3	500	<0.360 U	<0.420 U	**2**	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**4.1**	<0.380 U	<0.380 U	**0.070 J**	**12**	<0.400 U	<0.380 U
Phenanthrene	85-01-8	500	<0.360 U	**0.350 J**	**0.140 J**	**2.6**	<0.360 U	**0.180 J**	<0.340 U	<0.340 U	**9.1**	<0.380 U	<0.380 U	**2.5**	<0.770 U	<0.400 U	**0.220 J**
Pyrene	129-00-0	500	<0.360 U	**0.49**	**0.150 J**	**2.3**	<0.360 U	**0.180 J**	<0.340 U	<0.340 U	**7**	<0.380 U	<0.380 U	**3**	<0.770 U	<0.400 U	**0.300 J**
Total PAHs	CALC-PAH	500^{A}	2.088 U	**6.49**	**4.434**	**12.551**	2.088 U	**1.371**	1.972 U	1.972 U	**54.3**	2.204 U	2.204 U	**22.55**	**20.696**	2.32 U	**3.178**
SVOC (mg/Kg)																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,4,5-Trichlorophenol	95-95-4	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,4,6-Trichlorophenol	88-06-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,4-Dichlorophenol	120-83-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,4-Dimethylphenol	105-67-9	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2,4-Dinitrophenol	51-28-5	NL	<1.100 U	<1.300 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.000 U	<1.000 U	<2.400 U	<1.200 U	<1.100 U	<1.100 U	<2.300 U	<1.200 U	<1.200 U
2,4-Dinitrotoluene	121-14-2	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.070 U	<0.160 U	<0.078 U	<0.076 U	<0.076 U	<0.160 U	<0.081 U	<0.078 U
2,6-Dinitrotoluene	606-20-2	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.070 U	<0.160 U	<0.078 U	<0.076 U	<0.076 U	<0.160 U	<0.081 U	<0.078 U
2-Chloronaphthalene	91-58-7	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2-Chlorophenol	95-57-8	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2-Methylphenol	95-48-7	500	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
2-Nitroaniline	88-74-4	NL	<0.720 U	<0.840 U	<0.810 U	<0.740 U	<0.740 U	<0.750 U	<0.690 U	<0.700 U	<1.600 U	<0.780 U	<0.760 U	<0.760 U	<1.600 U	<0.810 U	<0.780 U
2-Nitrophenol	88-75-5	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
3,3'-Dichlorobenzidine	91-94-1	NL	<0.720 U	<0.840 U	<0.810 U	<0.740 U	<0.740 U	<0.750 U	<0.690 U	<0.700 U	<1.600 U	<0.780 U	<0.760 U	<0.760 U	<1.600 U	<0.810 U	<0.780 U
3-Nitroaniline	99-09-2	NL	<0.720 U	<0.840 U	<0.810 U	<0.740 U	<0.740 U	<0.750 U	<0.690 U	<0.700 U	<1.600 U	<0.780 U	<0.760 U	<0.760 U	<1.600 U	<0.810 U	<0.780 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<1.100 U	<1.300 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.000 U	<1.000 U	<2.400 U	<1.200 U	<1.100 U	<1.100 U	<2.300 U	<1.200 U	<1.200 U
4-Bromophenyl phenyl ether	101-55-3	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
4-Chloro-3-methylphenol	59-50-7	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
4-Chloroaniline	106-47-8	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
4-Methylphenol	106-44-5	500	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
4-Nitroaniline	100-01-6	NL	<0.720 U	<0.840 U	<0.810 U	<0.740 U	<0.740 U	<0.750 UJ	<0.690 U	<0.700 U	<1.600 U	<0.780 U	<0.760 U	<0.760 U	<1.600 U	<0.810 U	<0.780 U
4-Nitrophenol	100-02-7	NL	<1.100 UJ	<1.300 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.000 U	<1.000 U	<2.400 U	<1.200 UJ	<1.100 UJ	<1.100 U	<2.300 U	<1.200 U	<1.200 U
Acetophenone	98-86-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Atrazine	1912-24-9	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Benzaldehyde	100-52-7	NL	<0.360 UJ	<0.420 UJ	<0.400 UJ	<0.360 UJ	<0.360 UJ	<0.370 UJ	<0.340 UJ	<0.340 UJ	<0.800 UJ	<0.380 UJ	<0.380 UJ	<0.370 UJ	<0.770 UJ	<0.400 UJ	<0.380 UJ
Bis(2-chloroethoxy)methane	111-91-1	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Bis(2-chloroethyl)ether	111-44-4	NL	<0.036 UJ	<0.042 U	<0.040 U	<0.036 U	<0.036 U	<0.037 U	<0.034 U	<0.034 U	<0.080 U	<0.038 U	<0.038 U	<0.037 U	<0.077 U	<0.040 U	<0.038 U
Bis(2-ethylhexyl) phthalate	117-81-7	NL	<0.360 U	**0.140 J**	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Butyl benzyl phthalate	85-68-7	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Caprolactam	105-60-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 UJ	<0.770 U	<0.400 UJ	<0.380 U
Carbazole	86-74-8	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**1.3**	<0.380 U	<0.380 U	**0.200 J**	<0.770 U	<0.400 U	<0.380 U
Dibenzofuran	132-64-9	350	<0.360 U	<0.420 U	<0.400 U	**0.180 J**	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**1.4**	<0.380 U	<0.380 U	**0.130 J**	<0.770 U	<0.400 U	<0.380 U
Diethyl phthalate	84-66-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Dimethyl phthalate	131-11-3	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Di-n-butyl phthalate	84-74-2	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Di-n-octyl phthalate	117-84-0	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 UJ	<0.770 U	<0.400 UJ	<0.380 U
Diphenyl	92-52-4	NL	<0.360 U	<0.420 U	<0.400 U	**0.200 J**	<0.360 U	<0.370 U	<0.340 U	<0.340 U	**0.300 J**	<0.380 U	<0.380 U	<0.370 U	**0.140 J**	<0.400 U	<0.380 U
Hexachlorobenzene	118-74-1	6	<0.036 U	<0.042 U	<0.040 U	<0.036 U	<0.036 U	<0.037 U	<0.034 U	<0.034 U	<0.080 U	<0.038 U	<0.038 U	<0.037 U	<0.077 U	<0.040 U	<0.038 U
Hexachlorobutadiene	87-68-3	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.070 U	<0.160 U	<0.078 U	<0.076 U	<0.076 U	<0.160 U	<0.081 U	<0.078 U
Hexachlorocyclopentadiene	77-47-4	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 UJ	<0.360 UJ	<0.370 UJ	<0.340 U	<0.340 U	<0.800 UJ	<0.380 U	<0.380 U	<0.370 UJ	<0.770 U	<0.400 UJ	<0.380 U
Hexachloroethane	67-72-1	NL	<0.036 U	<0.042 U	<0.040 U	<0.036 U	<0.036 U	<0.037 U	<0.034 U	<0.034 U	<0.080 U	<0.038 U	<0.038 U	<0.037 U	<0.077 U	<0.040 U	<0.038 U
Isophorone	78-59-1	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Nitrobenzene	98-95-3	NL	<0.036 UJ	<0.042 U	<0.040 U	<0.036 U	<0.036 U	<0.037 UJ	<0.034 U	<0.034 U	<0.080 U	<0.038 U	<0.038 U	<0.037 U	<0.077 U	<0.040 U	<0.038 U
N-Nitrosodi-n-propylamine	621-64-7	NL	<0.036 U	<0.042 U	<0.040 U	<0.036 U	<0.036 U	<0.037 U	<0.034 U	<0.034 U	<0.080 U	<0.038 U	<0.038 U	<0.037 U	<0.077 U	<0.040 U	<0.038 U
N-Nitrosodiphenylamine	86-30-6	NL	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Pentachlorophenol	87-86-5	6.7	<1.100 U	<1.300 U	<1.200 U	<1.100 U	<1.100 U	<1.100 U	<1.000 U	<1.000 U	<2.400 U	<1.200 U	<1.100 U	<1.100 U	<2.300 U	<1.200 U	<1.200 U
Phenol	108-95-2	500	<0.360 U	<0.420 U	<0.400 U	<0.360 U	<0.360 U	<0.370 U	<0.340 U	<0.340 U	<0.800 U	<0.380 U	<0.380 U	<0.370 U	<0.770 U	<0.400 U	<0.380 U
Total SVOCs		NL	ND	**5.37**	**3.374**	**12.373**	ND	**1.371**	ND	ND	**57.3**	ND	ND	**22.51**	**17.14**	ND	**2**

Notes:

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

A. Green Shaded values exceed NYSDEC CP-51 Alternate Criteria of 500 mg/Kg for Total PAHs

For comparison to the CP-51 Alternate criteria, Total PAH numbers include detected concentrations plus have the analytical detection limit for non detected compounds. Total PAH numers qualified with a U indicate all concentrations were below detection limits.

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

*Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID Sample Date Sample ID Depth Interval	CAS #	NYSDEC PART 375-6 Commercial USE	SB-14 1/5/2011 SB-14(48-50)010511 48-50	SB-14 1/6/2011 SB-14(56-58)010611 56-58	SB-15 1/3/2011 SB-15(4-5.5)010311 4-5.5	SB-15 1/10/2011 SB-15(66-68)011011 66-68	SB-15 1/11/2011 SB-15(78-80)011011 78-80	SB-16 1/22/2011 SB-16(4-5)012211 4-5	SB-16 1/22/2011 SB-16(47-50)012211 47-50	SB-16 1/22/2011 SB-16(68-70)012211 68-70	SB-17 1/4/2011 DUP-1-010411 4.5-5	SB-17 1/4/2011 SB-17(4.5-5)010411 4.5-5	SB-17 1/17/2011 SB-17(31-33)011711 31-33	SB-17 1/17/2011 SB-17(49-51)011711 49-51	SB-17 1/17/2011 SB-17(67-69)011711 67-69	SB-18 6/23/2011 SB-18(4-5)062311 4-5	SB-18 6/27/2011 SB-18(42.5-45)062411 42.5-45
PAH (mg/Kg)																	
2-Methylnaphthalene	91-57-6	NL	<0.390 U	<0.370 U	<0.390 U	**76**	**0.370 J**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	**8.500 J**	**1.3**	<0.430 U	<0.380 U	<0.360 U
Acenaphthene	83-32-9	500	<0.390 U	<0.370 U	<0.390 U	**68**	**0.55**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	**7.3**	**0.44**	<0.430 U	<0.380 U	<0.360 U
Acenaphthylene	208-96-8	500	<0.390 U	<0.370 U	<0.390 U	**8.700 J**	**0.086 J**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	**0.210 J**	**27.000 J**	**1.6**	<0.430 U	<0.380 U	<0.360 U
Anthracene	120-12-7	500	<0.390 U	<0.370 U	<0.390 U	**33**	**0.43**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	**0.210 J**	**21**	**1.9**	**0.081 J**	<0.380 U	<0.360 U
Benzo[a]anthracene	56-55-3	5.6	<0.039 U	<0.037 U	**0.29**	**23**	**0.31**	**0.023 J**	<0.034 U	<0.041 U	**0.500 J**	**1.700 J**	**48.000 J**	**2.3**	**0.14**	<0.038 U	<0.036 U
Benzo[a]pyrene	50-32-8	1	<0.039 U	<0.037 U	**0.39**	**18**	**0.24**	<0.035 U	<0.034 U	<0.041 U	**0.670 J**	**2.600 J**	**37.000 J**	**1.9**	**0.098**	**0.032 J**	<0.036 U
Benzo[b]fluoranthene	205-99-2	5.6	<0.039 U	<0.037 U	**0.45**	**16**	**0.2**	**0.029 J**	<0.034 U	<0.041 U	**0.810 J**	**2.900 J**	**31.000 J**	**2**	**0.1**	**0.053**	<0.036 U
Benzo[g,h,i]perylene	191-24-2	500	<0.390 U	<0.370 U	**0.220 J**	**10.000 J**	**0.120 J**	<0.350 U	<0.340 U	<0.410 U	**0.590 J**	**2.900 J**	**30.000 J**	**1.000 J**	**0.050 J**	<0.380 U	<0.360 U
Benzo[k]fluoranthene	207-08-9	56	<0.039 U	<0.037 U	**0.15**	**3.4**	**0.05**	**0.024 J**	<0.034 U	<0.041 U	**0.290 J**	**1.100 J**	**11.000 J**	**0.72**	**0.046**	<0.038 U	<0.036 U
Chrysene	218-01-9	56	<0.390 U	<0.370 U	**0.310 J**	**24**	**0.310 J**	<0.350 U	<0.340 U	<0.410 U	**0.530 J**	**1.900 J**	**45.000 J**	**2**	**0.130 J**	<0.380 U	<0.360 U
Dibenz(a,h)anthracene	53-70-3	0.56	<0.039 U	<0.037 U	<0.039 U	<1.900 U	<0.039 U	<0.035 U	<0.034 U	<0.041 U	**0.110 J**	**0.540 J**	**6.900 J**	**0.24**	<0.043 U	<0.038 U	<0.036 U
Fluoranthene	206-44-0	500	<0.390 U	<0.370 U	**0.380 J**	**34**	**0.44**	<0.350 U	<0.340 U	<0.410 U	**0.680 J**	**2.100 J**	**72.000 J**	**4.7**	**0.230 J**	<0.380 U	<0.360 U
Fluorene	86-73-7	500	<0.390 U	<0.370 U	<0.390 U	**42**	**0.4**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	**0.079 J**	**19.0**	**1.6**	<0.430 U	<0.380 U	<0.360 U
Indeno[1,2,3-cd]pyrene	193-39-5	5.6	<0.039 U	<0.037 U	**0.27**	**8.7**	**0.099**	<0.035 U	<0.034 U	<0.041 U	**0.680 J**	**2.800 J**	**25.000 J**	**1**	**0.059**	<0.038 U	<0.036 U
Naphthalene	91-20-3	500	<0.390 U	<0.370 U	<0.390 U	**220**	**0.78**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	**0.170 J**	**2.300 J**	**1.8**	<0.430 U	<0.380 U	<0.360 U
Phenanthrene	85-01-8	500	<0.390 U	<0.370 U	**0.093 J**	**120**	**1.5**	<0.350 U	<0.340 U	<0.410 U	**0.220 J**	**0.620 J**	**84**	**6.5**	**0.340 J**	<0.380 U	<0.360 U
Pyrene	129-00-0	500	<0.390 U	<0.370 U	**0.370 J**	**59**	**0.71**	<0.350 U	<0.340 U	<0.410 U	**0.710 J**	**2.500 J**	**86.000 J**	**3.8**	**0.260 J**	<0.380 U	<0.360 U
Total PAHs	CALC-PAH	500^{A}	2.262 U	2.146 U	**4.1125**	**763.8**	**6.6145**	**2.0535**	1.972 U	2.378 U	**6.9**	**22.699**	**561**	**34.8**	**2.6305**	**2.251**	2.088 U
SVOC (mg/Kg)																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,4,5-Trichlorophenol	95-95-4	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,4,6-Trichlorophenol	88-06-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,4-Dichlorophenol	120-83-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,4-Dimethylphenol	105-67-9	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2,4-Dinitrophenol	51-28-5	NL	<1.200 U	<1.100 U	<1.200 U	<58.000 U	<1.200 U	<1.100 U	<1.000 U	<1.200 U	<1.100 U	<1.100 U	<11.000 UJ	<1.100 U	<1.300 U	<1.200 U	<1.100 U
2,4-Dinitrotoluene	121-14-2	NL	<0.078 U	<0.075 U	<0.080 U	<3.900 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.750 UJ	<0.071 U	<0.086 U	<0.077 U	<0.073 U
2,6-Dinitrotoluene	606-20-2	NL	<0.078 U	<0.075 U	<0.080 U	<3.900 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.750 UJ	<0.071 U	<0.086 U	<0.077 U	<0.073 U
2-Chloronaphthalene	91-58-7	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2-Chlorophenol	95-57-8	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2-Methylphenol	95-48-7	500	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
2-Nitroaniline	88-74-4	NL	<0.780 U	<0.750 U	<0.800 U	<39.000 U	<0.790 U	<0.710 U	<0.690 U	<0.830 U	<0.750 U	<0.750 U	<7.500 UJ	<0.710 U	<0.860 U	<0.770 U	<0.730 U
2-Nitrophenol	88-75-5	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
3,3'-Dichlorobenzidine	91-94-1	NL	<0.780 U	<0.750 U	<0.800 U	<39.000 U	<0.790 U	<0.710 U	<0.690 U	<0.830 U	<0.750 U	<0.750 U	<7.500 UJ	<0.710 U	<0.860 U	<0.770 U	<0.730 U
3-Nitroaniline	99-09-2	NL	<0.780 U	<0.750 U	<0.800 U	<39.000 UJ	<0.790 UJ	<0.710 U	<0.690 U	<0.830 U	<0.750 U	<0.750 U	<7.500 UJ	<0.710 U	<0.860 U	<0.770 U	<0.730 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<1.200 U	<1.100 U	<1.200 U	<58.000 U	<1.200 U	<1.100 U	<1.000 U	<1.200 U	<1.100 U	<1.100 U	<11.000 UJ	<1.100 U	<1.300 U	<1.200 U	<1.100 U
4-Bromophenyl phenyl ether	101-55-3	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
4-Chloro-3-methylphenol	59-50-7	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
4-Chloroaniline	106-47-8	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
4-Methylphenol	106-44-5	500	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
4-Nitroaniline	100-01-6	NL	<0.780 U	<0.750 U	<0.800 U	<39.000 U	<0.790 U	<0.710 U	<0.690 U	<0.830 U	<0.750 U	<0.750 U	<7.500 UJ	<0.710 U	<0.860 U	<0.770 U	<0.730 U
4-Nitrophenol	100-02-7	NL	<1.200 U	<1.100 U	<1.200 U	<58.000 U	<1.200 U	<1.100 U	<1.000 U	<1.200 U	<1.100 U	<1.100 U	<11.000 UJ	<1.100 U	<1.300 UJ	<1.200 U	<1.100 U
Acetophenone	98-86-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Atrazine	1912-24-9	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Benzaldehyde	100-52-7	NL	<0.390 U	<0.370 U	<0.390 UJ	<19.000 U	<0.390 U	<0.350 UJ	<0.340 UJ	<0.410 UJ	<0.370 UJ	<0.370 UJ	<3.700 UJ	<0.350 UJ	<0.430 UJ	<0.380 UJ	<0.360 UJ
Bis(2-chloroethoxy)methane	111-91-1	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Bis(2-chloroethyl)ether	111-44-4	NL	<0.039 U	<0.037 U	<0.039 U	<1.900 U	<0.039 U	<0.035 U	<0.034 U	<0.041 U	<0.037 U	<0.037 U	<0.370 UJ	<0.035 U	<0.043 U	<0.038 U	<0.036 U
Bis(2-ethylhexyl) phthalate	117-81-7	NL	<0.390 U	<0.370 U	**0.110 J**	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Butyl benzyl phthalate	85-68-7	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Caprolactam	105-60-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	**1.3**
Carbazole	86-74-8	NL	<0.390 U	<0.370 U	<0.390 U	**4.700 J**	**0.072 J**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	**0.610 JD**	**0.75**	<0.430 U	<0.380 U	<0.360 U
Dibenzofuran	132-64-9	350	<0.390 U	<0.370 U	<0.390 U	**13.000 J**	**0.130 J**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	**4.400 DJ**	**1.5**	<0.430 U	<0.380 U	<0.360 U
Diethyl phthalate	84-66-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Dimethyl phthalate	131-11-3	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Di-n-butyl phthalate	84-74-2	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Di-n-octyl phthalate	117-84-0	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Diphenyl	92-52-4	NL	<0.390 U	<0.370 U	<0.390 U	**23**	**0.170 J**	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	**0.36**	<0.430 U	<0.380 U	<0.360 U
Hexachlorobenzene	118-74-1	6	<0.039 U	<0.037 U	<0.039 U	<1.900 U	<0.039 U	<0.035 U	<0.034 U	<0.041 U	<0.037 U	<0.037 U	<0.370 UJ	<0.035 U	<0.043 U	<0.038 U	<0.036 U
Hexachlorobutadiene	87-68-3	NL	<0.078 U	<0.075 U	<0.080 U	<3.900 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.750 UJ	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Hexachlorocyclopentadiene	77-47-4	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Hexachloroethane	67-72-1	NL	<0.039 U	<0.037 U	<0.039 U	<1.900 U	<0.039 U	<0.035 U	<0.034 U	<0.041 U	<0.037 U	<0.037 U	<0.370 UJ	<0.035 U	<0.043 U	<0.038 U	<0.036 U
Isophorone	78-59-1	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Nitrobenzene	98-95-3	NL	<0.039 U	<0.037 U	<0.039 U	<1.900 U	<0.039 U	<0.035 U	<0.034 U	<0.041 U	<0.037 U	<0.037 U	<0.370 UJ	<0.035 U	<0.043 U	<0.038 U	<0.036 U
N-Nitrosodi-n-propylamine	621-64-7	NL	<0.039 U	<0.037 U	<0.039 U	<1.900 U	<0.039 U	<0.035 U	<0.034 U	<0.041 U	<0.037 U	<0.037 U	<0.370 UJ	<0.035 U	<0.043 U	<0.038 U	<0.036 U
N-Nitrosodiphenylamine	86-30-6	NL	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Pentachlorophenol	87-86-5	6.7	<1.200 U	<1.100 U	<1.200 U	<58.000 U	<1.200 U	<1.100 U	<1.000 U	<1.200 U	<1.100 U	<1.100 U	<11.000 UJ	<1.100 U	<1.300 U	<1.200 U	<1.100 U
Phenol	108-95-2	500	<0.390 U	<0.370 U	<0.390 U	<19.000 U	<0.390 U	<0.350 U	<0.340 U	<0.410 U	<0.370 U	<0.370 U	<3.700 UJ	<0.350 U	<0.430 U	<0.380 U	<0.360 U
Total SVOCs		NL	ND	ND	**3.033**	**804.5**	**6.967**	**0.076**	ND	ND	**5.79**	**22.329**	**566.01**	**37.41**	**1.534**	**0.085**	**1.3**

Notes:

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

A. Green Shaded values exceed NYSDEC CP-51 Alternate Criteria of 500 mg/Kg for Total PAHs

For comparison to the CP-51 Alternate criteria, Total PAH numbers include detected concentrations plus have the analytical detection limit for non detected compounds. Total PAH numers qualified with a U indicate all concentrations were below detection limits.

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

*Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-18	SB-18	SB-19	SB-19	SB-19	SB-20	SB-20	SB-20	SB-20	SB-21	SB-21	SB-21	SB-22	SB-22	SB-22
Sample Date			6/27/2011	6/27/2011	6/23/2011	6/24/2011	6/24/2011	6/23/2011	6/28/2011	6/28/2011	6/29/2011	6/23/2011	6/29/2011	6/29/2011	7/6/2011	7/6/2011	7/6/2011
Sample ID			SB-18(70-72.5)062411	SB-18(27.5-30)062411	SB-19(4-5)062311	SB-19(72.5-75)062411	SB-19(75-77.5)062411	SB-20 (4-5)062311	SB-20(15-17.5)062411	SB-20(62.5-65)062411	SB-20(87.5-90)062411	SB-21(4.5-5)062311	SB-21(72.5-75)062411	SB-21(92.5-95)062411	SB-22(1-2)062411	DUP 1-062411	SB-22(82.5-85)062411
Depth Interval			70-72.5	27.5-30	4-5	72.5-75	75-77.5	4-5	15-17.5	62.5-65	87.5-90	4.5-5	72.5-75	92.5-95	1-2	0-0	82.5-85
PAH (mg/Kg)																	
2-Methylnaphthalene	91-57-6	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	**2.700 J**	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Acenaphthene	83-32-9	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	**22**	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Acenaphthylene	208-96-8	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	**9.8**	**3.000 J**	<0.420 U	**0.79**	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Anthracene	120-12-7	500	<0.380 U	<0.340 U	**0.110 J**	<0.430 U	<0.410 U	<0.380 U	**24**	**20**	<0.420 U	**0.180 J**	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Benzo[a]anthracene	56-55-3	5.6	<0.038 U	<0.034 U	**0.71**	<0.043 U	<0.041 U	<0.038 U	**45**	**15**	<0.042 U	**0.31**	<0.042 U	<0.042 U	**0.053**	<0.037 U	<0.043 U
Benzo[a]pyrene	50-32-8	1	<0.038 U	<0.034 U	**0.72**	<0.043 U	<0.041 U	<0.038 U	**53**	**12**	<0.042 U	**1.1**	<0.042 U	<0.042 U	**0.042**	<0.037 U	<0.043 U
Benzo[b]fluoranthene	205-99-2	5.6	<0.038 U	<0.034 U	**0.94**	<0.043 U	<0.041 U	<0.038 U	**47**	**10**	<0.042 U	**0.87**	<0.042 U	<0.042 U	**0.042**	<0.037 U	<0.043 U
Benzo[g,h,i]perylene	191-24-2	500	<0.380 U	<0.340 U	**0.53**	<0.430 U	<0.410 U	<0.380 U	**36**	**5.6**	<0.420 U	**6.8**	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Benzo[k]fluoranthene	207-08-9	56	<0.038 U	<0.034 U	**0.33**	<0.043 U	<0.041 U	<0.038 U	**14**	**5.1**	<0.042 U	**0.24**	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
Chrysene	218-01-9	56	<0.380 U	<0.340 U	**0.8**	<0.430 U	<0.410 U	<0.380 U	**51**	**13**	<0.420 U	**0.350 J**	<0.420 U	<0.420 U	**0.073 J**	<0.370 U	<0.430 U
Dibenz(a,h)anthracene	53-70-3	0.56	<0.038 U	<0.034 U	**0.1**	<0.043 U	<0.041 U	<0.038 U	**6.8**	**1.1**	<0.042 U	**0.36**	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
Fluoranthene	206-44-0	500	<0.380 U	<0.340 U	**1.2**	<0.430 U	<0.410 U	<0.380 U	**60**	**29**	<0.420 U	**0.330 J**	<0.420 U	<0.420 U	**0.100 J**	<0.370 U	<0.430 U
Fluorene	86-73-7	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	**2.300 J**	**19**	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Indeno[1,2,3-cd]pyrene	193-39-5	5.6	<0.038 U	<0.034 U	**0.52**	<0.043 U	<0.041 U	<0.038 U	**34**	**4.8**	<0.042 U	**2**	<0.042 U	<0.042 U	**0.031 J**	<0.037 U	<0.043 U
Naphthalene	91-20-3	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	**6.700 J**	<3.800 U	<0.420 U	**0.057 J**	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Phenanthrene	85-01-8	500	<0.380 U	<0.340 U	**0.64**	<0.430 U	<0.410 U	<0.380 U	**12**	**65**	<0.420 U	**0.140 J**	<0.420 U	<0.420 U	**0.200 J**	<0.370 U	<0.430 U
Pyrene	129-00-0	500	<0.380 U	<0.340 U	**1.4**	<0.430 U	<0.410 U	<0.380 U	**79**	**34**	<0.420 U	**0.41**	<0.420 U	<0.420 U	**0.087 J**	<0.370 U	<0.430 U
Total PAHs	CALC-PAH	500^{A}	2.204 U	1.972 U	**9.125**	2.494 U	2.378 U	2.204 U	**487**	**262.4**	2.436 U	**14.477**	2.436 U	2.436 U	**2.068**	2.146 U	2.494 U
SVOC (mg/Kg)																	
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,4,5-Trichlorophenol	95-95-4	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,4,6-Trichlorophenol	88-06-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,4-Dichlorophenol	120-83-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,4-Dimethylphenol	105-67-9	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2,4-Dinitrophenol	51-28-5	NL	<1.200 U	<1.000 U	<1.400 U	<1.300 U	<1.300 U	<1.100 U	<22.000 U	<12.000 U	<1.300 U	<1.100 U	<1.300 U	<1.300 U	<1.200 U	<1.100 U	R
2,4-Dinitrotoluene	121-14-2	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.077 U	<1.500 U	<0.780 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
2,6-Dinitrotoluene	606-20-2	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.077 U	<1.500 U	<0.780 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
2-Chloronaphthalene	91-58-7	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2-Chlorophenol	95-57-8	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2-Methylphenol	95-48-7	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
2-Nitroaniline	88-74-4	NL	<0.780 U	<0.690 U	<0.910 U	<0.860 U	<0.840 U	<0.770 U	<15.000 U	<7.800 U	<0.860 U	<0.740 U	<0.850 U	<0.860 U	<0.820 U	<0.740 U	<0.860 U
2-Nitrophenol	88-75-5	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
3,3'-Dichlorobenzidine	91-94-1	NL	<0.780 U	<0.690 U	<0.910 U	<0.860 U	<0.840 U	<0.770 U	<15.000 U	<7.800 U	<0.860 U	<0.740 U	<0.850 U	<0.860 U	<0.820 U	<0.740 U	<0.860 U
3-Nitroaniline	99-09-2	NL	<0.780 U	<0.690 U	<0.910 U	<0.860 U	<0.840 U	<0.770 U	<15.000 U	<7.800 U	<0.860 U	<0.740 U	<0.850 U	<0.860 U	<0.820 U	<0.740 U	<0.860 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<1.200 U	<1.000 U	<1.400 U	<1.300 U	<1.300 U	<1.100 U	<22.000 U	<12.000 U	<1.300 U	<1.100 U	<1.300 U	<1.300 U	<1.200 U	<1.100 U	<1.300 U
4-Bromophenyl phenyl ether	101-55-3	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
4-Chloro-3-methylphenol	59-50-7	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
4-Chloroaniline	106-47-8	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
4-Methylphenol	106-44-5	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
4-Nitroaniline	100-01-6	NL	<0.780 U	<0.690 U	<0.910 U	<0.860 U	<0.840 U	<0.770 U	<15.000 U	<7.800 U	<0.860 U	<0.740 U	<0.850 U	<0.860 U	<0.820 U	<0.740 U	<0.860 U
4-Nitrophenol	100-02-7	NL	<1.200 U	<1.000 U	<1.400 U	<1.300 U	<1.300 U	<1.100 U	<22.000 U	<12.000 U	<1.300 U	<1.100 U	<1.300 U	<1.300 U	<1.200 U	<1.100 U	<1.300 U
Acetophenone	98-86-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Atrazine	1912-24-9	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Benzaldehyde	100-52-7	NL	<0.380 UJ	<0.340 UJ	<0.450 UJ	<0.430 UJ	<0.410 UJ	<0.380 UJ	<7.400 UJ	<3.800 UJ	<0.420 UJ	<0.360 UJ	<0.420 UJ	<0.420 UJ	<0.400 UJ	<0.370 UJ	<0.430 UJ
Bis(2-chloroethoxy)methane	111-91-1	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Bis(2-chloroethyl)ether	111-44-4	NL	<0.038 U	<0.034 U	<0.045 U	<0.043 U	<0.041 U	<0.038 U	<0.740 U	<0.380 U	<0.042 U	<0.036 U	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
Bis(2-ethylhexyl) phthalate	117-81-7	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	**0.110 J**	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	**0.85**	<0.370 U	<0.430 U
Butyl benzyl phthalate	85-68-7	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	**0.120 J**	<0.370 U	<0.430 U
Caprolactam	105-60-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Carbazole	86-74-8	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Dibenzofuran	132-64-9	350	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	**1.200 J**	**9.2**	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Diethyl phthalate	84-66-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Dimethyl phthalate	131-11-3	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Di-n-butyl phthalate	84-74-2	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Di-n-octyl phthalate	117-84-0	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Diphenyl	92-52-4	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	**8.8**	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Hexachlorobenzene	118-74-1	6	<0.038 U	<0.034 U	<0.045 U	<0.043 U	<0.041 U	<0.038 U	<0.740 U	<0.380 U	<0.042 U	<0.036 U	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
Hexachlorobutadiene	87-68-3	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.077 U	<1.500 U	<0.780 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Hexachlorocyclopentadiene	77-47-4	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Hexachloroethane	67-72-1	NL	<0.038 U	<0.034 U	<0.045 U	<0.043 U	<0.041 U	<0.038 U	<0.740 U	<0.380 U	<0.042 U	<0.036 U	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
Isophorone	78-59-1	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Nitrobenzene	98-95-3	NL	<0.038 U	<0.034 U	<0.045 U	<0.043 U	<0.041 U	<0.038 U	<0.740 U	<0.380 U	<0.042 U	<0.036 U	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
N-Nitrosodi-n-propylamine	621-64-7	NL	<0.038 U	<0.034 U	<0.045 U	<0.043 U	<0.041 U	<0.038 U	<0.740 U	<0.380 U	<0.042 U	<0.036 U	<0.042 U	<0.042 U	<0.040 U	<0.037 U	<0.043 U
N-Nitrosodiphenylamine	86-30-6	NL	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Pentachlorophenol	87-86-5	6.7	<1.200 U	<1.000 U	<1.400 U	<1.300 U	<1.300 U	<1.100 U	<22.000 U	<12.000 U	<1.300 U	<1.100 U	<1.300 U	<1.300 U	<1.200 U	<1.100 U	<1.300 U
Phenol	108-95-2	500	<0.380 U	<0.340 U	<0.450 U	<0.430 U	<0.410 U	<0.380 U	<7.400 U	<3.800 U	<0.420 U	<0.360 U	<0.420 U	<0.420 U	<0.400 U	<0.370 U	<0.430 U
Total SVOCs		NL	ND	ND	**8**	ND	**0.11**	ND	**484.5**	**276.6**	ND	**13.937**	ND	ND	**1.598**	ND	ND

Notes:

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

A. Green Shaded values exceed NYSDEC CP-51 Alternate Criteria of 500 mg/Kg for Total PAHs

For comparison to the CP-51 Alternate criteria, Total PAH numbers include detected concentrations plus have the analytical detection limit for non detected compounds. Total PAH numers qualified with a U indicate all concentrations were below detection limits.

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

*Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID Sample Date Sample ID Depth Interval	CAS #	NYSDEC PART 375-6 Commercial USE	SB-22 7/6/2011 SB-22(92.5-95)062411 92.5-95	SB-23 7/13/2011 SB-23(77.5-80)062411 77.5-80	SB-23 7/13/2011 SB-23(92.5-95)062411 92.5-95	SB-24 6/30/2011 SB-24(32.5-35)062411 32.5-35	SB-24 6/30/2011 SB-24(4-5)062411 4-5	SB-25 7/7/2011 SB-25(4-5)062411 4-5	SB-25* 7/11/2011 SB-25(90-92.5)062411 82.5-85	SB-25* 7/11/2011 SB-25(82.5-85)062411 90-92.5	TP-1 6/23/2011 TP-1(1-2)062311 1-2	TP-1 6/23/2011 TP-1(8)062311 8	TP-1 6/23/2011 ISIDE NO VALVE HO.) 0	TP-2 6/23/2011 TP-2(8')062311 8
PAH (mg/Kg)														
2-Methylnaphthalene	91-57-6	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**19**	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Acenaphthene	83-32-9	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**27**	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Acenaphthylene	208-96-8	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	**0.170 J**	<0.440 U	**3.300 J**	<0.430 U	**0.072 J**	**0.150 J**	<0.370 U	<0.370 U
Anthracene	120-12-7	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**32**	<0.430 U	**0.100 J**	**0.220 J**	<0.370 U	<0.370 U
Benzo[a]anthracene	56-55-3	5.6	<0.041 U	<0.037 U	<0.042 U	<0.034 U	**0.15**	<0.044 U	**26**	<0.043 U	**0.62**	**1.4**	**0.32**	**0.11**
Benzo[a]pyrene	50-32-8	1	<0.041 U	<0.037 U	<0.042 U	<0.034 U	**0.56**	<0.044 U	**21**	<0.043 U	**0.68**	**2.2**	**0.43**	**0.14**
Benzo[b]fluoranthene	205-99-2	5.6	<0.041 U	<0.037 U	<0.042 U	<0.034 U	**0.39**	<0.044 U	**17**	<0.043 U	**0.87**	**2.2**	**0.47**	**0.13**
Benzo[g,h,i]perylene	191-24-2	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	**0.55**	<0.440 U	**9.1**	<0.430 U	**0.63**	**1.6**	**0.320 J**	**0.089 J**
Benzo[k]fluoranthene	207-08-9	56	<0.041 U	<0.037 U	<0.042 U	<0.034 U	**0.15**	<0.044 U	**6.6**	<0.043 U	**0.28**	**0.86**	**0.21**	**0.057**
Chrysene	218-01-9	56	<0.410 U	<0.370 U	<0.420 U	<0.340 U	**0.190 J**	<0.440 U	**23**	<0.430 U	**0.74**	**1.4**	**0.38**	**0.130 J**
Dibenz(a,h)anthracene	53-70-3	0.56	<0.041 U	<0.037 U	<0.042 U	<0.034 U	**0.1**	<0.044 U	**1.7**	<0.043 U	**0.14**	**0.37**	**0.064**	**0.017 J**
Fluoranthene	206-44-0	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	**0.065 J**	<0.440 U	**43**	<0.430 U	**1.1**	**1.7**	**0.51**	**0.120 J**
Fluorene	86-73-7	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**24**	<0.430 U	<0.400 U	**0.074 J**	<0.370 U	<0.370 U
Indeno[1,2,3-cd]pyrene	193-39-5	5.6	<0.041 U	<0.037 U	<0.042 U	<0.034 U	**0.46**	<0.044 U	**7.7**	<0.043 U	**0.61**	**1.6**	**0.32**	**0.086**
Naphthalene	91-20-3	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**11**	<0.430 U	**0.081 J**	**0.160 J**	<0.370 U	<0.370 U
Phenanthrene	85-01-8	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**100**	<0.430 U	**0.7**	**0.59**	**0.200 J**	<0.370 U
Pyrene	129-00-0	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	**0.140 J**	<0.440 U	**64**	<0.430 U	**1**	**2.1**	**0.49**	**0.170 J**
Total PAHs	CALC-PAH	500^{A}	2.378 U	2.146 U	2.436 U	1.972 U	**4.035**	2.552 U	**435.4**	2.494 U	**8.223**	**17.014**	**4.824**	**2.344**
SVOC (mg/Kg)														
1,2,4,5-Tetrachlorobenzene	95-94-3	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,4,5-Trichlorophenol	95-95-4	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,4,6-Trichlorophenol	88-06-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,4-Dichlorophenol	120-83-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,4-Dimethylphenol	105-67-9	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2,4-Dinitrophenol	51-28-5	NL	<1.200 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.300 U	<24.000 U	<1.300 U	<1.200 U	<1.200 U	<1.100 U	<1.100 U
2,4-Dinitrotoluene	121-14-2	NL	<0.083 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<1.600 U	<0.087 U	<0.081 U	<0.079 U	<0.075 U	<0.075 U
2,6-Dinitrotoluene	606-20-2	NL	<0.083 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<1.600 U	<0.087 U	<0.081 U	<0.079 U	<0.075 U	<0.075 U
2-Chloronaphthalene	91-58-7	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2-Chlorophenol	95-57-8	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2-Methylphenol	95-48-7	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
2-Nitroaniline	88-74-4	NL	<0.830 U	<0.760 U	<0.860 U	<0.700 U	<0.760 U	<0.890 U	<16.000 U	<0.870 U	<0.810 U	<0.790 U	<0.750 U	<0.750 U
2-Nitrophenol	88-75-5	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
3,3'-Dichlorobenzidine	91-94-1	NL	<0.830 U	<0.760 U	<0.860 U	<0.700 U	<0.760 U	<0.890 U	<16.000 U	<0.870 U	<0.810 U	<0.790 U	<0.750 U	<0.750 U
3-Nitroaniline	99-09-2	NL	<0.830 U	<0.760 U	<0.860 U	<0.700 U	<0.760 U	<0.890 U	<16.000 U	<0.870 U	<0.810 U	<0.790 U	<0.750 U	<0.750 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<1.200 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.300 U	<24.000 U	<1.300 U	<1.200 U	<1.200 U	<1.100 U	<1.100 U
4-Bromophenyl phenyl ether	101-55-3	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
4-Chloro-3-methylphenol	59-50-7	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
4-Chloroaniline	106-47-8	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
4-Methylphenol	106-44-5	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
4-Nitroaniline	100-01-6	NL	<0.830 U	<0.760 U	<0.860 U	<0.700 U	<0.760 U	<0.890 U	<16.000 U	<0.870 U	<0.810 U	<0.790 U	<0.750 U	<0.750 U
4-Nitrophenol	100-02-7	NL	<1.200 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.300 U	<24.000 U	<1.300 U	<1.200 U	<1.200 U	<1.100 U	<1.100 U
Acetophenone	98-86-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Atrazine	1912-24-9	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Benzaldehyde	100-52-7	NL	<0.410 UJ	<0.370 UJ	<0.420 UJ	<0.340 UJ	<0.370 UJ	<0.440 UJ	<8.000 UJ	<0.430 UJ	<0.400 UJ	<0.390 UJ	<0.370 UJ	<0.370 UJ
Bis(2-chloroethoxy)methane	111-91-1	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Bis(2-chloroethyl)ether	111-44-4	NL	<0.041 U	<0.037 U	<0.042 U	<0.034 U	<0.037 U	<0.044 U	<0.800 U	<0.043 U	<0.040 U	<0.039 U	<0.037 U	<0.037 U
Bis(2-ethylhexyl) phthalate	117-81-7	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Butyl benzyl phthalate	85-68-7	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Caprolactam	105-60-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Carbazole	86-74-8	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**3.800 J**	<0.430 U	**0.064 J**	<0.390 U	<0.370 U	<0.370 U
Dibenzofuran	132-64-9	350	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**9.6**	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Diethyl phthalate	84-66-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Dimethyl phthalate	131-11-3	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Di-n-butyl phthalate	84-74-2	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Di-n-octyl phthalate	117-84-0	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Diphenyl	92-52-4	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	**6.700 J**	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Hexachlorobenzene	118-74-1	6	<0.041 U	<0.037 U	<0.042 U	<0.034 U	<0.037 U	<0.044 U	<0.800 U	<0.043 U	<0.040 U	<0.039 U	<0.037 U	<0.037 U
Hexachlorobutadiene	87-68-3	NL	<0.083 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<1.600 U	<0.087 U	<0.081 U	<0.079 U	<0.075 U	<0.075 U
Hexachlorocyclopentadiene	77-47-4	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Hexachloroethane	67-72-1	NL	<0.041 U	<0.037 U	<0.042 U	<0.034 U	<0.037 U	<0.044 U	<0.800 U	<0.043 U	<0.040 U	<0.039 U	<0.037 U	<0.037 U
Isophorone	78-59-1	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Nitrobenzene	98-95-3	NL	<0.041 U	<0.037 U	<0.042 U	<0.034 U	<0.037 U	<0.044 U	<0.800 U	<0.043 U	<0.040 U	<0.039 U	<0.037 U	<0.037 U
N-Nitrosodi-n-propylamine	621-64-7	NL	<0.041 U	<0.037 U	<0.042 U	<0.034 U	<0.037 U	<0.044 U	<0.800 U	<0.043 U	<0.040 U	<0.039 U	<0.037 U	<0.037 U
N-Nitrosodiphenylamine	86-30-6	NL	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Pentachlorophenol	87-86-5	6.7	<1.200 U	<1.100 U	<1.300 U	<1.000 U	<1.100 U	<1.300 U	<24.000 U	<1.300 U	<1.200 U	<1.200 U	<1.100 U	<1.100 U
Phenol	108-95-2	500	<0.410 U	<0.370 U	<0.420 U	<0.340 U	<0.370 U	<0.440 U	<8.000 U	<0.430 U	<0.400 U	<0.390 U	<0.370 U	<0.370 U
Total SVOCs		NL	ND	ND	ND	ND	**2.925**	ND	**455.5**	ND	**7.687**	**16.624**	**3.714**	**1.049**

Notes:

ND = calculated totals are not detected

NL = Not Listed

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

A. Green Shaded values exceed NYSDEC CP-51 Alternate Criteria of 500 mg/Kg for Total PAHs

For comparison to the CP-51 Alternate criteria, Total PAH numbers include detected concentrations plus have the analytical detection limit for non detected compounds. Total PAH numers qualified with a U indicate all concentrations were below detection limits.

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

*Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-01	SB-01	SB-01	SB-01	SB-02	SB-02	SB-02	SB-03	SB-03	SB-03	SB-03	SB-03	SB-04	SB-04	SB-04
Sample Date			1/24/2011	1/24/2011	1/24/2011	1/24/2011	1/25/2011	1/25/2011	1/26/2011	2/8/2011	2/9/2011	2/9/2011	2/9/2011	2/9/2011	2/10/2011	2/10/2011	2/10/2011
Sample ID			SB-1(4.5-5)012411	SB-1(44-46.5)012411	DUP-2-012411	SB-1(59-61.5)012411	SB-2(3.5-12)012511	SB-2(46.5-49)012511	SB-2(56.5-59)012611	SB-3(1.5-3)020811	SB-3(31.5-34)020911	SB-3(46.5-49)020911	SB-3(56.5-59)020911	DUP-3-020911	SB-4(2.5-5)021011	SB-4 (47.5-50)021011	SB-4 (64-67)021011
Depth Interval			4.5-5	44-46.5	44-46.5	59-61.5	3.5-4	46.5-49	56.5-59	1.5-3	31.5-34	46.5-49	56.5-59	56.5-59	2.5-5	47.5-50	64-67
Metals (mg/Kg)																	
Aluminum	7429-90-5	NL	**7370**	**2840**	**3080**	**2130**	**7430**	**2830**	**2360**	**16400**	**2670**	**3410**	**2390**	**2140**	**6990**	**2260**	**3000**
Antimony	7440-36-0	NL	<2.2 U	<2.2 U	<2.1 U	<2.5 U	<2.2 U	<2.1 U	<2.6 U	<2.5 U	<2.1 U	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U
Arsenic	7440-38-2	16	**5.2**	**1.1**	**0.95 J**	**1.6**	**2.2**	<1.0 U	<1.3 U	**6.6**	**0.89 J**	**1.1**	**1.0 J**	**1.2**	**2.7**	<1.1 U	**1.5**
Barium	7440-39-3	400	**48.1**	<43.5 U	<51.5 U	<50.6 U	**102**	**18.4 J**	**14.7 J**	**65**	**22.0 J**	**21.1 J**	**14.4 J**	**15.1 J**	**58.9**	**17.0 J**	**24.7 J**
Beryllium	7440-41-7	590	**0.42 J**	<0.44 U	<0.41 U	<0.51 U	**0.30 J**	<0.42 U	<0.53 U	**0.65**	**0.20 J**	**0.21 J**	**0.21 J**	<0.48 U	**0.38 J**	**0.20 J**	**0.22 J**
Cadmium	7440-43-9	9.3	**0.39 J**	<1.1 U	<1.0 U	<1.3 U	<1.1 U	<1.0 U	<1.3 U	<1.3 U	<1.1 U	<1.0 U	<1.1 U	<1.2 U	<1.1 U	<1.1 U	<1.1 U
Calcium	7440-70-2	NL	**1940**	**940 J**	**1010 J**	**805 J**	**55900**	<1040 U	<1320 U	**1390**	**752 J**	**1180**	**1290**	**1170 J**	**2410**	**785 J**	**1140**
Chromium	7440-47-3	1500	**31.7**	**19.2**	**16.6**	**8.9**	**14.6**	**8.1**	**8.8**	**19.4**	**9**	**9.4**	**7.7**	**7.5**	**18.6**	**5.4**	**10.4**
Cobalt	7440-48-4	NL	**5.7 J**	**3.4 J**	**3.6 J**	**3.4 J**	**8.8 J**	**3.6 J**	**3.5 J**	**5.4 J**	**3.3 J**	**4.1 J**	**4.8 J**	**5.2 J**	**7.8 J**	**2.4 J**	**5.1 J**
Copper	7440-50-8	270	**25.4**	**9.5**	**10.4**	**16.2**	**23.2**	**11.6**	**8.4**	**15.6**	**10.1**	**9.2**	**8.4**	**7.8**	**51.2**	**6.4**	**10.7**
Iron	7439-89-6	NL	**17700**	**8340**	**8060**	**6480**	**13100**	**8570**	**6170**	**19900**	**7920**	**7500**	**7940**	**7730**	**17300**	**6200**	**11100**
Lead	7439-92-1	1000	**246**	**4.1**	**4.1**	**4.6**	**98.5**	**4**	**2.9**	**66.7**	**2.8**	**3.6**	**3.1**	**3**	**83.6**	**2.9**	**4.2**
Magnesium	7439-95-4	NL	**2760**	**1680**	**1870**	**3370**	**15500**	**2420**	**3650**	**2290**	**1960**	**3220**	**5530**	**5550**	**3750**	**1810**	**2090**
Manganese	7439-96-5	10000	**242**	**126**	**131**	**83.3**	**245**	**230**	**165**	**213 J+**	**173 J+**	**206 J+**	**208 J+**	**202 J+**	**510**	**77**	**270**
Mercury	7439-97-6	2.8	**0.072**	<0.033 U	<0.031 U	<0.040 U	**0.6**	<0.031 U	<0.044 U	**0.11**	<0.037 U	<0.034 U	<0.041 U	<0.041 U	**0.033**	<0.038 U	<0.039 U
Nickel	7440-02-0	310	**20.1**	**13.8**	**14.3**	**25**	**23.1**	**17.2**	**32.7**	**13.7**	**15.2**	**33.1**	**49.1**	**52.3**	**27.4**	**10.1**	**25.7**
Potassium	7440-09-7	NL	**945 J**	**728 J**	**922 J**	**571 J**	**666 J**	**644 J**	**533 J**	**675 J**	**708 J**	**711 J**	**498 J**	**482 J**	**1650**	**519 J**	**678 J**
Selenium	7782-49-2	1500	<2.2 U	<2.2 U	<2.1 U	<2.5 U	<2.2 U	<2.1 U	<2.6 U	<2.5 U	<2.1 U	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U
Silver	7440-22-4	1500	<2.2 U	<2.2 U	<2.1 U	<2.5 U	<2.2 U	<2.1 U	<2.6 U	<2.5 U	<2.1 U	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U
Sodium	7440-23-5	NL	<1080 U	<1090 U	<1030 U	<1270 U	**723 J**	**86.5 J**	**102 J**	**116 J**	**241 J**	**284 J**	**95.9 J**	**87.5 J**	**264 J**	<1140 U	**114 J**
Thallium	7440-28-0	NL	<2.2 U	<2.2 U	<2.1 U	<2.5 U	<2.2 U	<2.1 U	<2.6 U	<2.5 U	<2.1 U	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U
Vanadium	7440-62-2	NL	**31.8**	**10.9**	**11.8**	**9.5 J**	**28.9**	**11.1**	**8.4 J**	**30.2**	**11.8**	**12**	**11.2 J**	**11.7 J**	**27.3**	**6.5 J**	**26.8**
Zinc	7440-66-6	10000	**157**	**30.8**	**29.7**	**27**	**187**	**20.3**	**15.1**	**171 J+**	**20.0 J+**	**20.6 J+**	**15.7 J+**	**14.7 J+**	**133**	**12.4**	**17.9**
Cyanide (mg/Kg)																	
Cyanide, Amenable	57-12-5-AMEN	NL	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Cyanide, Total	57-12-5	27	**0.50 J**	<0.54 U	<0.54 U	<0.63 U	**0.41 J**	<0.52 U	<0.66 U	<0.70 U	<0.56 U	<0.53 U	<0.63 U	<0.63 U	<0.54 U	<0.59 U	<0.59 U
Cyanide, Weak Acid Dissociable	57-12-5-WAD	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pesticides (mg/Kg)																	
4,4'-DDD	72-54-8	92	**0.015 J**	<0.0073 U	<0.0072 U	<0.0085 U	**0.079**	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
4,4'-DDE	72-55-9	62	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	**0.045**	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
4,4'-DDT	50-29-3	47	**0.037**	<0.0073 U	<0.0072 U	<0.0085 U	**0.13**	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Aldrin	309-00-2	0.68	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
alpha-BHC	319-84-6	3.4	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
beta-BHC	319-85-7	3	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Chlordane	57-74-9	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.080 U	<0.079 U
delta-BHC	319-86-8	500	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Dieldrin	60-57-1	1.4	**0.017**	<0.0073 U	<0.0072 U	<0.0085 U	**0.034 NJ**	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Endosulfan I	959-98-8	200	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Endosulfan II	33213-65-9	200	**0.012 J**	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Endosulfan sulfate	1031-07-8	200	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Endrin	72-20-8	89	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	**0.011**	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Endrin aldehyde	7421-93-4	NL	**0.034**	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Endrin ketone	53494-70-5	NL	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
gamma-BHC (Lindane)	58-89-9	9.2	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Heptachlor	76-44-8	15	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Heptachlor epoxide	1024-57-3	NL	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	<0.0076 U	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Methoxychlor	72-43-5	NL	<0.0074 U	<0.0073 U	<0.0072 U	<0.0085 U	**0.030 J**	<0.0070 U	<0.0089 U	<0.0093 U	<0.0075 U	<0.0071 U	<0.0084 U	<0.0084 U	<0.0072 U	<0.0080 U	<0.0079 U
Toxaphene	8001-35-2	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.080 U	<0.079 U
PCBs (mg/Kg)																	
Aroclor 1016	12674-11-2	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1221	11104-28-2	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1232	11141-16-5	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1242	53469-21-9	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1248	12672-29-6	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1254	11097-69-1	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	**1.2**	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1260	11096-82-5	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1262	37324-23-5	NL	**0.52**	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
Aroclor 1268	11100-14-4	NL	<0.074 U	<0.073 U	<0.072 U	<0.085 U	<0.076 U	<0.070 U	<0.089 U	<0.093 U	<0.075 U	<0.071 U	<0.084 U	<0.084 U	<0.072 U	<0.079 U	<0.079 U
PCB (Total) (ppm)		1	**0.52**	ND	ND	ND	**1.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Herbicides (mg/Kg)																	
2,4,5-T	93-76-5	NL	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.019 U	<0.018 U	<0.023 U	<0.024 U	<0.019 U	<0.018 U	<0.021 U	<0.021 U	<0.018 U	<0.020 U	<0.020 U
2,4-D	94-75-7	NL	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.019 U	<0.018 U	<0.023 U	<0.024 U	<0.019 U	<0.018 U	<0.021 U	<0.021 U	<0.018 U	<0.020 U	<0.020 U
Picloram	1918-02-1	NL	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.019 U	<0.018 U	<0.023 U	<0.024 U	<0.019 U	<0.018 U	<0.021 U	<0.021 U	<0.018 U	<0.020 U	<0.020 U
Silvex (2,4,5-TP)	93-72-1	500	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.019 U	<0.018 U	<0.023 U	<0.024 U	<0.019 U	<0.018 U	<0.021 U	<0.021 U	<0.018 U	<0.020 U	<0.020 U

Notes:

^{*1} = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
D = Diluted run
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-05	SB-05	SB-05	SB-05	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-08	SB-08	SB-08	SB-09	SB-09
Sample Date			1/4/2011	1/19/2011	1/19/2011	1/19/2011	1/17/2011	1/18/2011	1/18/2011	1/20/2011	1/20/2011	1/20/2011	2/16/2011	2/16/2011	2/16/2011	1/28/2011	1/28/2011
Sample ID			SB/MW-5(4.5-5)01041	SB-5 (31-33)011911	SB-5 (47-49)011911	SB-5 (69-71)011911	SB-6 (4.5-5)011711	SB-6(50-52)011811	SB-6(66.5-69)011811	SB-7 (4.5-5)012011	SB-7 (51.5-54)012111	SB-7 (66.5-69)012011	SB-8 (3-5)021611	SB-8 (43-46)021611	SB-8 (56-59)021611	SB-9(2-3)012811	SB-9(6-7)012811
Depth Interval			4.5-5	31-33	47-49	69-71	4.5-5	50-52	66.5-69	4.5-5	51.5-54	66.5-69	3-5	43-46	56-59	2-3	6-7
Metals (mg/Kg)																	
Aluminum	7429-90-5	NL	**14700**	**2700**	**2120**	**2140**	**15700**	**2050**	**2140**	**3530**	**1960**	**2230**	**8680**	**2340**	**1930**	**7410**	**6130**
Antimony	7440-36-0	NL	<2.3 U	<2.1 U	<2.0 U	<2.2 U	<2.4 U	<2.0 U	<2.1 U	<2.1 U	<2.2 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U	**4.3**
Arsenic	7440-38-2	16	**7.6**	**0.91 J**	**0.99 J**	**0.90 J**	**5**	0.84 U	<1.0 U	**1.2**	<1.1 U	<1.1 U	**4.5**	<1.0 U	<1.1 U	**4.1**	**18.3**
Barium	7440-39-3	400	**40.3 J**	**19.3 J**	<39.9 U	<43.1 U	**49.4**	**12.3 J**	**11.7 J**	<41.6 U	<44.0 U	<45.5 U	**62.1**	<41.7 U	<45.3 U	**148**	**150**
Beryllium	7440-41-7	590	**0.54**	**0.22 J**	**0.19 J**	<0.43 U	**0.74**	<0.40 U	<0.41 U	<0.42 U	<0.44 U	<0.46 U	**0.45 J**	<0.42 U	<0.45 U	**0.34 J**	**0.28 J**
Cadmium	7440-43-9	9.3	<1.2 U	<1.0 U	<1.0 U	<1.1 U	<1.2 U	<1.0 U	<1.0 U	<1.0 U	<1.1 U	<1.1 U	<1.2 U	<1.0 U	<1.1 U	<1.1 U	**2.4**
Calcium	7440-70-2	NL	**841 J**	**959 J**	**760 J**	**1470**	**794 J**	**713 J**	**1020 J**	**614 J**	**725 J**	**3520**	**17100**	<1040 U	<1130 U	**34300**	**44800**
Chromium	7440-47-3	1500	**19.3**	**7**	**6.3**	**5.9**	**25.4**	**8.9**	**5.9**	**7.3**	**5.3**	**5.4**	**16.5**	**9.7**	**6.1**	**21.5**	**3040**
Cobalt	7440-48-4	NL	**6.9 J**	**4.8 J**	**3.3 J**	**3.0 J**	**11.1 J**	**3.7 J**	**4.8 J**	**3.1 J**	**2.5 J**	**2.7 J**	**6.5 J**	**3.1 J**	**3.4 J**	**10.8**	**6.6 J**
Copper	7440-50-8	270	**18.2**	**11**	**6.9**	**6.4**	**16.1**	**8.1**	**6.4**	**10.5**	**5.6**	**4.7 J**	**28.8**	**7.4**	**7.1**	**21.2**	**40.8**
Iron	7439-89-6	NL	**23900**	**8040**	**5700**	**6390**	**27700**	**6190**	**7410**	**8530**	**5610**	**5500**	**15600**	**6140**	**6300**	**15000**	**41000**
Lead	7439-92-1	1000	**22.5**	**4.4**	**3.1**	**2.8**	**12.2**	**2.4**	**3**	**4.7**	**2.6**	**2.9**	**70.4**	**3.3**	**2.9**	**93.3**	**3240**
Magnesium	7439-95-4	NL	**2190**	**2320 J+**	**2760 J+**	**2610 J+**	**3110**	**4010**	**1750**	**1580**	**1900 J+**	**2310 J+**	**3180**	**2400**	**3310**	**9410**	**8230**
Manganese	7439-96-5	10000	**169**	**189**	**144**	**196**	**527**	**77.5**	**201**	**154 J+**	**67.9**	**580**	**253**	**187**	**67**	**280**	**339**
Mercury	7439-97-6	2.8	**0.055**	<0.032 U	<0.032 U	<0.035 U	**0.029 J**	<0.033 U	<0.032 U	<0.032 U	<0.036 U	<0.038 U	**0.2**	<0.034 U	<0.036 U	**0.18**	<0.041 U
Nickel	7440-02-0	310	**13.8**	**25.5**	**27.3**	**22.7**	**23.5**	**32.7**	**10.1**	**13.4**	**14.9**	**13.1**	**22**	**21.4**	**27.2**	**17.7**	**25.4**
Potassium	7440-09-7	NL	**524 J**	**497 J**	**432 J**	**494 J**	**752 J**	**432 J**	**289 J**	**416 J**	**480 J**	**553 J**	**942 J**	**551 J**	**407 J**	**1130**	**907 J**
Selenium	7782-49-2	1500	<2.3 U	<2.1 U	<2.0 U	<2.2 U	**2.6**	<2.0 U	<2.1 U	<2.1 U	<2.2 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U	<2.5 U
Silver	7440-22-4	1500	<2.3 U	<2.1 U	<2.0 U	<2.2 U	<2.4 U	<2.0 U	<2.1 U	<2.1 U	<2.2 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U	<2.5 U
Sodium	7440-23-5	NL	<1170 U	<1050 U	<997 U	<1080 U	**686 J**	**195 J**	**109 J**	<1040 U	<1100 U	<1140 U	**285 J**	**90.2 J**	**93.2 J**	**317 J**	**460 J**
Thallium	7440-28-0	NL	<2.3 U	<2.1 U	<2.0 U	<2.2 U	<2.4 U	<2.0 U	<2.1 U	<2.1 U	<2.2 U	<2.3 U	<2.4 U	<2.1 U	<2.3 U	<2.2 U	<2.5 U
Vanadium	7440-62-2	NL	**30.4**	**11.1**	**9.6 J**	**9.4 J**	**39.8**	**11.1**	10.2 U	**15.7**	**8.0 J**	**6.9 J**	**26.2**	**8.4 J**	**8.9 J**	**29.8**	**20.1**
Zinc	7440-66-6	10000	**49.5**	**25.6**	**19.7**	**14.5**	**38.8**	**14.1**	**13.6**	**18.6**	**11.1**	**12.7**	**54.5**	**12.8**	**12.3**	**80.2**	**1170**
Cyanide (mg/Kg)																	
Cyanide, Amenable	57-12-5-AMEN	NL	NS	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U
Cyanide, Total	57-12-5	27	NS	<0.52 U	<0.52 U	<0.57 U	<0.62 U	<0.54 U	<0.54 U	**0.21 J**	<0.55 U	<0.57 U	<0.63 U	<0.52 U	<0.57 U	**0.17 J**	**72.9**
Cyanide, Weak Acid Dissociable	57-12-5-WAD	NL	<0.62 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pesticides (mg/Kg)																	
4,4'-DDD	72-54-8	92	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	**0.067**
4,4'-DDE	72-55-9	62	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	**0.024 J**
4,4'-DDT	50-29-3	47	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	**0.0049 J**	**0.11**
Aldrin	309-00-2	0.68	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
alpha-BHC	319-84-6	3.4	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
beta-BHC	319-85-7	3	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	**0.024 J**	**0.013 J**
Chlordane	57-74-9	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.073 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	<0.086 U
delta-BHC	319-86-8	500	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Dieldrin	60-57-1	1.4	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	**0.026 J**
Endosulfan I	959-98-8	200	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Endosulfan II	33213-65-9	200	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Endosulfan sulfate	1031-07-8	200	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Endrin	72-20-8	89	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Endrin aldehyde	7421-93-4	NL	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	**0.0050 J**	**0.0098 J**
Endrin ketone	53494-70-5	NL	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
gamma-BHC (Lindane)	58-89-9	9.2	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	**0.029 J**	<0.0086 U
Heptachlor	76-44-8	15	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Heptachlor epoxide	1024-57-3	NL	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Methoxychlor	72-43-5	NL	<0.0084 U	<0.0070 U	<0.0069 U	<0.0076 U	<0.0083 U	<0.0072 U	<0.0072 U	<0.0071 U	<0.0073 U	<0.0076 U	<0.0085 U	<0.0070 U	<0.0076 U	<0.0075 U	<0.0086 U
Toxaphene	8001-35-2	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.073 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	<0.086 U
PCBs (mg/Kg)																	
Aroclor 1016	12674-11-2	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	<0.086 U
Aroclor 1221	11104-28-2	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	<0.086 U
Aroclor 1232	11141-16-5	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	<0.086 U
Aroclor 1242	53469-21-9	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	<0.086 U
Aroclor 1248	12672-29-6	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 U	**0.41**
Aroclor 1254	11097-69-1	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	**0.062 J**	**0.780 J**
Aroclor 1260	11096-82-5	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	**0.054 J**	**0.700 J**
Aroclor 1262	37324-23-5	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 UJ	<0.086 UJ
Aroclor 1268	11100-14-4	NL	<0.084 U	<0.070 U	<0.069 U	<0.076 U	<0.083 U	<0.072 U	<0.072 U	<0.071 U	<0.074 U	<0.076 U	<0.085 U	<0.070 U	<0.076 U	<0.075 UJ	<0.086 UJ
PCB (Total) (ppm)		1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**0.116**	**1.89**
Herbicides (mg/Kg)																	
2,4,5-T	93-76-5	NL	<0.021 U	<0.018 U	<0.018 U	<0.019 U	<0.021 U	<0.018 U	<0.018 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U
2,4-D	94-75-7	NL	<0.021 U	<0.018 U	<0.018 U	<0.019 U	<0.021 U	<0.018 U	<0.018 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U
Picloram	1918-02-1	NL	<0.021 U	<0.018 U	<0.018 U	<0.019 U	<0.021 U	<0.018 U	<0.018 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U
Silvex (2,4,5-TP)	93-72-1	500	<0.021 U	<0.018 U	<0.018 U	<0.019 U	<0.021 U	<0.018 U	<0.018 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.019 U	<0.022 U

Notes:

*1 = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.

ND = calculated totals are not detected

NL = No Limit

NS = Not Sampled

mg/Kg = milligram per kilogram

Bold indicates compound was detected

Blue Shaded values exceed NYSDEC PART 375-6 Commercial use

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

D = Diluted run

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-09	SB-10	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-12	SB-13	SB-13	SB-13	SB-14
Sample Date			1/28/2011	2/1/2011	2/1/2011	2/2/2011	2/2/2011	1/31/2011	1/31/2011	1/31/2011	2/3/2011	2/4/2011	2/4/2011	2/4/2011	2/7/2011	2/7/2011	1/3/2011
Sample ID			SB-9(8-10)012811	SB-10(1.5-3)020111	SB-10(5-7.5)020111	SB-10(60-62.5)020211	SB-10(80-82.5)020211	SB-11(1-2)013111	SB-11(35.6-40)013111	SB-11(40.6-43)013111	SB-12(3.5-4.5)020311	SB-12(69-72)020411	SB-12(75-77)020411	SB-13(0-1.5)020411	SB-13(64-66.5)020711	SB-13(77-79)020711	SB-14(5-5.5)010311
Depth Interval			8-10	1.5-3	5-7.5	60-62.5	80-82.5	1-2	35.6-40	40.6-43	3.5-4.5	69-72	75-77	0-1.5	64-66.5	77-79	5-5.5
Metals (mg/Kg)																	
Aluminum	7429-90-5	NL	**6590**	**5280**	**5540**	**1880**	**2730**	**10200**	**2760**	**2030**	**8720**	**2260**	**2590**	**5840**	**1990**	**2590**	**4680**
Antimony	7440-36-0	NL	<2.1 U	**2.1 J**	**1.3 J**	<2.1 U	<2.1 U	**1.4 J**	<2.0 U	<2.0 U	<2.3 U	<2.2 U	<2.2 U	<2.3 U	<2.3 U	<2.4 U	**1.6 J**
Arsenic	7440-38-2	16	**3.7**	**6.6**	**3.3**	**1.5**	**1.1**	**7**	**0.98 J**	**0.71 J**	**3.4**	**0.77 J**	**0.85 J**	**2.9**	<1.2 U	**0.93 J**	**10.1**
Barium	7440-39-3	400	**56.8**	**2750**	**143**	**12.0 J**	**19.3 J**	**124**	<39.7 U	<40.3 U	**373**	**14.9 J**	**16.0 J**	**179**	**12.0 J**	**19.4 J**	**164**
Beryllium	7440-41-7	590	**0.41 J**	**0.20 J**	<0.48 U	<0.42 U	<0.43 U	**0.47**	**0.17 J**	<0.40 U	**0.23 J**	**0.20 J**	<0.44 U	**0.23 J**	<0.47 U	<0.48 U	**0.38 J**
Cadmium	7440-43-9	9.3	<1.1 U	**1.3**	**0.68 J**	<1.0 U	<1.1 U	**1.2**	<0.99 U	<1.0 U	**0.32 J**	<1.1 U	<1.1 U	**0.49 J**	<1.2 U	<1.2 U	<1.2 U
Calcium	7440-70-2	NL	**2660**	**47600**	**107000**	<1040 U	**5580**	**7670**	**930 J**	**898 J**	**77100**	**5310**	**6120**	**18000**	**924 J**	**6360**	**12700**
Chromium	7440-47-3	1500	**19.9**	**315**	**300**	**6.9 J**	**17.0 J**	**113**	**7.9**	**5.6**	**24.6**	**5.3**	**6.1**	**101**	**6.3**	**6.1**	**15.9**
Cobalt	7440-48-4	NL	**9.6 J**	**7.7 J**	**3.6 J**	**3.2 J**	**4.1 J**	**7.3 J**	**4.1 J**	**3.0 J**	**7.7 J**	**3.2 J**	**3.7 J**	**5.5 J**	**2.9 J**	**4.2 J**	**7.4 J**
Copper	7440-50-8	270	**45.5**	**97.6**	**34.2**	**6.6**	**7.4**	**53.5**	**11.9**	**8**	**44**	**5.8**	**8.2**	**242**	**7**	**8**	**58.7**
Iron	7439-89-6	NL	**23700**	**31400**	**12400**	**5340 J**	**7600 J**	**21800**	**8710**	**5650**	**17200**	**5570**	**7530**	**12300**	**5260**	**7490**	**21300**
Lead	7439-92-1	1000	**14.7**	**1150**	**429**	**3.1**	**3.5**	**765**	**3.8**	**2.6**	**80.1**	**3.7**	**4**	**231**	**2.1**	**3.5**	**514**
Magnesium	7439-95-4	NL	**3560**	**2570**	**35700**	**2530**	**3760**	**2940**	**2280**	**1580**	**4940**	**2250**	**3140**	**3590**	**2720**	**3620**	**2660**
Manganese	7439-96-5	10000	**687**	**297**	**242**	**53.6 J**	**173 J**	**354**	**216**	**272**	**238**	**187**	**188**	**207**	**56.6**	**202**	**300**
Mercury	7439-97-6	2.8	<0.034 U	<0.041 U	**0.47**	<0.033 U	<0.034 U	**0.36**	<0.034 U	<0.031 U	**0.12**	<0.038 U	<0.036 U	**0.26**	<0.037 U	<0.034 U	**0.63**
Nickel	7440-02-0	310	**52.3**	**15.9**	**11.8**	**23.7**	**27.9**	**20.3**	**22.8**	**15.8**	**15.8**	**11.3**	**18.9**	**21.1**	**24.1**	**19.3**	**23.5**
Potassium	7440-09-7	NL	**1350**	**785 J**	**747 J**	**382 J**	**553 J**	**678 J**	**605 J**	**422 J**	**976 J**	**548 J**	**433 J**	**722 J**	**511 J**	**498 J**	**765 J**
Selenium	7782-49-2	1500	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.1 U	<2.0 U	<2.0 U	<2.3 U	<2.2 U	<2.2 U	<2.3 U	<2.3 U	<2.4 U	**1.3 J**
Silver	7440-22-4	1500	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.1 U	<2.0 U	<2.0 U	<2.3 U	<2.2 U	<2.2 U	<2.3 U	<2.3 U	<2.4 U	<2.3 U
Sodium	7440-23-5	NL	**358 J**	**587 J**	**295 J**	**71.4 J**	**181 J**	**158 J**	**118 J**	**68.1 J**	**328 J**	**70.1 J**	**76.7 J**	**177 J**	<1170 U	<1190 U	**250 J**
Thallium	7440-28-0	NL	<2.1 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.1 U	<2.0 U	<2.0 U	<2.3 U	<2.2 U	<2.2 U	<2.3 U	<2.3 U	<2.4 U	<2.3 U
Vanadium	7440-62-2	NL	**44.8**	**30.7**	**12.8**	**7.5 J**	**11.2**	**30.9**	**12.4**	**8.8 J**	**46.3**	**6.5 J**	**8.8 J**	**21**	**8.2 J**	**8.3 J**	**21**
Zinc	7440-66-6	10000	**56**	**1790**	**295**	**12.6**	**15.9**	**593**	**16.4**	**14.3**	**312**	**13**	**15.9**	**231**	**12.7**	**16.9**	**283**
Cyanide (mg/Kg)																	
Cyanide, Amenable	57-12-5-AMEN	NL	<0.50 U	<0.50 U	**0.78**	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	**0.18 J**	<0.50 U	<0.50 U	**0.32 J**	<0.50 U	<0.50 U	NS
Cyanide, Total	57-12-5	27	**0.24 J**	**0.38 J**	**19.5**	<0.55 U	<0.55 U	**2.6**	<0.52 U	<0.52 U	**0.95**	<0.58 U	<0.57 U	**0.63**	<0.58 U	<0.61 U	NS
Cyanide, Weak Acid Dissociable	57-12-5-WAD	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	<0.55 U
Pesticides (mg/Kg)																	
4,4'-DDD	72-54-8	92	<0.0072 U	<0.0084 U	**0.038**	<0.0074 U	<0.0074 U	**0.100 J**	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
4,4'-DDE	72-55-9	62	<0.0072 U	**0.130 J**	**0.012**	<0.0074 U	<0.0074 U	**0.031 J**	<0.0069 U	<0.0069 U	<0.0081 U	**0.012 NJ**	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
4,4'-DDT	50-29-3	47	<0.0072 U	**0.057**	**0.038**	<0.0074 U	<0.0074 U	**0.120 J**	<0.0069 U	<0.0069 U	<0.0081 U	**0.027 NJ**	<0.0076 UJ	**0.0069 J**	<0.0078 U	<0.0082 U	<0.0078 U
Aldrin	309-00-2	0.68	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
alpha-BHC	319-84-6	3.4	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
beta-BHC	319-85-7	3	**0.031 NJ**	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	**0.022 J**	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Chlordane	57-74-9	NL	<0.072 U	**0.25**	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 UJ	<0.075 U	<0.078 U	<0.082 U	**0.038 J**
delta-BHC	319-86-8	500	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	**0.041 J**	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Dieldrin	60-57-1	1.4	<0.0072 U	**0.053**	**0.0081 NJ**	<0.0074 U	<0.0074 U	**0.027 J**	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Endosulfan I	959-98-8	200	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Endosulfan II	33213-65-9	200	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Endosulfan sulfate	1031-07-8	200	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Endrin	72-20-8	89	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Endrin aldehyde	7421-93-4	NL	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	**0.015 NJ**	<0.0069 U	<0.0069 U	<0.0081 U	**0.014 NJ**	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Endrin ketone	53494-70-5	NL	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	**0.09**	<0.0069 U	<0.0069 U	<0.0081 U	**0.014**	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
gamma-BHC (Lindane)	58-89-9	9.2	**0.048 J**	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Heptachlor	76-44-8	15	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Heptachlor epoxide	1024-57-3	NL	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Methoxychlor	72-43-5	NL	<0.0072 U	<0.0084 U	<0.0081 U	<0.0074 U	<0.0074 U	<0.0075 U	<0.0069 U	<0.0069 U	<0.0081 U	<0.0078 U	<0.0076 UJ	<0.0075 U	<0.0078 U	<0.0082 U	<0.0078 U
Toxaphene	8001-35-2	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 UJ	<0.075 U	<0.078 U	<0.082 U	<0.078 U
PCBs (mg/Kg)																	
Aroclor 1016	12674-11-2	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1221	11104-28-2	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1232	11141-16-5	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1242	53469-21-9	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	**0.40**	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1248	12672-29-6	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1254	11097-69-1	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	**0.19**	<0.078 U	<0.076 U	**0.086**	<0.078 U	<0.082 U	<0.078 U
Aroclor 1260	11096-82-5	NL	<0.072 U	**0.430 J**	**0.300 J**	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1262	37324-23-5	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	**1.600 J**	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
Aroclor 1268	11100-14-4	NL	<0.072 U	<0.084 U	<0.081 U	<0.074 U	<0.074 U	<0.075 U	<0.069 U	<0.069 U	<0.081 U	<0.078 U	<0.076 U	<0.075 U	<0.078 U	<0.082 U	<0.078 U
PCB (Total) (ppm)		1	ND	**0.43**	**0.3**	ND	ND	**1.6**	ND	ND	**0.59**	ND	ND	**0.086**	ND	ND	ND
Herbicides (mg/Kg)																	
2,4,5-T	93-76-5	NL	<0.018 U	<0.021 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.018 U	<0.021 U	<0.020 U	<0.019 U	<0.019 U	<0.020 U	<0.021 U	<0.020 U
2,4-D	94-75-7	NL	<0.018 U	<0.021 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.018 U	<0.021 U	<0.020 U	<0.019 U	<0.019 U	<0.020 U	<0.021 U	<0.020 U
Picloram	1918-02-1	NL	<0.018 U	<0.021 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.018 U	<0.021 U	<0.020 U	<0.019 U	<0.019 U	<0.020 U	<0.021 U	<0.020 U
Silvex (2,4,5-TP)	93-72-1	500	<0.018 U	<0.021 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.018 U	<0.021 U	<0.020 U	<0.019 U	<0.019 U	<0.020 U	<0.021 U	<0.020 U

Notes:

^{*1} = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
D = Diluted run
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-14	SB-14	SB-15	SB-15	SB-15	SB-16	SB-16	SB-16	SB-17	SB-17	SB-17	SB-17	SB-17	SB-18	SB-18
Sample Date			1/5/2011	1/6/2011	1/3/2011	1/10/2011	1/11/2011	1/22/2011	1/22/2011	1/22/2011	1/4/2011	1/4/2011	1/17/2011	1/17/2011	1/17/2011	6/23/2011	6/27/2011
Sample ID			SB-14(48-50)010511	SB-14(56-58)010611	SB-15(4-5.5)010311	SB-15(66-68)011011	SB-15(78-80)011011	SB-16(4-5)012211	SB-16(47-50)012211	SB-16(68-70)012211	DUP-1-010411	SB-17(4.5-5)010411	SB-17(31-33)011711	SB-17(49-51)011711	SB-17(67-69)011711	SB-18(4-5)062311	SB-18(42.5-45)062411
Depth Interval			48-50	56-58	4-5.5	66-68	78-80	4-5	47-50	68-70	4.5-5	4.5-5	31-33	49-51	67-69	4-5	42.5-45
Metals (mg/Kg)																	
Aluminum	7429-90-5	NL	**2840**	**1880**	**6960**	**2750**	**2520**	**10000**	**3200**	**1910**	**7270**	**7070**	**2380**	**2850**	**2950**	**4150**	**3040**
Antimony	7440-36-0	NL	<2.3 U	<2.1 U	<2.3 U	<2.2 U	<2.3 U	<2.0 U	<2.0 U	<2.4 U	**2.2 J**	<2.2 U	<2.1 U	<2.0 U	<2.5 U	<5.7 UJ	<2.1 U
Arsenic	7440-38-2	16	**0.88 J**	**0.79 J**	**4.3**	**1.2**	**1.1 J**	**3.2**	**0.71 J**	<1.2 U	**10.9**	**9.3**	**1.0 J**	<1.0 U	<1.2 U	**47.8**	**1.3**
Barium	7440-39-3	400	**18.2 J**	**12.4 J**	**43.7 J**	**19.9 J**	**17.6 J**	**41.9**	**20.0 J**	**16.1 J**	**130**	**51.8**	**17.7 J**	**12.0 J**	**13.0 J**	**28.6 J**	**19.9 J**
Beryllium	7440-41-7	590	<0.45 U	<0.43 U	**0.36 J**	<0.44 U	<0.46 U	**0.61**	**0.18 J**	<0.48 U	**0.48**	**0.45**	<0.43 U	<0.40 U	<0.49 U	<1.1 U	<0.42 U
Cadmium	7440-43-9	9.3	<1.1 U	<1.1 U	<1.2 U	<1.1 U	<1.2 U	<0.99 U	<1.0 U	<1.2 U	**0.59 J**	<1.1 U	<1.1 U	<1.0 U	<1.2 U	<2.9 U	<1.1 U
Calcium	7440-70-2	NL	**1650**	**658 J**	**3060**	**9650**	**5800**	**3870**	**1260**	**4930**	**11600 J**	**2510 J**	**1090**	**1010 J**	**647 J**	**677 J**	**1620**
Chromium	7440-47-3	1500	**11.4**	**4.8**	**15.4**	**6.6**	**7.3**	**22.2**	**10.1**	**5.8**	**16**	**15.9**	**6**	**22.9**	**5.4**	**17.7 J+**	**7.1**
Cobalt	7440-48-4	NL	**4.1 J**	**2.8 J**	**7.0 J**	**2.5 J**	**2.6 J**	**8.8 J**	**3.7 J**	**2.7 J**	**8.4 J**	**7.8 J**	**3.9 J**	**7.3 J**	**3.9 J**	<28.5 U	**3.0 J**
Copper	7440-50-8	270	**9.8**	**5.8**	**18.2**	**6.6**	**6.5**	**20.1**	**7.7**	<6.0 U	**91.0 J**	**33.5 J**	**11.4**	**8.8**	**8.5**	**22.3**	**6.8**
Iron	7439-89-6	NL	**7890**	**4900**	**14900**	**7230**	**7450**	**22900**	**7720**	**6020**	**16600**	**18300**	**7410**	**7910**	**6160**	**53000**	**6090**
Lead	7439-92-1	1000	**4.2**	**2.9**	**125**	**6.3**	**3.8**	**12.3**	**4.2**	**3.6**	**414 J**	**103 J**	**3.4**	**4.4**	**3.7**	**17.1**	**2.6**
Magnesium	7439-95-4	NL	**3870**	**1590**	**2970**	**2670**	**3210**	**4290**	**2960**	**2470**	**2910**	**2460**	**5380**	**3180**	**1740**	**1530 J**	**2530**
Manganese	7439-96-5	10000	**107**	**87.4**	**408**	**236**	**278**	**624**	**230**	**352**	**335**	**388**	**193**	**89.9**	**178**	**212 J**	**211**
Mercury	7439-97-6	2.8	<0.035 U	<0.033 U	**0.05**	<0.038 U	<0.033 U	<0.033 U	<0.034 U	<0.038 U	**0.74 J**	**0.19 J**	**0.034**	<0.031 U	<0.041 U	**0.041**	<0.036 U
Nickel	7440-02-0	310	**39.5**	**11.1**	**20.7**	**9.9**	**18.3**	**25.5**	**24.6**	**10.3**	**23.2**	**22.9**	**45.6**	**98.2**	**15.4**	**7.7 J**	**23.4**
Potassium	7440-09-7	NL	**801 J**	**400 J**	**759 J**	**686 J**	**419 J**	**1540**	**885 J**	**512 J**	**971 J**	**790 J**	**466 J**	**547 J**	**452 J**	**925 J**	**702 J**
Selenium	7782-49-2	1500	<2.3 U	<2.1 U	<2.3 U	<2.2 U	<2.3 U	<2.0 U	<2.0 U	<2.4 U	**1.5 J**	<2.2 U	<2.1 U	<2.0 U	<2.5 U	<5.7 U	<2.1 U
Silver	7440-22-4	1500	<2.3 U	<2.1 U	<2.3 U	<2.2 U	<2.3 U	<2.0 U	<2.0 U	<2.4 U	<2.1 U	<2.2 U	<2.1 U	<2.0 U	<2.5 U	<5.7 U	<2.1 U
Sodium	7440-23-5	NL	**118 J**	**78.7 J**	**106 J**	**111 J**	**94.1 J**	**261 J**	**214 J**	**76.0 J**	**152 J**	<1100 U	**82.1 J**	**113 J**	<1230 U	**194 J**	**477 J**
Thallium	7440-28-0	NL	<2.3 U	<2.1 U	<2.3 U	<2.2 U	<2.3 U	<2.0 U	<2.0 U	<2.4 U	<2.1 U	<2.2 U	<2.1 U	<2.0 U	<2.5 U	<5.7 U	<2.1 U
Vanadium	7440-62-2	NL	**10.6 J**	**6.1 J**	**24.2**	**9.6 J**	**10.2 J**	**34.9**	**11.6**	**7.9 J**	**28.2**	**29.3**	**8.7 J**	**8.9 J**	**7.8 J**	**38.3**	**8.9 J**
Zinc	7440-66-6	10000	**17.9**	**10.3**	**46.6**	**14.8**	**15**	**54.8**	**16.5**	**11.5**	**454 J**	**91.9 J**	**18.9**	**20.1**	**18.6**	**21.9**	**18.5**
Cyanide (mg/Kg)																	
Cyanide, Amenable	57-12-5-AMEN	NL	NS	NS	NS	NS	NS	<0.50 U	<0.50 U	<0.50 U	NS	NS	NS	NS	NS	<0.50 U	<0.50 U
Cyanide, Total	57-12-5	27	NS	NS	NS	NS	NS	<0.53 U	<0.52 U	<0.62 U	NS	NS	NS	NS	NS	<0.58 U	<0.55 U
Cyanide, Weak Acid Dissociable	57-12-5-WAD	NL	<0.57 U	<0.54 U	<0.59 U	<0.55 U	<0.58 U	NS	NS	NS	<0.54 U	<0.54 U	**1.1**	**0.11**	**0.067 J**	NS	NS
Pesticides (mg/Kg)																	
4,4'-DDD	72-54-8	92	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
4,4'-DDE	72-55-9	62	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
4,4'-DDT	50-29-3	47	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Aldrin	309-00-2	0.68	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
alpha-BHC	319-84-6	3.4	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
beta-BHC	319-85-7	3	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Chlordane	57-74-9	NL	<0.078 U	<0.075 U	<0.079 U	<0.077 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 UJ	<0.071 U	<0.086 U	<0.077 U	<0.073 U
delta-BHC	319-86-8	500	<0.0078 U	<0.0075 U	<0.0079 U	**0.0083**	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	**0.016 J**	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Dieldrin	60-57-1	1.4	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Endosulfan I	959-98-8	200	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Endosulfan II	33213-65-9	200	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Endosulfan sulfate	1031-07-8	200	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Endrin	72-20-8	89	<0.0078 U	<0.0075 U	<0.0079 U	**0.0080 NJ**	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Endrin aldehyde	7421-93-4	NL	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Endrin ketone	53494-70-5	NL	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
gamma-BHC (Lindane)	58-89-9	9.2	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Heptachlor	76-44-8	15	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Heptachlor epoxide	1024-57-3	NL	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Methoxychlor	72-43-5	NL	<0.0078 U	<0.0075 U	<0.0079 U	<0.0077 U	<0.0079 U	<0.0071 U	<0.0069 U	<0.0083 U	<0.0075 U	<0.0075 U	<0.0075 UJ	<0.0071 U	<0.0086 U	<0.0077 U	<0.0073 U
Toxaphene	8001-35-2	NL	<0.078 U	<0.075 U	<0.079 U	<0.077 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 UJ	<0.071 U	<0.086 U	<0.077 U	<0.073 U
PCBs (mg/Kg)																	
Aroclor 1016	12674-11-2	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1221	11104-28-2	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1232	11141-16-5	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1242	53469-21-9	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1248	12672-29-6	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1254	11097-69-1	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1260	11096-82-5	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1262	37324-23-5	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
Aroclor 1268	11100-14-4	NL	<0.078 U	<0.075 U	<0.079 U	<0.078 U	<0.079 U	<0.071 U	<0.069 U	<0.083 U	<0.075 U	<0.075 U	<0.075 U	<0.071 U	<0.086 U	<0.077 U	<0.073 U
PCB (Total) (ppm)		1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Herbicides (mg/Kg)																	
2,4,5-T	93-76-5	NL	<0.020 U	<0.019 U	<0.020 U	<0.020 U	<0.020 U	<0.018 U	<0.018 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.020 U	<0.019 U
2,4-D	94-75-7	NL	<0.020 U	<0.019 U	<0.020 U	<0.020 U	<0.020 U	<0.018 U	<0.018 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.020 U	<0.019 U
Picloram	1918-02-1	NL	<0.020 U	<0.019 U	<0.020 U	<0.020 U	<0.020 U	<0.018 U	<0.018 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.022 U	NS	NS
Silvex (2,4,5-TP)	93-72-1	500	<0.020 U	<0.019 U	<0.020 U	<0.020 U	<0.020 U	<0.018 U	<0.018 U	<0.021 U	<0.019 U	<0.019 U	<0.019 U	<0.018 U	<0.022 U	<0.020 U	<0.019 U

Notes:

*1 = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
D = Diluted run
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-18	SB-18	SB-19	SB-19	SB-19	SB-20	SB-20	SB-20	SB-20	SB-21	SB-21	SB-21	SB-22	SB-22	SB-22
Sample Date			6/27/2011	6/27/2011	6/23/2011	6/24/2011	6/24/2011	6/23/2011	6/28/2011	6/28/2011	6/29/2011	6/23/2011	6/29/2011	6/29/2011	7/6/2011	7/6/2011	7/6/2011
Sample ID			SB-18(70-72.5)062411	SB-18(27.5-30)062411	SB-19(4-5)062311	SB-19(72.5-75)062411	SB-19(75-77.5)062411	SB-20 (4-5)062311	SB-20(15-17.5)062411	SB-20(62.5-65)062411	SB-20(87.5-90)062411	SB-21(4.5-5)062311	SB-21(72.5-75)062411	SB-21(92.5-95)062411	SB-22(1-2)062411	DUP 1-062411	SB-22(82.5-85)062411
Depth Interval			70-72.5	27.5-30	4-5	72.5-75	75-77.5	4-5	15-17.5	62.5-65	87.5-90	4.5-5	72.5-75	92.5-95	1-2	0-0	82.5-85
Metals (mg/Kg)																	
Aluminum	7429-90-5	NL	**2230**	**3010**	**10800**	**3980**	**1950**	**12100**	**4530**	**2580**	**2570**	**11600**	**2220**	**2520**	**12200**	**1880**	**2300**
Antimony	7440-36-0	NL	<2.2 U	<2.0 U	<2.6 UJ	<2.5 UJ	<2.5 UJ	<2.2 UJ	<2.1 U	<2.1 U	<2.5 U	<2.1 UJ	<2.4 U	<2.3 U	<2.4 U	<2.1 U	<2.6 U
Arsenic	7440-38-2	16	**1.0 J**	**1.9**	**11.3**	**3**	<1.2 U	**3.6**	**1.8**	**0.90 J**	**0.92 J**	**4.4**	<1.2 U	<1.2 U	**6.5**	<1.0 U	**1.2 J**
Barium	7440-39-3	400	**15.0 J**	**23.5 J**	**100**	**38.2 J**	**17.1 J**	**27.5 J**	**30.4 J**	**16.5 J**	**20.3 J**	**48.3**	**15.8 J**	**20.1 J**	**69.2**	**17.4 J**	**16.6 J**
Beryllium	7440-41-7	590	<0.43 U	**0.22 J**	**0.57**	**0.24 J**	<0.50 U	**0.47**	**0.46**	**0.21 J**	<0.51 U	**0.52**	<0.48 U	<0.47 U	**0.56**	<0.42 U	<0.52 U
Cadmium	7440-43-9	9.3	<1.1 U	<1.0 U	<1.3 U	<1.2 U	<1.2 U	<1.1 U	**0.17 J**	<1.1 U	<1.3 U	<1.0 U	<1.2 U	<1.2 U	<1.2 U	<1.0 U	<1.3 U
Calcium	7440-70-2	NL	**4790**	**620 J**	**3060**	**4240**	**3870**	**576 J**	**1520**	**913 J**	**6390**	**1440**	**4100**	**5250**	**2780 J-**	**3600 J-**	**6730 J-**
Chromium	7440-47-3	1500	**5.1**	**7.1**	**28.6 J+**	**8.2 J+**	**5.5 J+**	**25.3 J+**	**13.5**	**7.4**	**4.4**	**21.8 J+**	**5.1**	**6**	**16.1**	**4.4**	**4.1**
Cobalt	7440-48-4	NL	**2.8 J**	**4.5 J**	**9.5 J**	**4.6 J**	**2.5 J**	**7.6 J**	**5.1 J**	**3.3 J**	**2.8 J**	**9.8 J**	**2.2 J**	**1.9 J**	**5.5 J**	**2.1 J**	**2.6 J**
Copper	7440-50-8	270	**6.8**	**12.6**	**87.9**	**13.3**	**11.1**	**16.2**	**22.3**	**6.6**	**6.9**	**31.5**	**6**	**7.1**	**13.4**	**5.7**	**6.5**
Iron	7439-89-6	NL	**7240**	**11600**	**24800**	**15200**	**6090**	**22900**	**12000**	**7970**	**6600**	**20800**	**7640**	**6100**	**19300**	**4840**	**6070**
Lead	7439-92-1	1000	**2.4**	**2.8**	**298**	**8.6**	**1.6**	**9.9**	**6.8**	**3.3**	**2.6**	**21.9**	**2.5**	**2.2**	**64.7**	**1.9**	**2.2**
Magnesium	7439-95-4	NL	**2050**	**1510**	**2810 J+**	**3570 J+**	**1940 J+**	**2810 J+**	**2350**	**1790**	**2920**	**3890 J+**	**2090**	**2430**	**1910 J+**	**2030 J+**	**3070 J+**
Manganese	7439-96-5	10000	**199**	**323**	**317 J**	**462 J**	**195 J**	**355 J**	**252**	**52.8**	**198**	**379 J**	**140**	**172**	**294 J-**	**148 J-**	**162 J-**
Mercury	7439-97-6	2.8	<0.036 U	<0.034 U	**0.48**	<0.041 U	<0.041 U	<0.038 U	**0.32**	<0.035 U	<0.043 U	**0.073**	<0.040 U	<0.040 U	**0.35**	<0.035 U	<0.043 U
Nickel	7440-02-0	310	**9.4**	**12.1**	**31.6**	**14.1**	**9.3 J**	**18.8**	**19.9**	**22**	**6.4 J**	**27.5**	**7.9 J**	**6.0 J**	**11.0 J+**	**5.0 J**	**6.8 J**
Potassium	7440-09-7	NL	**376 J**	**379 J**	**1050 J**	**1060 J**	**284 J**	**691 J**	**1220**	**785 J**	**429 J**	**1000 J**	**310 J**	**494 J**	**484 J**	**240 J**	**190 J**
Selenium	7782-49-2	1500	<2.2 U	<2.0 U	**1.2 J**	<2.5 U	<2.5 U	<2.2 U	<2.1 U	<2.1 U	<2.5 U	<2.1 U	<2.4 U	<2.3 U	<2.4 U	<2.1 U	<2.6 U
Silver	7440-22-4	1500	<2.2 U	<2.0 U	<2.6 U	<2.5 U	<2.5 U	<2.2 U	<2.1 U	<2.1 U	<2.5 U	<2.1 U	<2.4 U	<2.3 U	**0.19 J**	**0.16 J**	<2.6 U
Sodium	7440-23-5	NL	<1080 U	<1010 U	**186 J**	**79.3 J**	<1240 U	<1100 U	**184 J**	**105 J**	<1260 U	<1040 U	<1210 U	**75.2 J**	**128 J**	**64.5 J**	**105 J**
Thallium	7440-28-0	NL	<2.2 U	<2.0 U	<2.6 U	<2.5 U	<2.5 U	<2.2 U	<2.1 U	<2.1 U	<2.5 U	<2.1 U	<2.4 U	<2.3 U	<2.4 U	<2.1 U	<2.6 U
Vanadium	7440-62-2	NL	**8.3 J**	**12.3**	**34.4**	**18.1**	**5.8 J**	**32.5**	**19.7**	**9.7 J**	**5.8 J**	**30.7**	**9.2 J**	**5.8 J**	**26.8**	**5.7 J**	**5.7 J**
Zinc	7440-66-6	10000	**13.4**	**26.4**	**201**	**41.2**	**11.8**	**30**	**50.7**	**13.2**	**13.3**	**52.1**	**13.8**	**12.4**	**38.7**	**9.2**	**13.1**
Cyanide (mg/Kg)																	
Cyanide, Amenable	57-12-5-AMEN	NL	<0.50 U	<0.50 U	**0.34 J**	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	<0.50 U	**0.35 J**	<0.50 U	**1.7**	NS	NS	NS
Cyanide, Total	57-12-5	27	<0.58 U	<0.52 U	**0.34 J**	<0.65 U	<0.63 U	**0.63**	**21.5**	<0.58 U	<0.64 U	**0.35 J**	**0.91**	**3.8**	<0.61 U	<0.56 U	<0.65 U
Cyanide, Weak Acid Dissociable	57-12-5-WAD	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pesticides (mg/Kg)																	
4,4'-DDD	72-54-8	92	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
4,4'-DDE	72-55-9	62	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
4,4'-DDT	50-29-3	47	<0.0078 U	<0.0069 UJ	**0.0058 J**	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Aldrin	309-00-2	0.68	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
alpha-BHC	319-84-6	3.4	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
beta-BHC	319-85-7	3	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Chlordane	57-74-9	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.077 U	<0.075 UJ	<0.078 UJ	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
delta-BHC	319-86-8	500	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Dieldrin	60-57-1	1.4	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Endosulfan I	959-98-8	200	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Endosulfan II	33213-65-9	200	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Endosulfan sulfate	1031-07-8	200	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Endrin	72-20-8	89	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Endrin aldehyde	7421-93-4	NL	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Endrin ketone	53494-70-5	NL	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
gamma-BHC (Lindane)	58-89-9	9.2	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Heptachlor	76-44-8	15	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Heptachlor epoxide	1024-57-3	NL	<0.0078 U	<0.0069 U	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Methoxychlor	72-43-5	NL	<0.0078 U	<0.0069 UJ	<0.0091 U	<0.0086 U	<0.0084 U	<0.0077 U	<0.0075 UJ	<0.0078 UJ	<0.0086 U	<0.0074 U	<0.0085 U	<0.0086 U	<0.0082 U	<0.0074 U	<0.0086 U
Toxaphene	8001-35-2	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.077 U	<0.075 UJ	<0.078 UJ	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
PCBs (mg/Kg)																	
Aroclor 1016	12674-11-2	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1221	11104-28-2	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1232	11141-16-5	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1242	53469-21-9	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1248	12672-29-6	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1254	11097-69-1	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1260	11096-82-5	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1262	37324-23-5	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
Aroclor 1268	11100-14-4	NL	<0.078 U	<0.069 U	<0.091 U	<0.086 U	<0.084 U	<0.076 U	<0.074 U	<0.078 U	<0.086 U	<0.074 U	<0.085 U	<0.086 U	<0.082 U	<0.074 U	<0.086 U
PCB (Total) (ppm)		1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Herbicides (mg/Kg)																	
2,4,5-T	93-76-5	NL	<0.020 U	<0.018 U	<0.023 U	<0.022 U	<0.021 U	<0.019 U	<0.019 U	<0.020 U	<0.022 U	<0.019 U	<0.022 U	<0.022 U	<0.021 U	<0.019 U	<0.022 U
2,4-D	94-75-7	NL	<0.020 U	<0.018 U	<0.023 U	<0.022 U	<0.021 U	<0.019 U	<0.019 U	<0.020 U	<0.022 U	<0.019 U	<0.022 U	<0.022 U	<0.021 U	<0.019 U	<0.022 U
Picloram	1918-02-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silvex (2,4,5-TP)	93-72-1	500	<0.020 U	<0.018 U	<0.023 U	<0.022 U	<0.021 U	<0.019 U	<0.019 U	<0.020 U	<0.022 U	<0.019 U	<0.022 U	<0.022 U	<0.021 U	<0.019 U	<0.022 U

Notes:

^{*1} = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
D = Diluted run
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-2
Summary of Soil Analytical Results Above Restricted Commercial Use SCOs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC PART 375-6 Commercial USE	SB-22	SB-23	SB-23	SB-24	SB-24	SB-25	SB-25	SB-25	TP-1	TP-1	TP-1	TP-2
Sample Date			7/6/2011	7/13/2011	7/13/2011	6/30/2011	6/30/2011	7/7/2011	7/11/2011	7/11/2011	6/23/2011	6/23/2011	6/23/2011	6/23/2011
Sample ID			SB-22(92.5-95)062411	SB-23(77.5-80)062411	SB-23(92.5-95)062411	SB-24(32.5-35)062411	SB-24(4-5)062411	SB-25(4-5)062411	SB-25(90-92.5)062411	SB-25(82.5-85)062411	TP-1(1-2)062311	TP-1(8)062311	ISIDE NO VALVE HO.)	TP-2(8')062311
Depth Interval			92.5-95	77.5-80	92.5-95	32.5-35	4-5	4-5	90-92.5	82.5-85	1-2	8	0	8
Metals (mg/Kg)														
Aluminum	7429-90-5	NL	**1820**	**1670**	**2040**	**2800**	**10700**	**14100**	**2080**	**2580**	**8680**	**10400**	**6110**	**7400**
Antimony	7440-36-0	NL	<2.5 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.5 U	<2.4 U	<2.6 U	<2.4 UJ	<2.3 UJ	<2.1 UJ	<2.1 UJ
Arsenic	7440-38-2	16	<1.2 U	**0.98 J**	**1.9**	**1.9**	**3.5**	**6.7**	**1.2**	**1.3**	**10.6**	**5.2**	**12**	**7.9**
Barium	7440-39-3	400	**16.3 J**	**11.3 J**	**16.7 J**	**22.0 J**	**57.2**	**45.3 J**	**16.9 J**	**23.9 J**	**238**	**68.6**	**168**	**53.2**
Beryllium	7440-41-7	590	<0.49 U	<0.45 U	<0.49 U	**0.19 J**	**0.49**	**0.44 J**	<0.49 U	<0.51 U	**0.58**	**0.56**	**0.37 J**	**0.54**
Cadmium	7440-43-9	9.3	<1.2 U	<1.1 U	<1.2 U	<1.0 U	<1.0 U	<1.2 U	<1.2 U	<1.3 U	**0.90 J**	<1.2 U	**0.49 J**	**0.44 J**
Calcium	7440-70-2	NL	**3580 J-**	**4550**	**4010**	**1060**	**4560**	**990 J**	**4420**	**6960**	**5660**	**2680**	**17100**	**3490**
Chromium	7440-47-3	1500	**3.8**	**3.9**	**5.8**	**9.4**	**22.5**	**19.9**	**7.2**	**5.6**	**29.5 J+**	**15.4 J+**	**19.0 J+**	**17.2 J+**
Cobalt	7440-48-4	NL	**2.1 J**	**1.9 J**	**2.2 J**	**3.9 J**	**8.2 J**	**6.6 J**	**2.9 J**	**3.2 J**	**8.3 J**	**7.3 J**	**6.6 J**	**8.0 J**
Copper	7440-50-8	270	**5.0 J**	**5.0 J**	**6.4**	**10.3**	**23.7**	**12.2**	**6.4**	**7.6**	**86.2**	**23.2**	**69.6**	**36.9**
Iron	7439-89-6	NL	**4880**	**4980**	**6290**	**11700**	**20400**	**19600**	**5900**	**7200**	**20100**	**17900**	**20400**	**22600**
Lead	7439-92-1	1000	**1.7**	**2.3**	**2.1**	**4.4**	**22.9**	**17.5**	**2.7**	**2.2**	**1080**	**220**	**1590**	**85.7**
Magnesium	7439-95-4	NL	**2100 J+**	**1940**	**2280**	**2320**	**4470**	**2460 J+**	**2590**	**3130**	**2900 J+**	**2180 J+**	**5250 J+**	**3000 J+**
Manganese	7439-96-5	10000	**144 J-**	**118**	**184**	**196**	**465**	**139 J-**	**188**	**191**	**307 J**	**377 J**	**264 J**	**484 J**
Mercury	7439-97-6	2.8	<0.036 U	<0.035 U	<0.041 U	<0.031 U	**0.024 J**	**0.038 J**	<0.039 U	<0.043 U	**3.8**	**0.48**	**0.73**	**0.11**
Nickel	7440-02-0	310	**5.7 J**	**10**	**6.0 J**	**21.8**	**29.1**	**14.0 J+**	**19.2**	**7.4 J**	**17.1**	**20.7**	**15.6**	**26.1**
Potassium	7440-09-7	NL	**196 J**	**233 J**	**344 J**	**568 J**	**1260**	**445 J**	**353 J**	**407 J**	**757 J**	**660 J**	**752 J**	**758 J**
Selenium	7782-49-2	1500	<2.5 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.5 U	<2.4 U	<2.6 U	<2.4 U	<2.3 U	**2.4**	<2.1 U
Silver	7440-22-4	1500	<2.5 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.5 U	<2.4 U	<2.6 U	<2.4 U	<2.3 U	<2.1 U	<2.1 U
Sodium	7440-23-5	NL	<1230 U	<1130 U	<1220 U	**90.6 J**	**64.1 J**	**201 J**	<1210 U	<1280 U	**101 J**	<1150 U	**119 J**	**77.0 J**
Thallium	7440-28-0	NL	<2.5 U	<2.3 U	<2.4 U	<2.1 U	<2.1 U	<2.5 U	<2.4 U	<2.6 U	<2.4 U	<2.3 U	<2.1 U	<2.1 U
Vanadium	7440-62-2	NL	**5.5 J**	**6.5 J**	**7.4 J**	**13.8**	**34.8**	**32.4**	**6.8 J**	**8.7 J**	**22.3**	**23**	**23.5**	**30.2**
Zinc	7440-66-6	10000	**8.8**	**11.5**	**10.3**	**45.3**	**57**	**38.5**	**13.3**	**14.2**	**468**	**82**	**542**	**109**
Cyanide (mg/Kg)														
Cyanide, Amenable	57-12-5-AMEN	NL	NS	**0.41 J**	**0.17 J**	<0.50 U	<0.50 U	NS	<0.50 U	<0.50 U	**0.59 J**	**1.2**	<0.50 U	<0.50 U
Cyanide, Total	57-12-5	27	<0.62 U	**0.41 J**	**0.17 J**	**1.2**	**1.4**	<0.66 U	<0.61 U	<0.65 U	**0.59 J**	**4.5**	**1.2**	<0.56 U
Cyanide, Weak Acid Dissociable	57-12-5-WAD	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Pesticides (mg/Kg)														
4,4'-DDD	72-54-8	92	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	**0.011**	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
4,4'-DDE	72-55-9	62	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
4,4'-DDT	50-29-3	47	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	**0.011 J**	<0.0075 UJ
Aldrin	309-00-2	0.68	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
alpha-BHC	319-84-6	3.4	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
beta-BHC	319-85-7	3	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Chlordane	57-74-9	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.075 U	<0.089 U	<0.081 U	<0.087 U	<0.081 U	<0.079 U	**0.086 J**	<0.075 U
delta-BHC	319-86-8	500	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Dieldrin	60-57-1	1.4	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Endosulfan I	959-98-8	200	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Endosulfan II	33213-65-9	200	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Endosulfan sulfate	1031-07-8	200	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Endrin	72-20-8	89	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Endrin aldehyde	7421-93-4	NL	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	**0.0059 J**	<0.0075 U
Endrin ketone	53494-70-5	NL	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	**0.0099**	<0.0075 U
gamma-BHC (Lindane)	58-89-9	9.2	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Heptachlor	76-44-8	15	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Heptachlor epoxide	1024-57-3	NL	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 U	<0.0075 U
Methoxychlor	72-43-5	NL	<0.0082 U	<0.0076 U	<0.0086 U	<0.0070 U	<0.0075 U	<0.0089 U	<0.0081 U	<0.0087 U	<0.0081 U	<0.0079 U	<0.0075 UJ	<0.0075 UJ
Toxaphene	8001-35-2	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.075 U	<0.089 U	<0.081 U	<0.087 U	<0.081 U	<0.079 U	<0.075 U	<0.075 U
PCBs (mg/Kg)														
Aroclor 1016	12674-11-2	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1221	11104-28-2	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1232	11141-16-5	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1242	53469-21-9	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1248	12672-29-6	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1254	11097-69-1	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1260	11096-82-5	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1262	37324-23-5	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
Aroclor 1268	11100-14-4	NL	<0.082 U	<0.076 U	<0.086 U	<0.070 U	<0.076 U	<0.089 U	<0.081 U	<0.087 U	<0.080 U	<0.079 U	<0.075 U	<0.075 U
PCB (Total) (ppm)		1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Herbicides (mg/Kg)														
2,4,5-T	93-76-5	NL	<0.021 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.022 U	<0.021 U	<0.022 U	<0.020 U	<0.020 U	<0.019 U	<0.019 U
2,4-D	94-75-7	NL	<0.021 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.022 U	<0.021 U	<0.022 U	<0.020 U	<0.020 U	<0.019 U	<0.019 U
Picloram	1918-02-1	NL	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silvex (2,4,5-TP)	93-72-1	500	<0.021 U	<0.019 U	<0.022 U	<0.018 U	<0.019 U	<0.022 U	<0.021 U	<0.022 U	<0.020 U	<0.020 U	<0.019 U	<0.019 U

Notes:

^{*1} = Sample intervals for SB-25 82.5-85 and 90-92.5 were inadvertently reversed in the field. The depths have been corrected on the table.
ND = calculated totals are not detected
NL = No Limit
NS = Not Sampled
mg/Kg = milligram per kilogram
Bold indicates compound was detected
Blue Shaded values exceed NYSDEC PART 375-6 Commercial use
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
D = Diluted run
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-3
Summary of Groundwater Analytical Data Above AWQSGVs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC Groundwater Standard and Guidance Values	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	MW-04	MW-04	MW-05	MW-05	MW-05	MW-06	MW-06	MW-07	MW-07	MW-08	MW-08	MW-09	MW-10
Sample Date			**3/9/2011**	**7/28/2011**	**3/9/2011**	**7/29/2011**	**3/10/2011**	**7/28/2011**	**3/10/2011**	**7/29/2011**	**3/9/2011**	**3/9/2011**	**7/28/2011**	**3/10/2011**	**8/1/2011**	**3/9/2011**	**7/29/2011**	**3/9/2011**	**7/29/2011**	**8/1/2011**	**7/29/2011**
Sample ID			**MW-1-03091**	**MW-1-07281**	**MW-2-03091**	**MW-2-07291**	**MW-3-03101**	**MW-3-07131**	**MW-4-03101**	**MW-4-07291**	**DUP-030911**	**MW-5-03091**	**MW-5-07281**	**MW-6-03101**	**MW-6-08011**	**MW-7-030911**	**MW-7-072911**	**MW-8-030911**	**MW-8-072911**	**MW-9-080111**	**MW-10-072911**
BTEX (ug/L)																					
Benzene	71-43-2	1 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	**0.19 J**	**0.17 J**	<1.0 U	**0.42 J**
Ethylbenzene	100-41-4	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**510**	**320**	<1.0 U	<1.0 U	**11**	**0.50 J**	**4.1**	**3.4**
Toluene	108-88-3	5 s	<1.0 U	<1.0 U	**0.13 J**	<1.0 U	**0.22 J**	<1.0 U	<1.0 U	<1.0 U	**0.11 J**	**0.14 J**	<1.0 U	**5.6**	**2.8**	**0.22 J**	<1.0 U	**1.5**	**0.25 J**	**0.15 J**	**0.30 J**
m&p-Xylene	1330-20-7-M,P	5 s	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	**1.3 J**	<2.0 U	<2.0 U	<2.0 U	<2.0 U	**940**	**380**	<2.0 U	<2.0 U	**16**	**0.36 J**	**0.86 J**	**1.0 J**
o-Xylene	95-47-6	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.1**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**230**	**76**	<1.0 U	<1.0 U	**31**	**7.7**	**1.2**	**3.0**
Total Xylenes	CALC-Xylenes	5 s	ND	ND	ND	ND	ND	ND	**2.4**	ND	ND	ND	ND	**1170**	**456**	ND	ND	**47**	**8.06**	**2.06**	**4.0**
Total BTEX Compounds (ug/L)		NL	ND	ND	**0.13**	ND	**0.22**	ND	**2.4**	ND	**0.11**	**0.14**	ND	**1685.6**	**778.8**	**0.22**	ND	**59.69**	**8.98**	**6.31**	**8.12**
Other VOCs (ug/L)																					
1,1,1-Trichloroethane	71-55-6	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1,2,2-Tetrachloroethane	79-34-5	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1,2-Trichloroethane	79-00-5	1 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1-Dichloroethane	75-34-3	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,1-Dichloroethene	75-35-4	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,3-Trichlorobenzene	87-61-6	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2,4-Trichlorobenzene	120-82-1	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 U	<2.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dibromo-3-Chloropropane	96-12-8	0.04 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 U	<2.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dibromoethane	106-93-4	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dichlorobenzene	95-50-1	3 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dichloroethane	107-06-2	0.6	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,2-Dichloropropane	78-87-5	1 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,3-Dichlorobenzene	541-73-1	3 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,4-Dichlorobenzene	106-46-7	3 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
1,4-Dioxane	123-91-1	NL	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<100 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ	<50 UJ
2-Butanone	78-93-3	50 g	<10 UJ	R	<10 UJ	R	<10 U	R	<10 U	R	<10 U	<10 U	R	<20 U	<10 U	<10 U	R	<10 UJ	R	<10 U	R
2-Hexanone	591-78-6	50 g	R	<10 U	R	<10 U	<10 U	<10 U	<10 U	<10 U	R	R	<10 U	<20 U	R	R	<10 U	R	<10 U	R	<10 U
4-Methyl-2-pentanone	108-10-1	NL	<10 UJ	<10 U	<10 UJ	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<10 U	<20 U	<10 U	<10 U	<10 U	<10 UJ	<10 U	<10 U	<10 U
Acetone	67-64-1	50	R	<10 U	R	<10 U	<10 U	<10 U	<10 U	<10 U	R	R	<10 U	**41**	R	R	<10 U	R	<10 U	R	<10 U
Bromochloromethane	74-97-5	5	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Bromodichloromethane	75-27-4	50 g	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Bromoform	75-25-2	50 g	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Bromomethane	74-83-9	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Carbon disulfide	75-15-0	60 g	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.15 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.29 J**	<1.0 U
Carbon tetrachloride	56-23-5	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chlorobenzene	108-90-7	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroethane	75-00-3	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 U	<2.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Chloroform	67-66-3	7 s	**0.16 J**	<1.0 U	**1.4**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**0.41 J**	**0.45 J**	<1.0 U	<2.0 U	<1.0 U	**0.82 J**	<1.0 U	<1.0 U	<1.0 U	**0.78 J**	**8.2**
Chloromethane	74-87-3	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 UJ	<1.0 U	<2.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
cis-1,2-Dichloroethene	156-59-2	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	**0.52 J**	**0.50 J**	<1.0 U	<1.0 U	<1.0 U	<1.0 U
cis-1,3-Dichloropropene	10061-01-5	0.4 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Cyclohexane	110-82-7	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**4.3**	**3.2**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Dibromochloromethane	124-48-1	50	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Dichlorodifluoromethane	75-71-8	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Freon TF	76-13-1	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Isopropylbenzene	98-82-8	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**2.9**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**32**	**17**	<1.0 U	<1.0 U	**44**	**10**	**9.9**	**6.9**
Methyl acetate	79-20-9	NL	<2.0 UJ	<2.0 U	<2.0 UJ	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<4.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 UJ	<2.0 U	<2.0 U	<2.0 U
Methylcyclohexane	108-87-2	NL	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 UJ	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**2.9**	**2.4**	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Methylene Chloride	75-09-2	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	**1.2**
Methyl tert-butyl ether	1634-04-4	10 g	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Styrene	100-42-5	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Tetrachloroethene	127-18-4	5 s	**0.65 J**	**0.78 J**	<1.0 U	<1.0 U	**2.7**	**2.0**	<1.0 U	<1.0 U	**7.0**	**6.5**	**4.3**	<2.0 U	<1.0 U	**5.3**	**1.7**	<1.0 U	<1.0 U	<1.0 U	<1.0 U
trans-1,2-Dichloroethene	156-60-5	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
trans-1,3-Dichloropropene	10061-02-6	0.4 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Trichloroethene	79-01-6	5 s	**0.26 J**	**0.22 J**	<1.0 U	<1.0 U	**0.32 J**	**0.21 J**	<1.0 U	<1.0 U	**0.63 J**	**0.46 J**	**0.26 J**	<2.0 U	<1.0 U	**4.4**	**4.6**	<1.0 U	<1.0 U	<1.0 U	**0.30 J**
Trichlorofluoromethane	75-69-4	5 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Vinyl chloride	75-01-4	2 s	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<2.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U	<1.0 U
Total VOCs (ug/L)	CALC-VOC	NL	**1.07**	**1**	**1.53**	ND	**3.39**	**2.21**	**5.3**	ND	**8.15**	**7.55**	**4.56**	**1765.8**	**801.4**	**11.26**	**6.8**	**103.69**	**18.98**	**17.28**	**24.72**

Notes:

ND = calculated totals are not detected

NL = Not listed

NS = Not Sampled

ug/L = microgram per liter

mg/L = milligram per liter

Bold indicates compound was detected

Yellow Shaded values exceed NYSDEC Groundwater Standard and Guidance Values

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-3
Summary of Groundwater Analytical Data Above AWQSGVs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC Groundwater Standard and Guidance Values	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	MW-04	MW-04	MW-05	MW-05	MW-05	MW-06	MW-06	MW-07	MW-07	MW-08	MW-08	MW-09	MW-10
Sample Date			3/9/2011	7/28/2011	3/9/2011	7/29/2011	3/10/2011	7/28/2011	3/10/2011	7/29/2011	3/9/2011	3/9/2011	7/28/2011	3/10/2011	8/1/2011	3/9/2011	7/29/2011	3/9/2011	7/29/2011	8/1/2011	7/29/2011
Sample ID			MW-1-03091	MW-1-07281	MW-2-03091	MW-2-07291	MW-3-03101	MW-3-07131	MW-4-03101	MW-4-07291	DUP-030911	MW-5-03091	MW-5-07281	MW-6-03101	MW-6-08011	MW-7-030911	MW-7-072911	MW-8-030911	MW-8-072911	MW-9-080111	MW-10-072911
PAH (ug/L)																					
2-Methylnaphthalene	91-57-6	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	**8.9 J**	**3.5 J**	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Acenaphthene	83-32-9	20 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	**26**	**7.4 J**	<10 U	<10 U
Acenaphthylene	208-96-8	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	**98**	**26**	<10 U	<10 U
Anthracene	120-12-7	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Benzo[a]anthracene	56-55-3	0.002 g	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Benzo[a]pyrene	50-32-8	ND	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Benzo[b]fluoranthene	205-99-2	0.002 g	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Benzo[g,h,i]perylene	191-24-2	NL	<11 UJ	<10 U	<11 UJ	<10 U	<11 U	<10 U	<11 U	<10 U	<11 UJ	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Benzo[k]fluoranthene	207-08-9	0.002 g	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Chrysene	218-01-9	0.002 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Dibenz(a,h)anthracene	53-70-3	NL	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Fluoranthene	206-44-0	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Fluorene	86-73-7	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	**4.1 J**	<10 U	<10 U	<10 U
Indeno[1,2,3-cd]pyrene	193-39-5	0.002 g	<1.1 UJ	<1.0 U	<1.1 UJ	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 UJ	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Naphthalene	91-20-3	10 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	**78**	**40**	<11 U	<10 U	**150**	<10 U	<10 U	**4.5 J**
Phenanthrene	85-01-8	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	**15**	<10 U	<10 U	<10 U
Pyrene	129-00-0	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Total PAHs (ug/L)	CALC-PAH	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**86.9**	**43.5**	ND	ND	**293.1**	**33.4**	ND	**4.5**
SVOC (ug/L)																					
1,2,4,5-Tetrachlorobenzene	95-94-3	5	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,2'-oxybis[1-chloropropane]	108-60-1	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,3,4,6-Tetrachlorophenol	58-90-2	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,4,5-Trichlorophenol	95-95-4	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,4,6-Trichlorophenol	88-06-2	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,4-Dichlorophenol	120-83-2	1	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,4-Dimethylphenol	105-67-9	1	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2,4-Dinitrophenol	51-28-5	1	<32 U	<31 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<32 U	<32 U	<34 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<30 U	<30 U
2,4-Dinitrotoluene	121-14-2	5 s	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.1 U	<2.3 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.0 U	<2.0 U
2,6-Dinitrotoluene	606-20-2	5	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.1 U	<2.3 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.0 U	<2.0 U
2-Chloronaphthalene	91-58-7	10 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2-Chlorophenol	95-57-8	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2-Methylphenol	95-48-7	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
2-Nitroaniline	88-74-4	5 s	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<21 U	<23 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<20 U	<20 U
2-Nitrophenol	88-75-5	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
3,3'-Dichlorobenzidine	91-94-1	5 s	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<21 UJ	<23 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<20 U	<20 U
3-Nitroaniline	99-09-2	5 s	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<21 U	<23 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<20 U	<20 U
4,6-Dinitro-2-methylphenol	534-52-1	NL	<32 U	<31 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<32 U	<32 U	<34 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<30 U	<30 U
4-Bromophenyl phenyl ether	101-55-3	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
4-Chloro-3-methylphenol	59-50-7	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
4-Chloroaniline	106-47-8	5 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
4-Chlorophenyl phenyl ether	7005-72-3	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
4-Methylphenol	106-44-5	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
4-Nitroaniline	100-01-6	5 s	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<21 U	<21 U	<23 U	<21 U	<20 U	<21 U	<20 U	<21 U	<20 U	<20 U	<20 U
4-Nitrophenol	100-02-7	NL	<32 U	<31 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<32 U	<32 U	<34 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<30 U	<30 U
Acetophenone	98-86-2	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	**37**	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Atrazine	1912-24-9	7.5 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 UJ	<11 U	<10 U	<11 U	<10 U	<10 UJ	<10 U
Benzaldehyde	100-52-7	NL	<11 UJ	<10 UJ	<11 UJ	<10 UJ	<11 UJ	<10 UJ	<11 UJ	<10 UJ	<11 UJ	<11 UJ	<11 UJ	<11 UJ	<10 UJ	<11 UJ	<10 UJ	<11 UJ	<10 UJ	<10 UJ	<10 UJ
Bis(2-chloroethoxy)methane	111-91-1	5 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Bis(2-chloroethyl)ether	111-44-4	1 s	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Bis(2-ethylhexyl) phthalate	117-81-7	5 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Butyl benzyl phthalate	85-68-7	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Caprolactam	105-60-2	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Carbazole	86-74-8	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	**5.7 J**
Dibenzofuran	132-64-9	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	**11**	**4.1 J**	<10 U	<10 U
Diethyl phthalate	84-66-2	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Dimethyl phthalate	131-11-3	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Di-n-butyl phthalate	84-74-2	50 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Di-n-octyl phthalate	117-84-0	NL	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Diphenyl	92-52-4	5 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	**45**	**6.5 J**	<10 U	<10 U
Hexachlorobenzene	118-74-1	0.4 s	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Hexachlorobutadiene	87-68-3	0.5 s	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.1 U	<2.3 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.1 U	<2.0 U	<2.0 U	<2.0 U
Hexachlorocyclopentadiene	77-47-4	5 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Hexachloroethane	67-72-1	5 s	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
Isophorone	78-59-1	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Nitrobenzene	98-95-3	0.4	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
N-Nitrosodi-n-propylamine	621-64-7	NL	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.1 U	<1.1 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.1 U	<1.0 U	<1.0 U	<1.0 U
N-Nitrosodiphenylamine	86-30-6	50 g	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Pentachlorophenol	87-86-5	1 s	<32 U	<31 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<32 U	<32 U	<34 U	<32 U	<30 U	<32 U	<30 U	<32 U	<30 U	<30 U	<30 U
Phenol	108-95-2	1 s	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<11 U	<11 U	<11 U	<11 U	<10 U	<11 U	<10 U	<11 U	<10 U	<10 U	<10 U
Total SVOCs (ug/L)	CALC-SVOC	NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**123.9**	**43.5**	ND	ND	**349.1**	**44**	ND	**10.2**

Notes:

ND = calculated totals are not detected

NL = Not listed

NS = Not Sampled

ug/L = microgram per liter

mg/L = milligram per liter

Bold indicates compound was detected

Yellow Shaded values exceed NYSDEC Groundwater Standard and Guidance Values

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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

J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.

J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-3
Summary of Groundwater Analytical Data Above AWQSGVs
Flatbush Station A & B Former Gas Holder Site
Brooklyn, New York

Location ID	CAS #	NYSDEC Groundwater Standard and Guidance Values	MW-01	MW-01	MW-02	MW-02	MW-03	MW-03	MW-04	MW-04	MW-05	MW-05	MW-05	MW-06	MW-06	MW-07	MW-07	MW-08	MW-08	MW-09	MW-10
Sample Date			3/9/2011	7/28/2011	3/9/2011	7/29/2011	3/10/2011	7/28/2011	3/10/2011	7/29/2011	3/9/2011	3/9/2011	7/28/2011	3/10/2011	8/1/2011	3/9/2011	7/29/2011	3/9/2011	7/29/2011	8/1/2011	7/29/2011
Sample ID			MW-1-030911	MW-1-072811	MW-2-030911	MW-2-072911	MW-3-031011	MW-3-071311	MW-4-031011	MW-4-072911	DUP-030911	MW-5-030911	MW-5-072811	MW-6-031011	MW-6-080111	MW-7-030911	MW-7-072911	MW-8-030911	MW-8-072911	MW-9-080111	MW-10-072911
Metals (mg/L)																					
Aluminum	7429-90-5	NL	**97.9 J**	<200 U	**230**	**1300**	**314**	**211**	**299**	<200 U	**101 J**	**104 J**	<200 U	**181 J**	<200 U	**142 J**	**762**	**192 J**	**228**	**206**	**3240**
Antimony	7440-36-0	3 s	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U
Arsenic	7440-38-2	25 s	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**7.2**	<5.0 U	**4.5 J**
Barium	7440-39-3	1,000 s	**121 J**	**130 J**	**98.7 J**	**63.1 J**	**37.4 J**	**53.9 J**	**60.6 J**	**97.4 J**	**113 J**	**115 J**	**106 J**	**186 J**	**124 J**	**131 J**	**128 J**	**95.3 J**	**118 J**	**110 J**	**115 J**
Beryllium	7440-41-7	3 g	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U	<2.0 U
Cadmium	7440-43-9	5 s	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U
Calcium	7440-70-2	NL	**36500**	**55200**	**65600**	**36000**	**66300**	**43500**	**33000**	**42400**	**65700**	**65000**	**59500**	**42200**	**37200**	**55700**	**55200**	**27900**	**30900**	**35900**	**23400**
Chromium	7440-47-3	50 s	<10.0 U	<10.0 U	<10.0 U	**6.7 J**	**6.4 J**	**3.4 J**	<10.0 U	<10.0 U	<10.0 U	<10.0 U	**16.9**	<10.0 U	**24.5**	**7.5 J**	**3.9 J**	<10.0 U	**10.6**	**3.9 J**	<10.0 U
Cobalt	7440-48-4	NL	**7.3 J**	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U	<50.0 U
Copper	7440-50-8	200 s	<25.0 U	<25.0 U	<25.0 U	**33.2**	**22.1 J**	<25.0 U	**16.8 J**	<25.0 U	<25.0 U	<25.0 U	<25.0 U	<25.0 U	<25.0 U	<25.0 U	**43.1**	<25.0 U	<25.0 U	<25.0 U	**38.3**
Iron	7439-89-6	300 s	**4800**	**139 J**	**413**	**1960**	**1880**	**418**	**549**	<150 U	<150 U	<150 U	**118 J**	**1780**	**1810**	**105 J**	**1210**	**5460**	**5880**	**2270**	**1800**
Lead	7439-92-1	25 s	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**2.8 J**	<5.0 U	<5.0 U	<5.0 U	<5.0 U	**3.0 J**	<5.0 U	<5.0 U	**5.4**
Magnesium	7439-95-4	35,000 s	**21800**	**36000**	**34400**	**19500**	**25200**	**24200**	**25600**	**30500**	**32800**	**32700**	**33700**	**14200**	**12100**	**21300**	**20200**	**19200**	**22000**	**13800**	**10400**
Manganese	7439-96-5	300 s	**2060**	**83.4**	**618**	**47.8**	**2390**	**98.1**	**3010**	**2360**	**26.3**	**26.6**	**8.5 J**	**1120**	**812**	**432**	**49.9**	**1850**	**2030**	**1010**	**636**
Mercury	7439-97-6	0.7 s	<0.20 UJ	<0.20 U	<0.20 UJ	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 U	<0.20 UJ	<0.20 UJ	<0.20 U	<0.20 U	<0.20 U	<0.20 UJ	<0.20 U	<0.20 UJ	<0.20 U	<0.20 U	<0.20 U
Nickel	7440-02-0	100 s	<40.0 U	**5.1 J**	**48.3**	**13.9 J**	**11.8 J**	**4.5 J**	**16.5 J**	**17.4 J**	**19.0 J**	**19.1 J**	**24.3 J**	**8.9 J**	**27.5 J**	**33.2 J**	**18.5 J**	<40.0 U	**6.1 J**	<40.0 U	**4.4 J**
Potassium	7440-09-7	NL	**18200**	**10000**	**3370 J**	**2500 J**	**5590**	**2930 J**	**3660 J**	**3390 J**	**3800 J**	**3820 J**	**3770 J**	**4410 J**	**3630 J**	**3720 J**	**3750 J**	**3290 J**	**3320 J**	**6380**	**3830 J**
Selenium	7782-49-2	10 s	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U
Silver	7440-22-4	50 s	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U
Sodium	7440-23-5	20,000 s	**70200**	**108000**	**71800**	**57400**	**96900**	**119000**	**54000**	**63500**	**172000**	**172000**	**199000**	**238000**	**246000**	**142000**	**141000**	**163000**	**150000**	**133000**	**120000**
Thallium	7440-28-0	0.5	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U	<10.0 U
Vanadium	7440-62-2	NL	<50.0 U	<50.0 U	<50.0 U	**2.6 J**	**6.0 J**	<50.0 U	**6.0 J**	<50.0 U	<50.0 U	<50.0 U	<50.0 U	**2.9 J**	<50.0 U	<50.0 U	**2.1 J**	<50.0 U	<50.0 U	<50.0 U	**2.3 J**
Zinc	7440-66-6	2,000 g	<30.0 U	**9.6 J**	<30.0 U	**6.0 J**	**11.8 J**	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	<30.0 U	**5.8 J**
Cyanide (mg/L)																					
Cyanide, Amenable	57-12-5-AMEN	NL	<0.010 U	NS	<0.010 U	NS	NS	NS	NS	NS	<0.010 U	**0.018**	NS	NS	NS	<0.010 U	NS	<0.010 U	NS	NS	NS
Cyanide, Total	57-12-5	0.2 s	<0.010 U	<0.010 U	<0.010 U	<0.010 U	**0.014**	**0.028**	<0.010 U	<0.010 U	**0.015**	**0.018**	**0.023**	<0.010 U	<0.010 U	<0.010 U	<0.010 U	**0.017**	**0.011**	<0.010 U	**0.067**
Pesticides (ug/L)																					
4,4'-DDD	72-54-8	0.3	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
4,4'-DDE	72-55-9	0.2	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
4,4'-DDT	50-29-3	0.2	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Aldrin	309-00-2	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
alpha-BHC	319-84-6	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
beta-BHC	319-85-7	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Chlordane	57-74-9	0.05	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.53 U	<0.51 U	<0.56 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.56 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
delta-BHC	319-86-8	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Dieldrin	60-57-1	0.004	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Endosulfan I	959-98-8	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Endosulfan II	33213-65-9	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Endosulfan sulfate	1031-07-8	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Endrin	72-20-8	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Endrin aldehyde	7421-93-4	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Endrin ketone	53494-70-5	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
gamma-BHC (Lindane)	58-89-9	NL	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Heptachlor	76-44-8	0.4	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Heptachlor epoxide	1024-57-3	0.03	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Methoxychlor	72-43-5	35	<0.053 U	<0.051 U	<0.053 U	<0.050 U	<0.053 U	<0.051 U	<0.056 U	<0.050 U	<0.053 U	<0.083 U	<0.050 U	<0.056 U	<0.050 U	<0.056 U	<0.051 U	<0.053 U	<0.051 U	<0.051 U	<0.050 U
Toxaphene	8001-35-2	0.06	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.53 U	<0.51 U	<0.56 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.56 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
PCBs (ug/L)																					
Aroclor 1016	12674-11-2	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1221	11104-28-2	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1232	11141-16-5	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1242	53469-21-9	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1248	12672-29-6	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1254	11097-69-1	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1260	11096-82-5	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1262	37324-23-5	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
Aroclor 1268	11100-14-4	NL	<0.53 U	<0.51 U	<0.53 U	<0.50 U	<0.51 U	<0.51 U	<0.51 U	<0.50 U	<0.53 U	<0.83 U	<0.50 U	<0.51 U	<0.50 U	<0.56 U	<0.51 U	<0.53 U	<0.51 U	<0.51 U	<0.50 U
PCB (Total) (ppm)		NL	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Herbicides (ug/L)																					
2,4,5-T	93-76-5	NL	<0.51 U	<0.52 U	<0.51 U	<0.51 U	<0.51 U	<0.53 U	<0.51 U	<0.52 U	<0.51 U	<0.83 U	<0.51 U	<0.51 U	<0.54 U	<0.51 U	<0.52 U	<0.51 U	<0.51 U	<0.53 U	<0.53 U
2,4-D	94-75-7	NL	<0.51 U	<0.52 UJ	<0.51 U	<0.51 UJ	<0.51 U	<0.53 UJ	<0.51 U	<0.52 UJ	<0.51 U	<0.83 U	<0.51 UJ	<0.51 U	<0.54 U	<0.51 U	<0.52 UJ	<0.51 U	<0.51 UJ	<0.53 U	<0.53 UJ
Picloram	1918-02-1	50	<0.51 U	NS	<0.51 U	NS	<0.51 U	NS	<0.51 U	NS	<0.51 U	<0.83 U	NS	<0.51 U	NS	<0.51 U	NS	<0.51 U	NS	NS	NS
Silvex (2,4,5-TP)	93-72-1	NL	<0.51 U	<0.52 U	<0.51 U	<0.51 U	<0.51 U	<0.53 U	<0.51 U	<0.52 U	<0.51 U	<0.83 U	<0.51 U	<0.51 U	<0.54 U	<0.51 U	<0.52 U	<0.51 U	<0.51 U	<0.53 U	<0.53 U

Notes:

ND = calculated totals are not detected
NL = Not listed
NS = Not Sampled
ug/L = microgram per liter
mg/L = milligram per liter
Bold indicates compound was detected
Yellow Shaded values exceed NYSDEC Groundwater Standard (s) and Guidance (g) Values
U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet the quality control criteria. The presence of absence of the analyte cannot be verified.

Table 1-4
Summary of Soil Vapor Analytical Data
Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

Type of Sample	CAS No.	Ambient	Soil Vapor	Soil Vapor	Soil Vapor	Background Indoor Air Concentrations (Non-Residential)[3]	Target Shallow Soil Gas Concentrations[4]
Sample ID		AMB-1	SV-1	SV-2	SV-3		
Sampling Date		6/22/2011	6/22/2011	6/22/2011	6/22/2011		
Compound (µg/m³)							
Possibly MGP Related or Other Sources [1]							
1,2,4-Trimethylbenzene	95-63-6	**8.85**	**23.3**	**11.5**	**27.4**	9.5	95
1,3,5-Trimethylbenzene	108-67-8	**2.95**	**5.95**	**3.64**	**7.82**	3.7	37
2,2,4-Trimethylpentane	540-84-1	**1.17 J**	**6.91**	**3.92**	<3.74 U	NL	NL
2,3-Dimethylpentane	565-59-3	<3.28 U	**1.68 J**	**1.02 J**	<3.28 U	NL	NL
2-Methylpentane	107-83-5	**0.775 J**	**6.24 J**	**5.01 J**	<2.82 U	NL	NL
4-Ethyltoluene	622-96-8	**2.21 J**	**8.36**	**3.39**	**4.97**	3.6	36
Benzene	71-43-2	**1.09**	**11.5**	**13.6**	**1.09**	9.4	94
Carbon Disulfide	75-15-0	<2.49 U	**0.654 J**	**0.592 J**	**1.81 J**	4.2	42
Cyclohexane	110-82-7	<2.75 U	**2.20 J**	**1.45 J**	< 2.75 U	NL	NL
Ethylbenzene	100-41-4	<0.695 U	**21.0**	**5.86**	**4.26**	5.7	57
Heptane	142-82-5	<3.28 U	**5.45 J**	**3.57 J**	**2.50 J**	NL	NL
Hexane	110-54-3	**0.670 J**	**8.11**	**5.89**	**0.916 J**	10.2	102
Indan	496-11-7	<3.87 U	**6.72**	**1.55 J**	**7.59**	NL	NL
Indene	95-13-6	<3.80 U	<3.80 U	<3.80 U	**1.09 J**	NL	NL
Isopentane	78-784	**7.91**	**14.4**	**20.1**	**2.63**	NL	NL
Naphthalene	91-20-3	<4.19 U	**2.25 J**	<4.19 U	**6.03**	5.1	51
Styrene	100-42-5	<0.682 U	**1.45**	<682 U	**2.73**	1.9	19
Thiophene	110-02-1	<2.75 U	<2.75 U	<2.75 U	<2.75 U	NL	NL
Toluene	108-88-3	**3.05**	**87.8**	**45.0**	**26.9**	43	430
m/p-Xylenes	136777-61-2	**2.26**	**75.3**	**21.7**	**14.5**	22.2	222
o-Xylene	95-47-6	**1.04**	**21.0**	**5.78**	**6.34**	7.9	79
1,2,3-Trimethylbenzene	526-73-8	**1.87 J**	**5.51**	**2.51 J**	**13.2**	NL	NL
1,2,4,5-Tetramethylbenzene	95-93-2	<4.39 U	**1.48 J**	<4.39 U	**3.68 J**	NL	NL
1-Methylnaphthalene	90-12-0	<4.65 UJ	**0.931 J**	<4.65 UJ	**1.80 J**	NL	NL
2-Chlorotoluene	95-49-8	NS	NS	NS	NS	NL	NL
2-Methylnaphthalene	91-57-6	<4.65 U	**2.62 J**	**1.63**	**6.4**	NL	NL
Not MGP Related [2]							
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	<0.873 U	<0.873 U	<0.873 U	<0.873 U	20.6	206
1,1,2,2-Tetrachloroethane	79-34-5	<1.10 U	<1.10 U	<1.10 U	<1.10 U	NL	NL
1,1,2-Trichloroethane	79-00-5	<0.873 U	<0.873 U	<0.873 U	<0.873 U	<1.5	<15
1,1-Dichloroethane	75-34-3	<0.648 U	<0.648 U	<0.648 U	<0.648 U	<0.7	<7
1,1-Dichloroethene	75-35-4	<0.634 U	<0.634 U	<0.634 U	<0.634 U	<1.4	<14
1,2,4-Trichlorobenzene	120-82-1	<5.94 U	**1.63 J**	<5.94 U	**1.41 J**	<6.8	<68
1,2-Dibromoethane (EDB)	106-93-4	<1.23 U	<1.23 U	<1.23 U	<1.23 U	<1.5	<15
1,2-Dichlorobenzene	95-50-1	<0.962 U	**0.962**	<0.962 U	<0.962 U	<1.2	<12
1,2-Dichloroethane	107-06-2	<0.648 U	<0.648 U	<0.648 U	<0.648 U	<0.9	<9
1,2-Dichloropropane	78-87-5	<0.739 U	<0.739 U	<0.739 U	<0.739 U	<1.6	<16
1,3-Butadiene	106-99-0	<1.77 U	<1.77 U	**0.420 J**	<1.77 U	<3.0	<3
1.3-Dichlorobenzene	541-73-1	<0.962 U	<0.962 U	<0.962 U	<0.962 U	<2.4	<24
1,4-Dichlorobenzene	106-46-7	**2.28**	**1.02**	**1.80**	**1.44**	5.5	55
1,4-Dioxane	123-91-1	<2.88 U	<2.88 U	<2.88 U	<2.88 U	NL	NL
2-Butanone (MEK)	78-93-3	**1.12 J**	**1.50 J**	**3.24**	**13.6**	12	120
2-Hexanone	591-78-6	<3.28 U	**1.52 J**	**1.35 J**	**4.38**	NL	NL
4-Methyl-2-pentanone (MIBK)	108-10-1	<3.28 U	<3.28 U	<3.28 U	**0.984 J**	6	60
Acetone	67-64-1	**9.31 J**	**13.1 J**	**38.3**	**194**	98.9	989
Benzyl chloride	100-44-7	<0.828 U	<0.828 U	<0.828 U	<0.828 U	NL	NL
Bromodichloromethane	75-27-4	<5.36 U	<5.36 U	<5.36 U	<5.36 U	NL	NL
Bromoform	75-25-2	<8.27 U	<8.27 U	<8.27 U	<8.27 U	NL	NL
Bromomethane	74-83-9	<0.622 U	<0.622 U	<0.622 U	<0.622 U	<1.7	<17
Carbon Tetrachloride	56-23-5	<1.01 U	<1.01 U	<1.01 U	<1.01 U	<1.3	<13
Chlorobenzene	108-90-7	<0.737 U	<0.737 U	<0.737 U	<0.737 U	<0.9	<9
Chloroethane	75-00-3	<0.422 U	<0.422 U	<0.422 U	<0.422 U	<1.1	<11
Chloroform	67-66-3	<0.781 U	**2.00**	<0.781 U	**1.66**	1.1	11
Chloromethane	74-87-3	**1.20**	<0.330 U	**1.12**	< 0.330 U	3.7	37
cis-1,2-Dichloroethene	156-59-2	<0.634 U	<0.634 U	<0.634 U	<0.634 U	<1.9	<19
cis-1,3-Dichloropropene	10061-01-5	<0.726 U	<0.726 U	<0.726 U	<0.726 U	<2.3	<23
Dibromochloromethane	124-48-1	<6.81 U	<6.81 U	<6.81 U	<6.81 U	NL	NL
Ethanol	64-17-5	**13.6 J**	**9.04 J**	**27.5 J**	**15.4 J**	NL	NL
Trichlorofluoromethane (Freon 11)	75-69-4	**1.29**	**5.79**	**1.29**	**2.08**	18.1	181
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	<1.23 U	<1.23 U	<1.23 U	<1.23 U	NL	NL
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	<1.12 U	<1.12 U	<1.12 U	<1.12 U	NL	NL
Dichlorodifluoromethane (Freon 12)	75-71-8	**1.88**	<0.791 U	**0.841**	<0.791 U	16.5	165
Hexachlorobutadiene (C-46)	87-68-3	<8.53 U	<8.53 U	<8.53 U	<8.53 U	<6.8	<68
Methyl tert-Butyl Ether (MTBE)	1634-04-4	<2.88 U	<2.88 U	<2.88 U	<2.88 U	11.5	115
Methylene Chloride (Dichloromethane)	75-09-2	**1.55 J**	**1.48 J**	**1.75 J**	**1.44 J**	10	100
2-Propanol	67-63-0	**7.89**	**1.38 J**	**6.17**	**5.28**	NL	NL
Propene	115-07-1	**0.912 J**	<1.38 U	**2.98**	**0.757 J**	NL	NL
Tetrachloroethene (PCE)	127-18-4	<1.09 U	**6.92**	**1.56**	**9.43**	15.9	159
Tetrahydrofuran	109-99-9	<2.36 U	<2.36 U	<2.36 U	<2.36 U	NL	NL
trans-1,2-Dichloroethene	156-60-5	<3.17 U	<3.17 U	<3.17 U	<3.17 U	NL	NL
trans-1,3-Dichloropropene	10061-02-6	<0.726 U	<0.726 U	<0.726 U	<0.726 U	<1.3	<13
Trichloroethene (TCE)	79-01-6	<0.860 U	**9.57**	<0.860 U	<0.860 U	4.2	42
Vinyl Chloride	75-01-4	<0.409 U	<0.409 U	<0.409 U	<0.409 U	<1.9	<19
Helium (percent)	7440-59-7	NS	<0.01 U	<0.01 U	<0.01 U	NA	NA

Notes:

All units in micrograms per cubic meter (µg/m³)

1 - These compounds may be related to either MGP sources or non-MGP sources, or both. MGP sources include MGP tars and petroleum feedstocks used in MGP processes, such as the carbureted water gas process. Non-MGP sources include gasoline, cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

2 - These compounds are not related to MGP sources and are present due to non-MGP sources, such as vehicle exhaust, heating and air conditioning systems, cleaning agents, art supplies, paints, etc.

3 - Non-residential background indoor air concentrations are equal to the 90th percentile values observed by the USEPA in a 2001 study which are the values recommended for comparison in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), Table C2.

4 - Target Shallow (< 5ft bgs) Soil Gas Concentrations calculated by dividing the NHSDOH background indoor air concentrations by the USEPA's default attenuation factor of 0.1 recommended in the November 2002 USEPA Draft Guidance for Evaluating the Vapor Instrusion to Indoor Air.

Bold - Compound detected in a concentration greater than the method detection limit.

Exceeds NYSDOH Background Indoor Air Concentrations

UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.

NL - Not listed - data not available for background concentrations for these compounds.

U - The compound was analyzed for, but was not detected above the method reporting limit.

Table 2-1
Emergency Contact Numbers
Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
Kings County Hospital	(718) 245-3131
Electric (Con Edison)	(800) 752-6633
Water/Sewer (NYCDEP)	(212) 639-9675
Gas (National Grid)	(718) 643-4050
Andrew Prophete, National Grid	(718) 963-5412
Shail Pandya, AECOM	(212) 798-8513

*** Note: Contact numbers subject to change and should be updated as necessary**

Table 3-1
Monitoring and Inspection Schedule
Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

Monitoring Program	Frequency*	Matrix	Analysis
CCS	Annually	Cap	Inspection
MNA	Semi-Annually for three years; annually thereafter	Groundwater	BTEX, PAHs, MNA Parameters
SVI/Indoor Air	Prior to any Building Renovation/Construction	Air	EPA Modified TO-15 Parameters
Excavation	Prior to Disposal	Soil	Disposal Facility Parameters

***The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH**

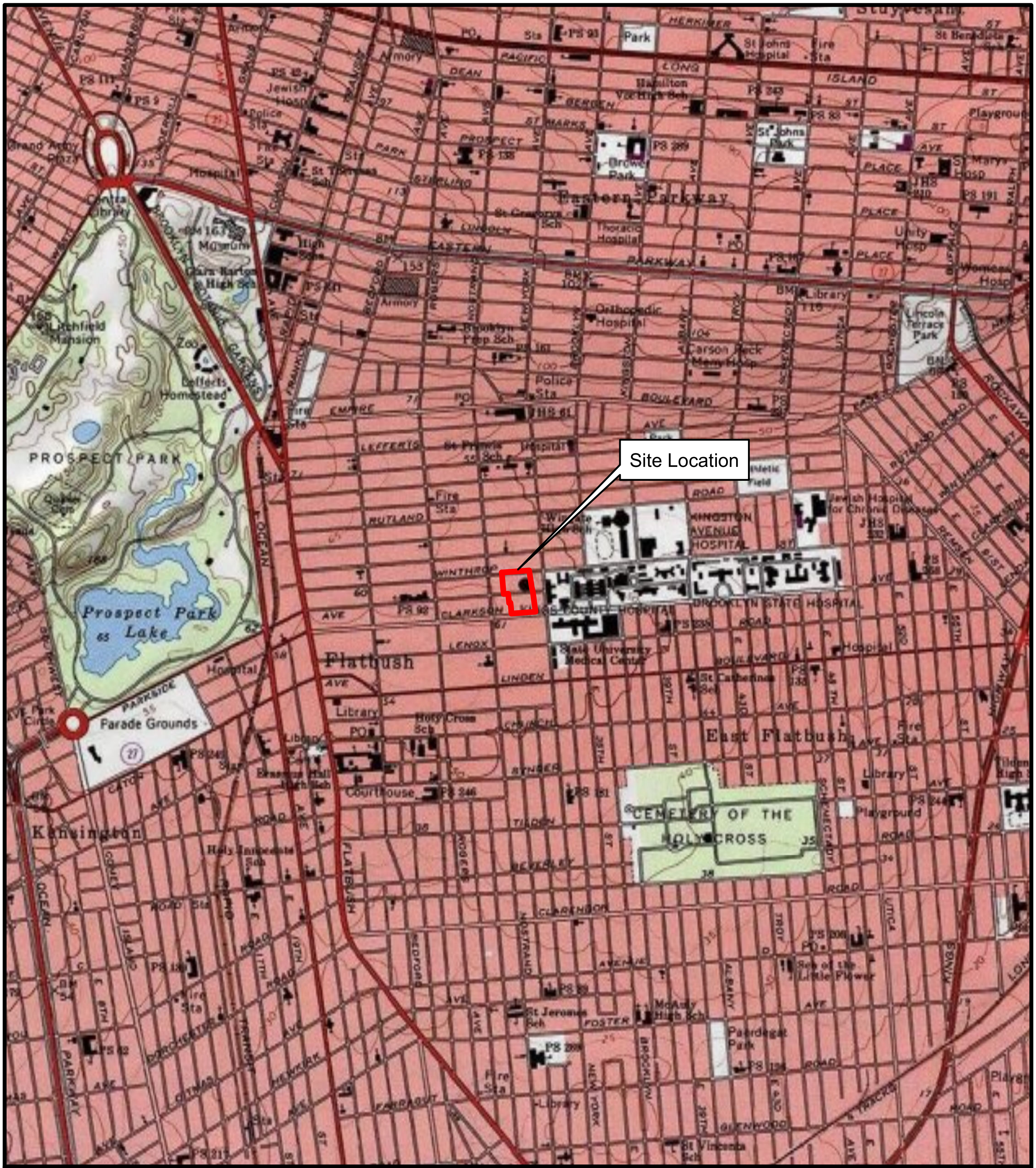
Table 3-2
Schedule of Monitoring and Inspection Reports
Flatbush Station A & B Former Gas Holder Site, Brooklyn, New York

Task	Reporting Frequency
Groundwater	Semi-Annual
Periodic Inspections	Annual

***The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH**

Figures

J:\Rem_Eng\Project Files\P600 (60000 - 60999)\60144-412 Flatbush Station A&B Gas Holder\8.0 Project Documents\8.1 Scope of Work\8.11 SC Scope of Work - 2009\Misc\Figures\MXD\Figure_1-1_Site_Locus.mxd



Site Location

AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

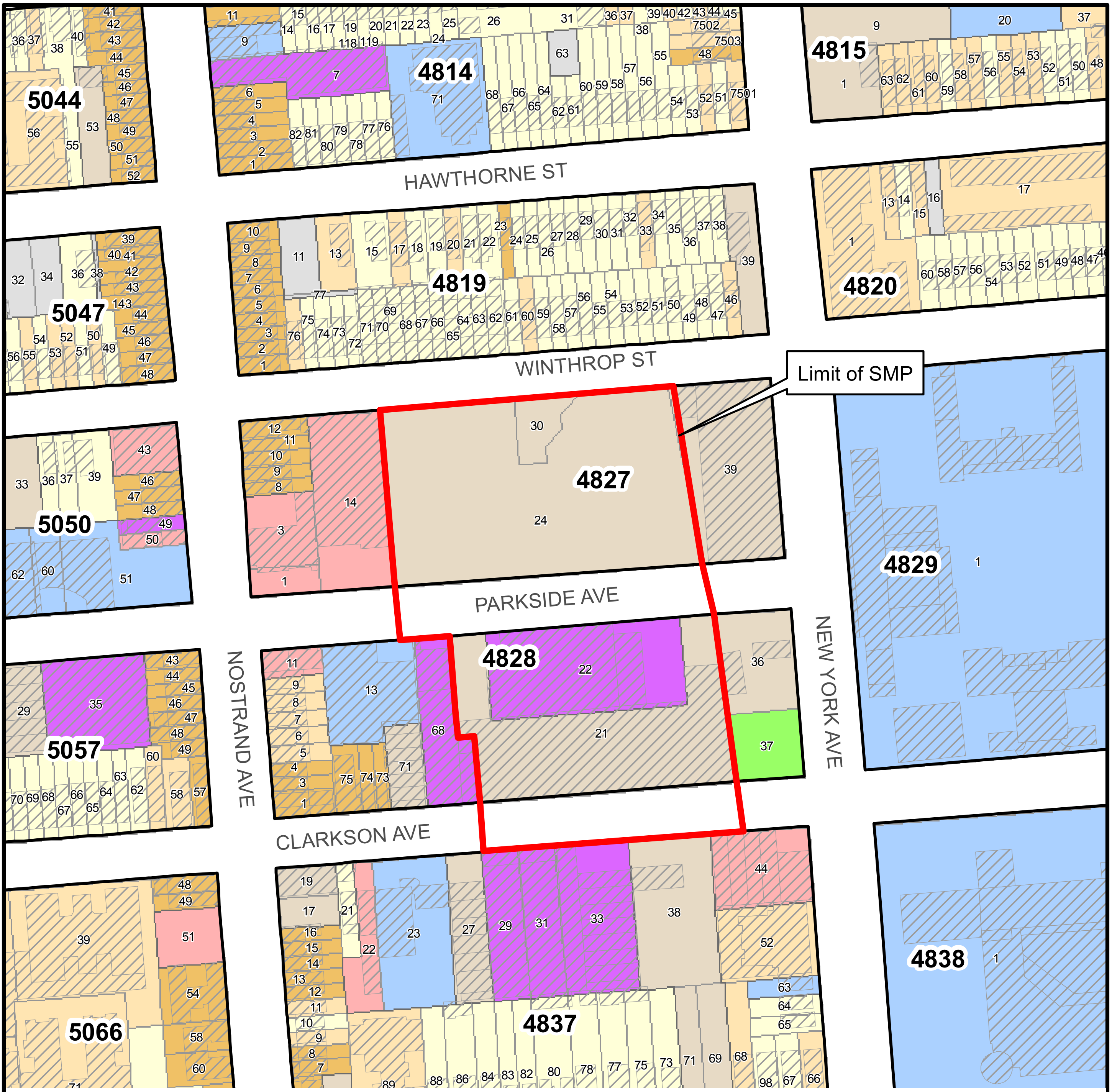
Site Location Map
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

Data Source: USGS Topographic Quadrangle - Brooklyn, 2009

Scale:	Date:	Project Number:
1"=2000'	9/26/2011	60218917-320

Figure Number:

1-1



Legend

🟥 Limit of SMP

☐ Block Boundary

▨ Building

Land Use

- One & Two Family Residential
- Multi Family Residential
- Mixed Use
- Commercial
- Industrial and Manufacturing
- Public Facilities and Institutions
- Transportation, Utility and Parking
- Open Space and Outdoor Recreation
- Vacant Land

Note: Tax Block & Tax Lot files are copyrighted by the New York City Department of City Planning

AECOM

AECOM Environment
200 LIBERTY STREET
NEW YORK, NY 10281
(212) 798-8500
www.aecom.com

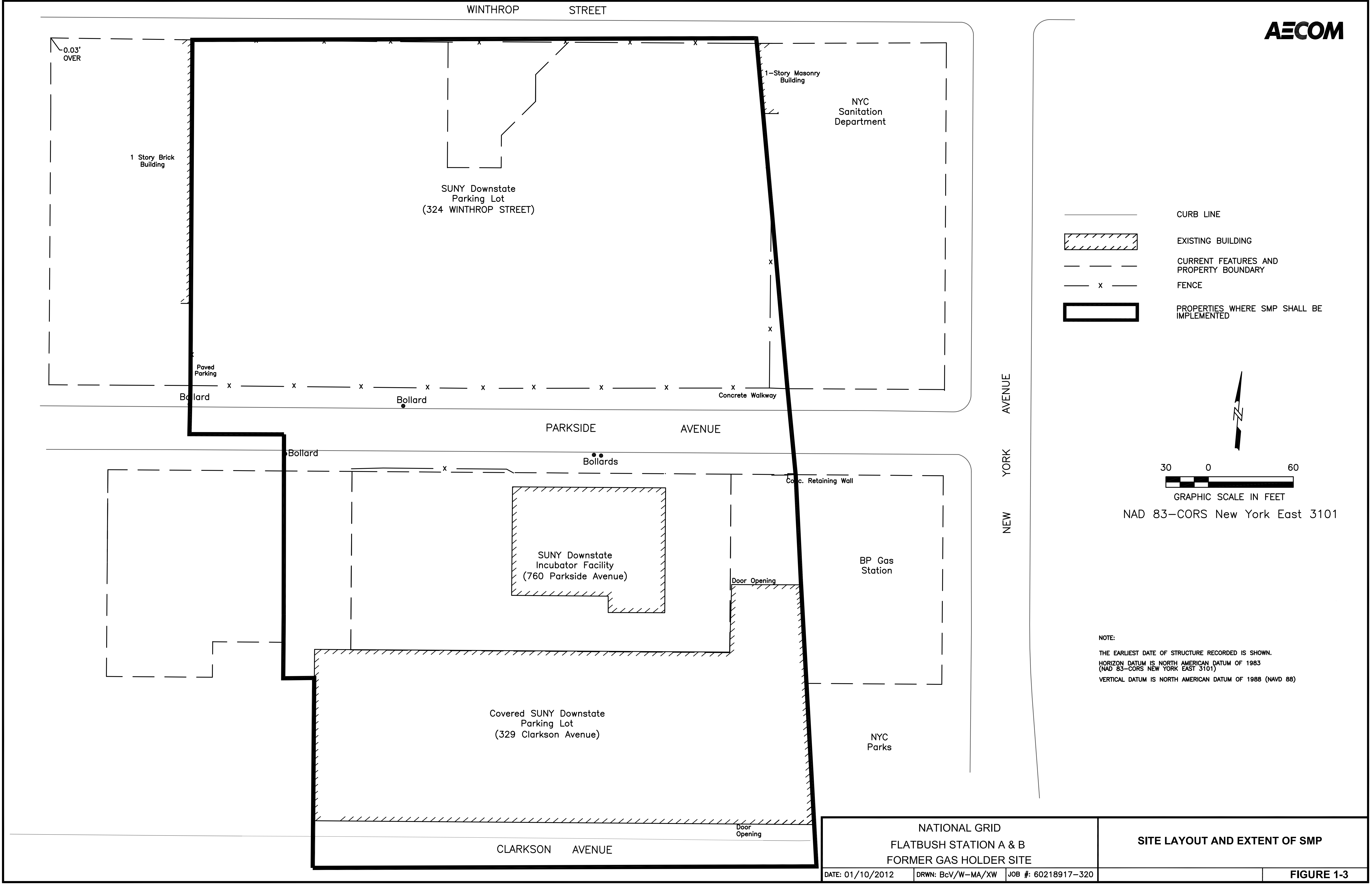
Parcel Locations
National Grid
Flatbush Station A&B Former Gas Holder Site
Brooklyn, NY

Scale:	Date:	Project Number:
1 in = 200 ft	01/10/2012	60218917-320

Figure Number:

1-2

J:\Rem_Eng\Project Files\P600 (60000 - 60999)\60144-412 Flatbush Station A&B Gas Holder\8.0 Project Documents\8.1 Scope of Work\8.11 SC Scope of Work - 2009\Misc\Figures\MXD\Figure_2-1_Parcel_Map.mxd



AECOM

NOTE:

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

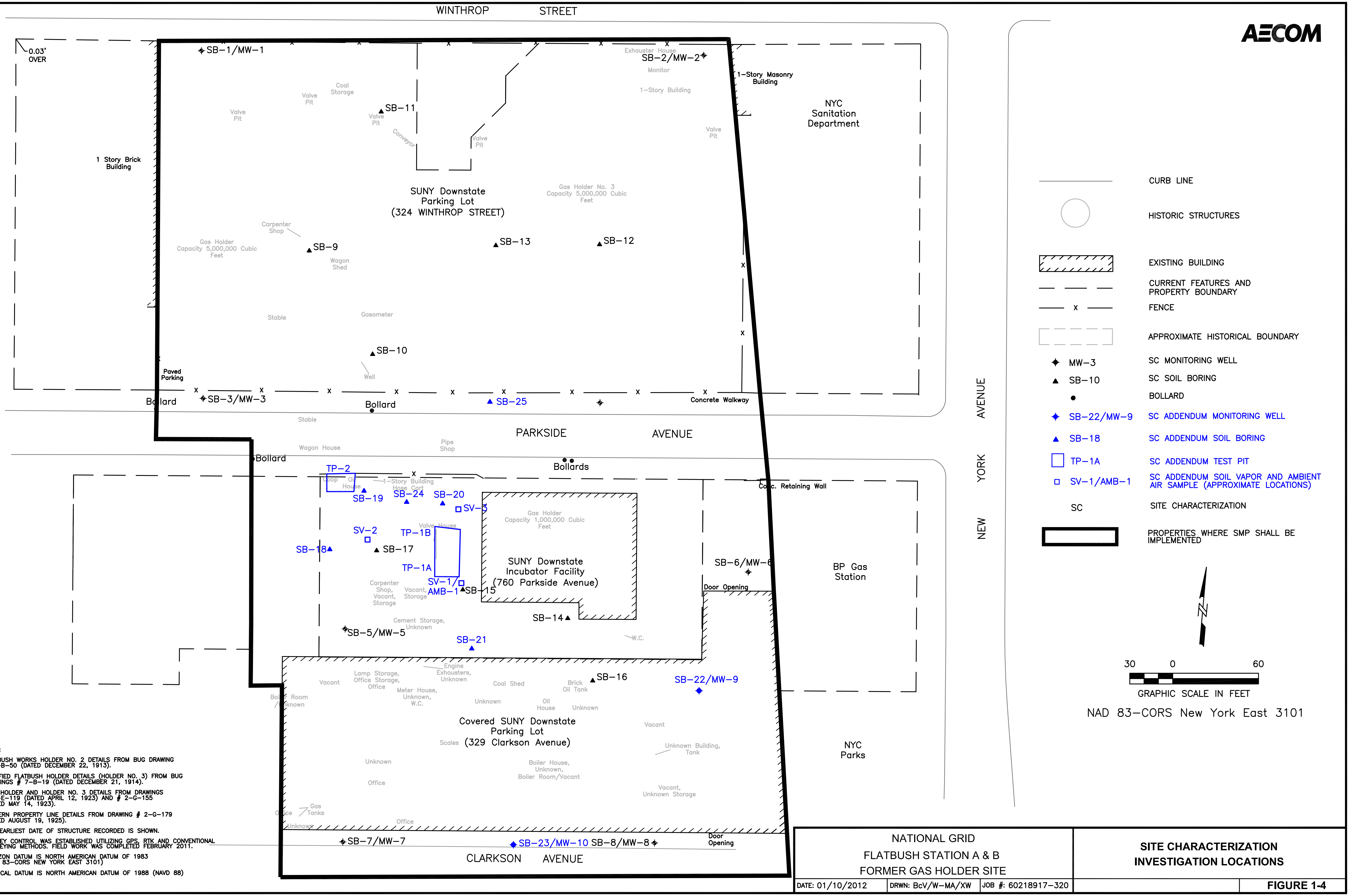
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

SITE LAYOUT AND EXTENT OF SMP

DATE: 01/10/2012 | DRWN: BcV/W-MA/XW | JOB #: 60218917-320

FIGURE 1-3

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-3 Site Layout and Extent of SMP.dwg Layout: AECOM-TBLK User: WeiX1 Plotted: Jan 10, 2012 - 1:23pm Xref's:



NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

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VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

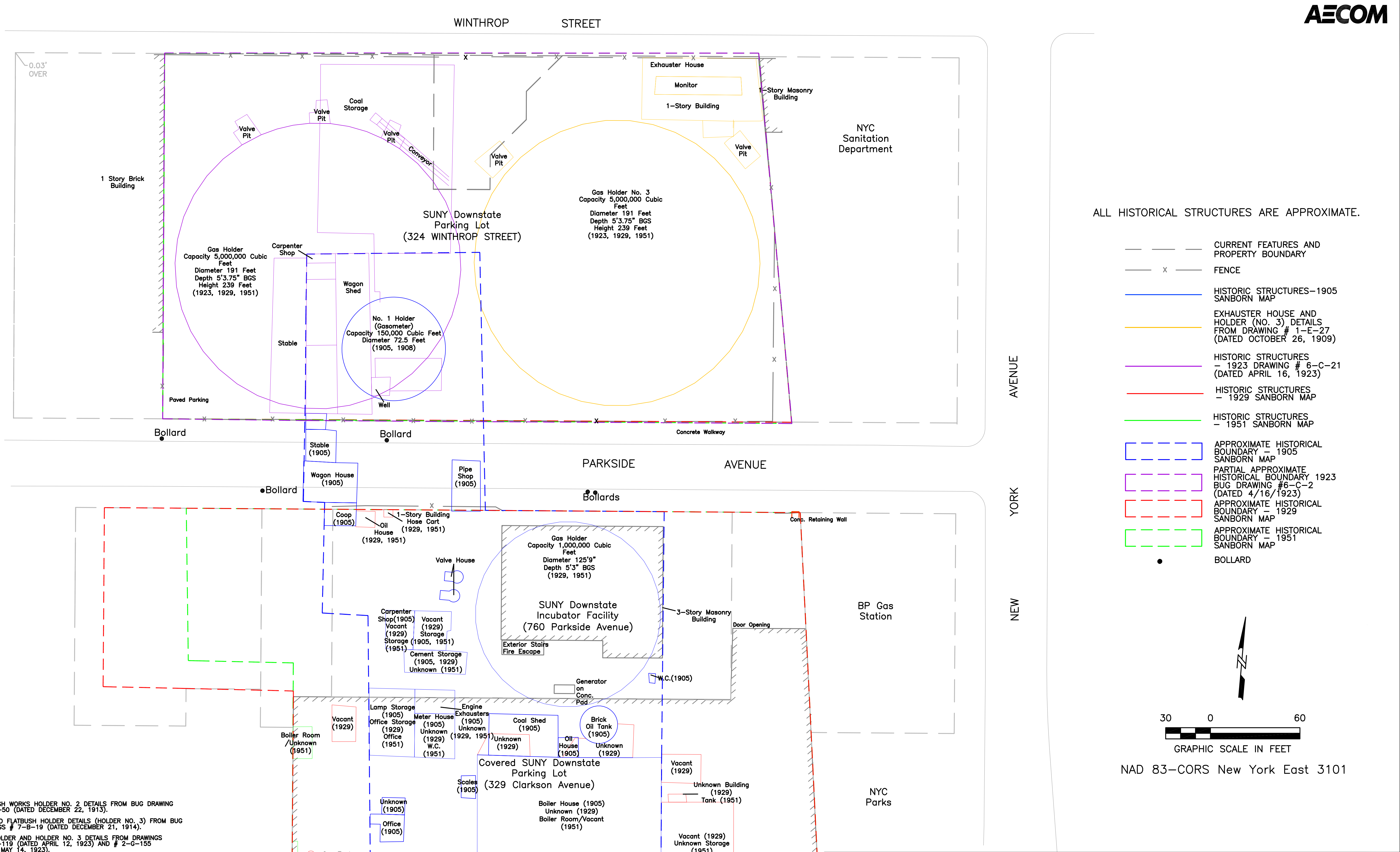
SITE CHARACTERIZATION
INVESTIGATION LOCATIONS

DATE: 01/10/2012 | DRWN: BcV/W-MA/XW | JOB #: 60218917-320

FIGURE 1-4

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-4 Site Characterization Investigation Locations.dwg Layout: AECOM-TBLK User: WeiX1 Plotted: Jan 10, 2012 - 1:24pm Xref's:

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-5 Historic Structures and Boundaries of Former Flatbush Gas Works Facility.dwg Layout: AECOM-TBLK User: WeiX1 Plotted: Jan 10, 2012 – 1:24pm Xr



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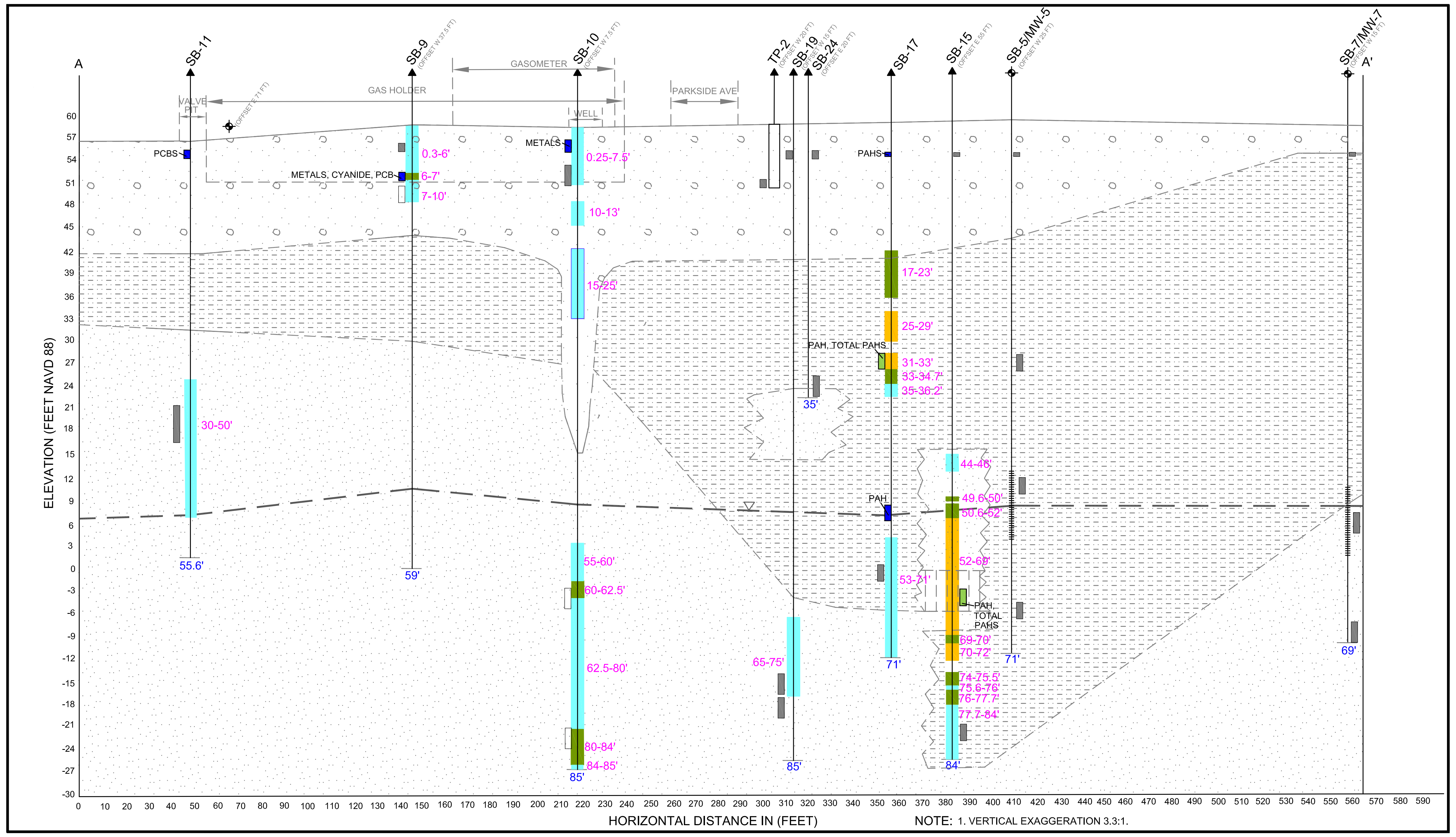
VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

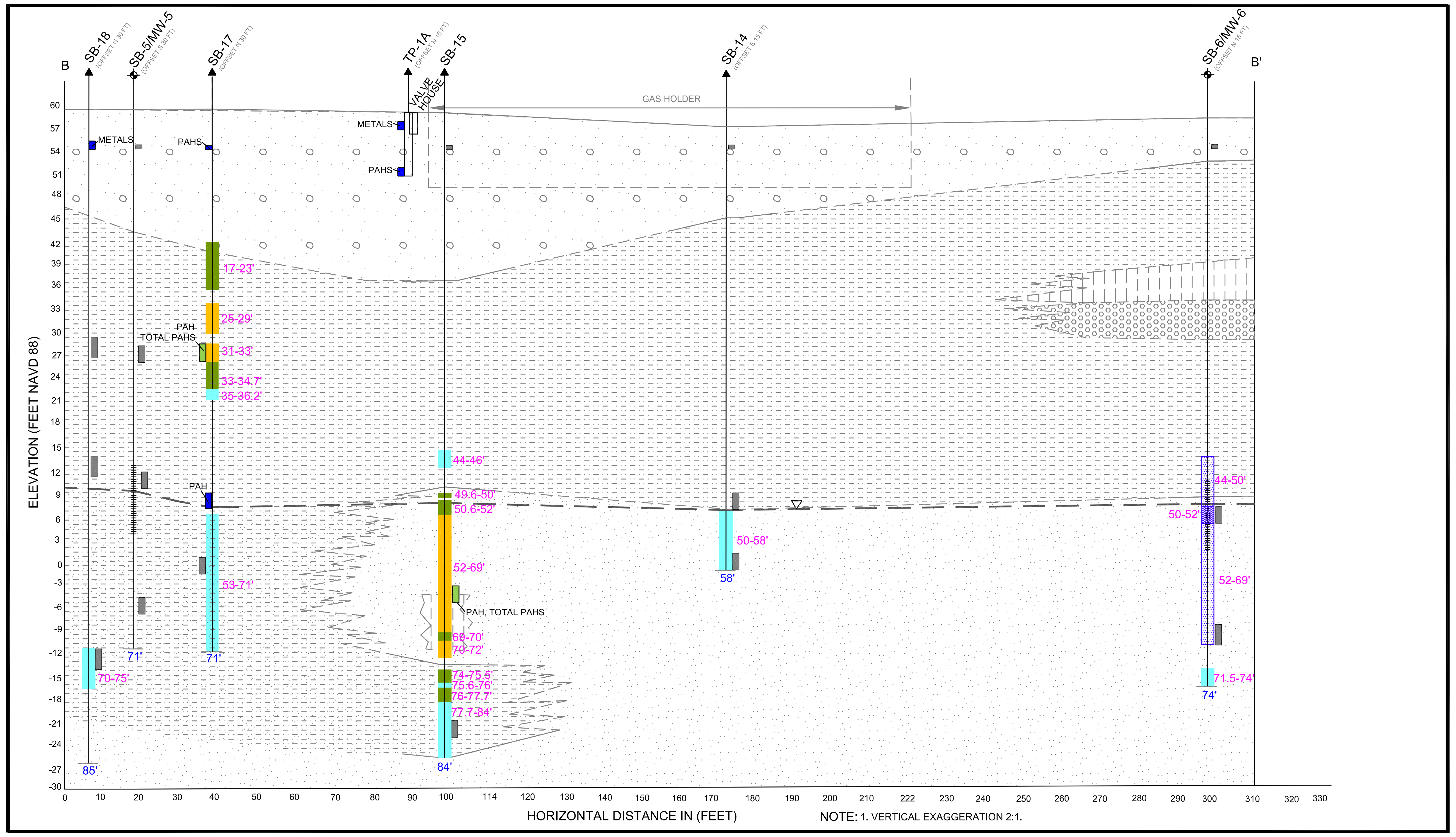
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

HISTORICAL STRUCTURES AND BOUNDARIES OF FLATBUSH GAS WORKS FACILITY

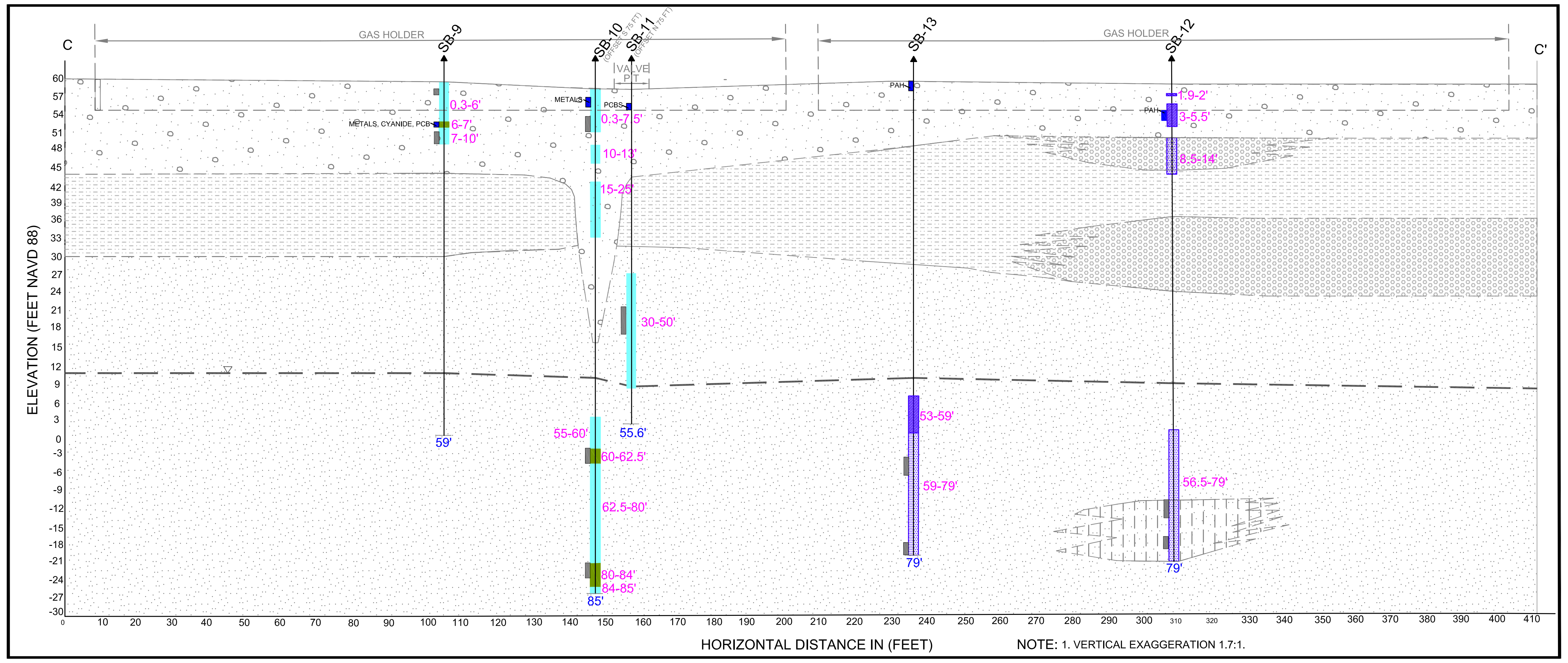
DATE: 01/10/2012	DRWN: BcV/W–MA/XW	JOB #: 60218917–320	**FIGURE 1-5**



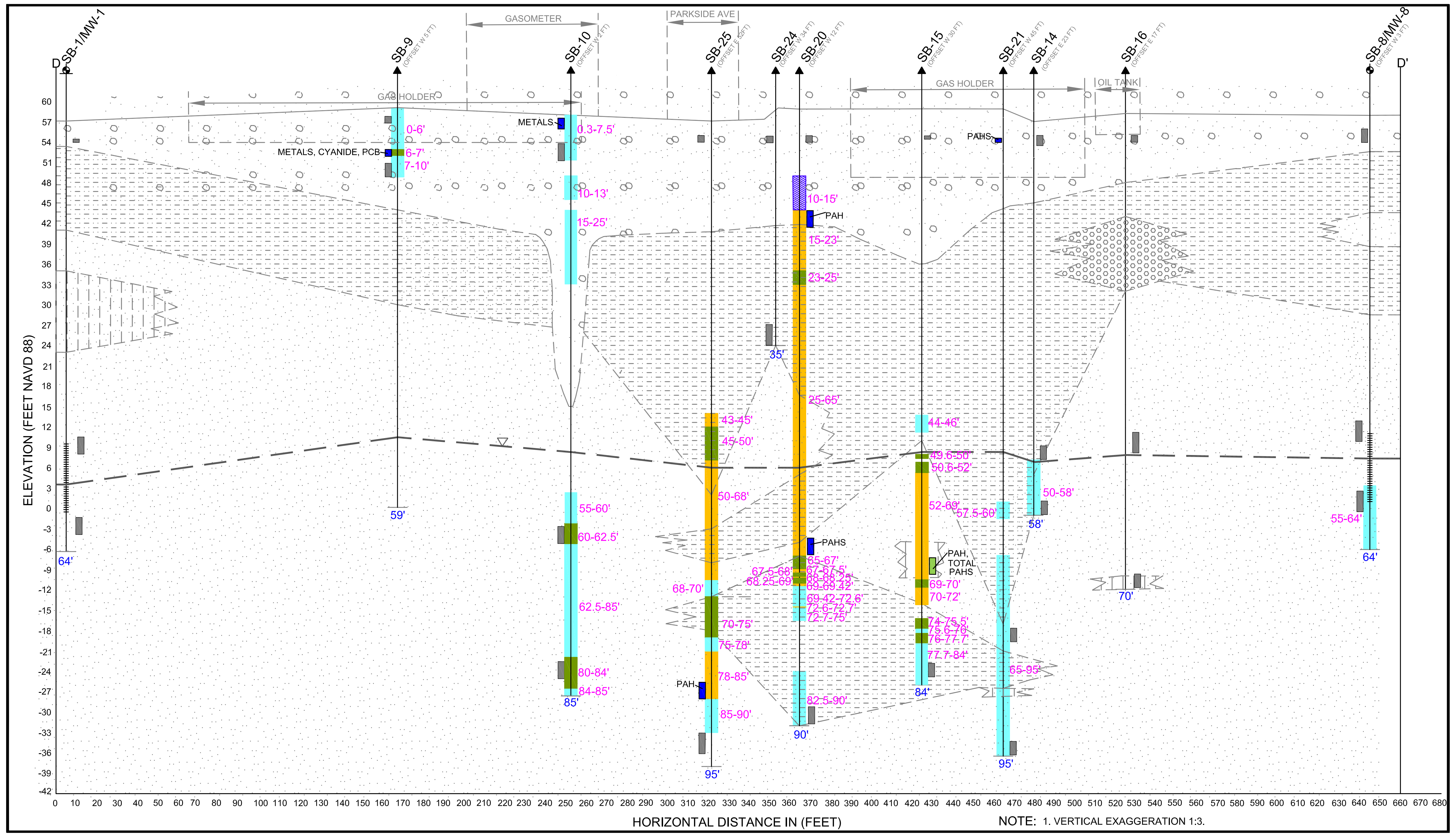
GEOLOGIC CROSS SECTION A-A'



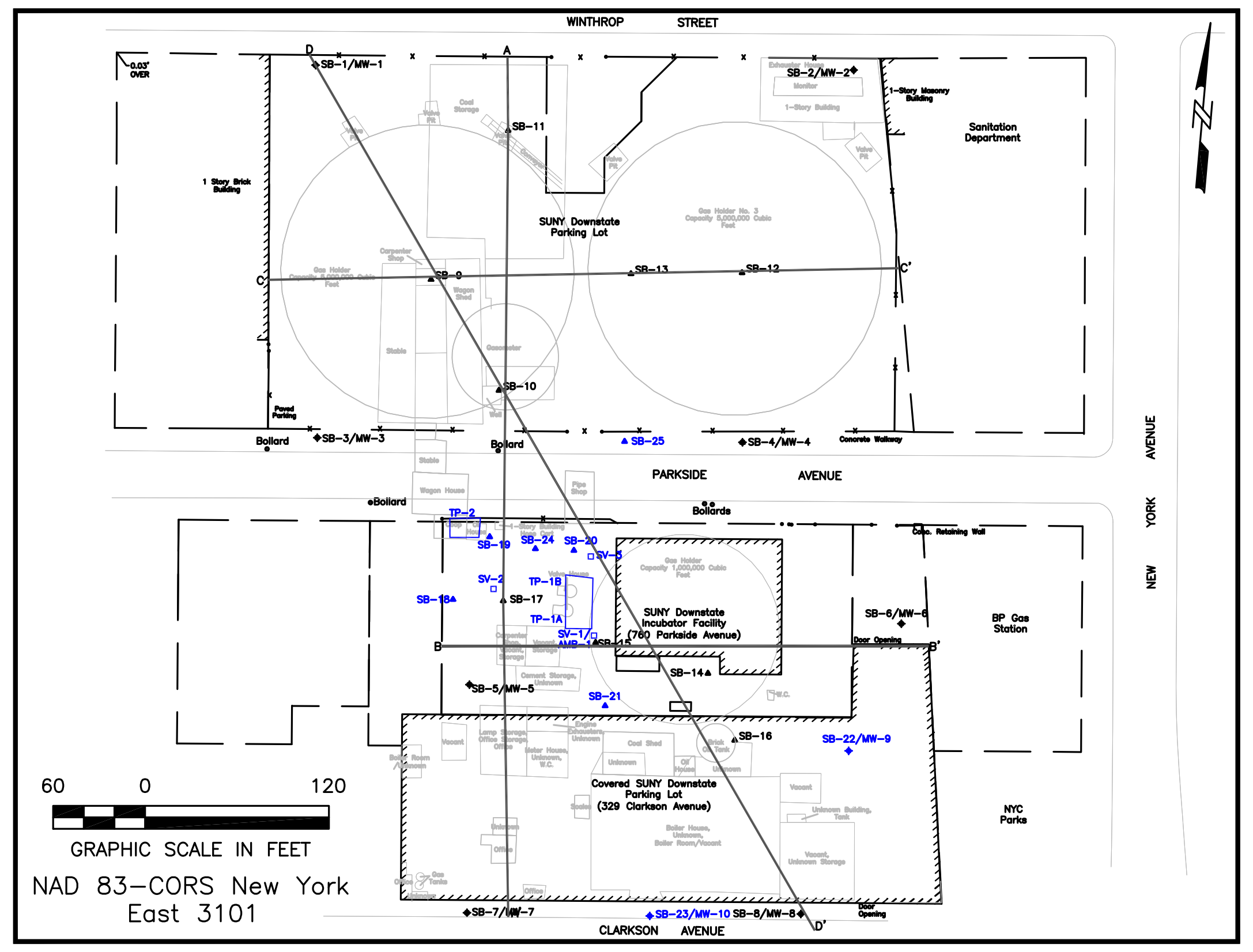
GEOLOGIC CROSS SECTION B-B'



GEOLOGIC CROSS SECTION C-C'



GEOLOGIC CROSS SECTION D-D'



HISTORIC STRUCTURES

EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

FENCE

✦ MW–3 SC MONITORING WELL

▲ SB–10 SC SOIL BORING

● BOLLARD

CROSS SECTION

☐ TP–1A SUPPLEMENTAL SC TEST PIT

□ SV–1/AMB–1 SUPPLEMENTAL SC SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)

SC SITE CHARACTERIZATION

WELL SCREEN ZONE

SAMPLE INTERVAL

■ EXCEEDANCES FOR THE NYSDEC PART 376–6 COMMERCIAL USE CRITERIA

🟩 EXCEEDANCES FOR THE NYSDEC CP–51 ALTERNATE CRITERIA OF 500 MG/KG FOR TOTAL PAHS

▽ — GROUNDWATER

95' BORING COMPLETION DEPTH (BGS)

85-90' DEPTH RANGE OF VISUAL OLFACTORY IMPACTS (BGS)

BGS BELOW GRADE SURFACE

VISUAL AND OLFACTORY IMPACTS

🟩 TAR SHEEN/STAINING

🟧 BLEBS, TAR COATINGS

■ TAR/NAPHTHALENE–LIKE ODORS

▨ PETROLEUM SHEEN/STAINING

▦ PETROLEUM ODORS

STRATIGRAPHY

FILL

WELL GRADED GRAVEL

WELL GRADED SAND

POORLY GRADED SAND

SILTY SAND

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6–B–50 (DATED DECEMBER 22, 1913).

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HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83–CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

AECOM

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

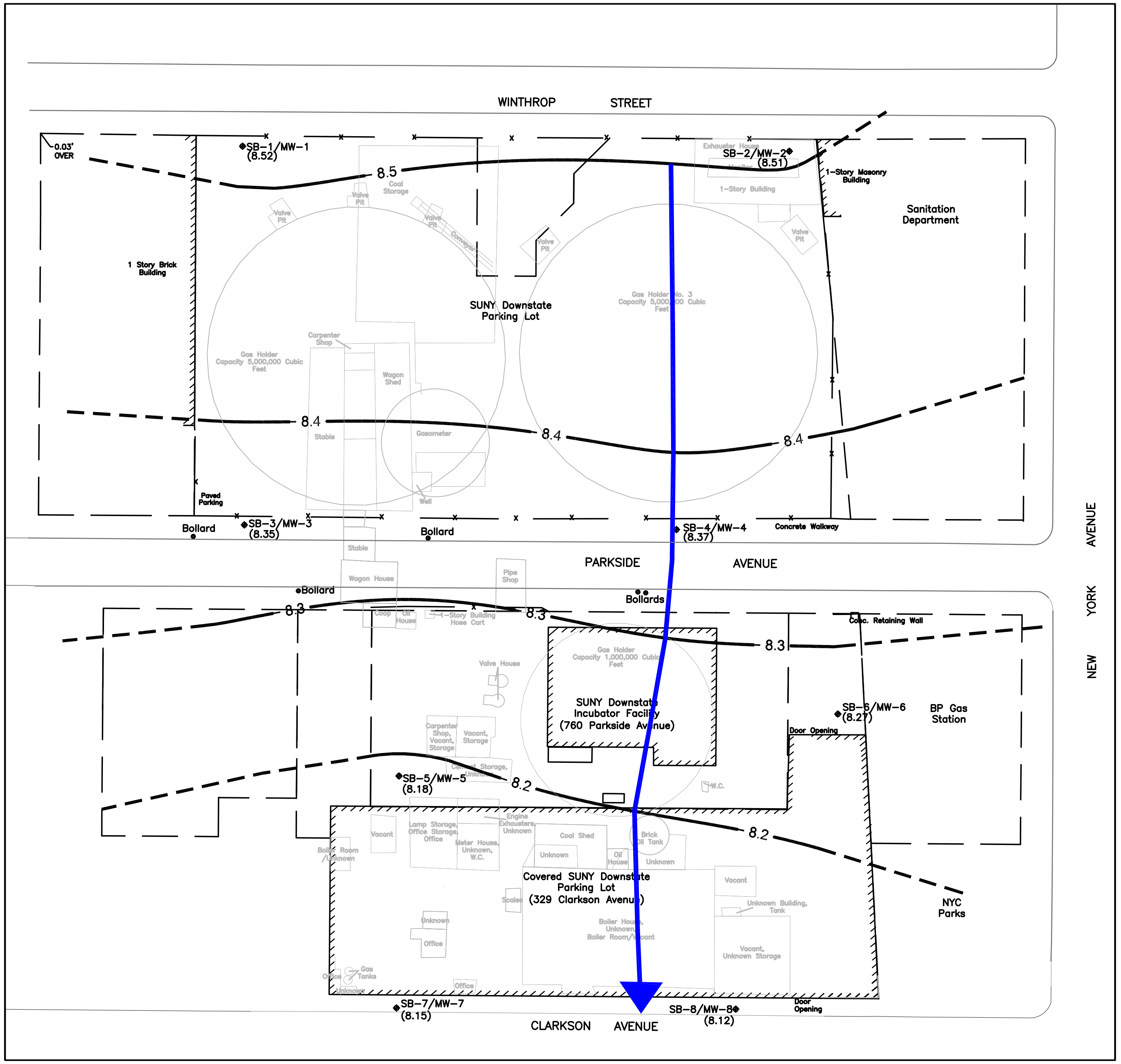
GEOLOGIC CROSS SECTIONS

DATE: 01/10/2012 | DRWN: BcV/W–MA/XW | JOB #: 60218917–320

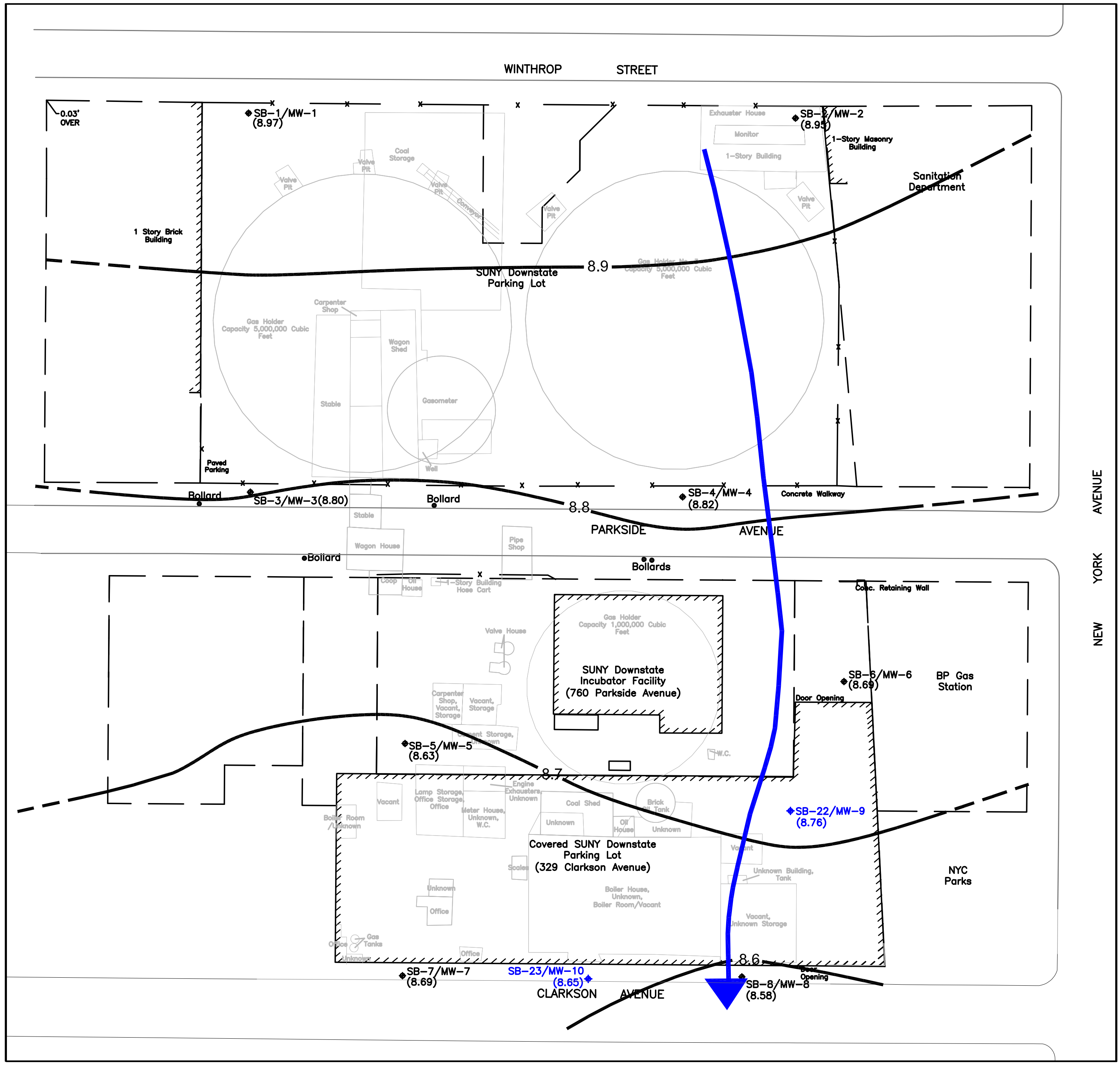
FIGURE 1-6

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-7 Groundwater Elevation Contour Map.dwg Layout: AECOM-TBLK User: WeiX1 Plotted: Jan 10, 2012 – 1:26pm Xref's:

AECOM



MARCH 9, 2011



July 28, 2011

NOTE:

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HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83–CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

———	CURB LINE
○	HISTORIC STRUCTURES
▨	EXISTING BUILDING
— — —	CURRENT FEATURES AND PROPERTY BOUNDARY
—x—	FENCE
✦ MW–3	SC MONITORING WELL

●	BOLLARD
✦ MW–3 (8.35)	GROUNDWATER ELEVATION (FEET NAVD 88)
—8.8—	GROUNDWATER CONTOUR
➔	DIRECTION OF GROUNDWATER FLOW
✦ SB–22/MW–9 (8.76)	SC ADDENDUM MONITORING WELL
SC	SITE CHARACTERIZATION

45 0 90

GRAPHIC SCALE IN FEET

NAD 83–CORS New York East 3101

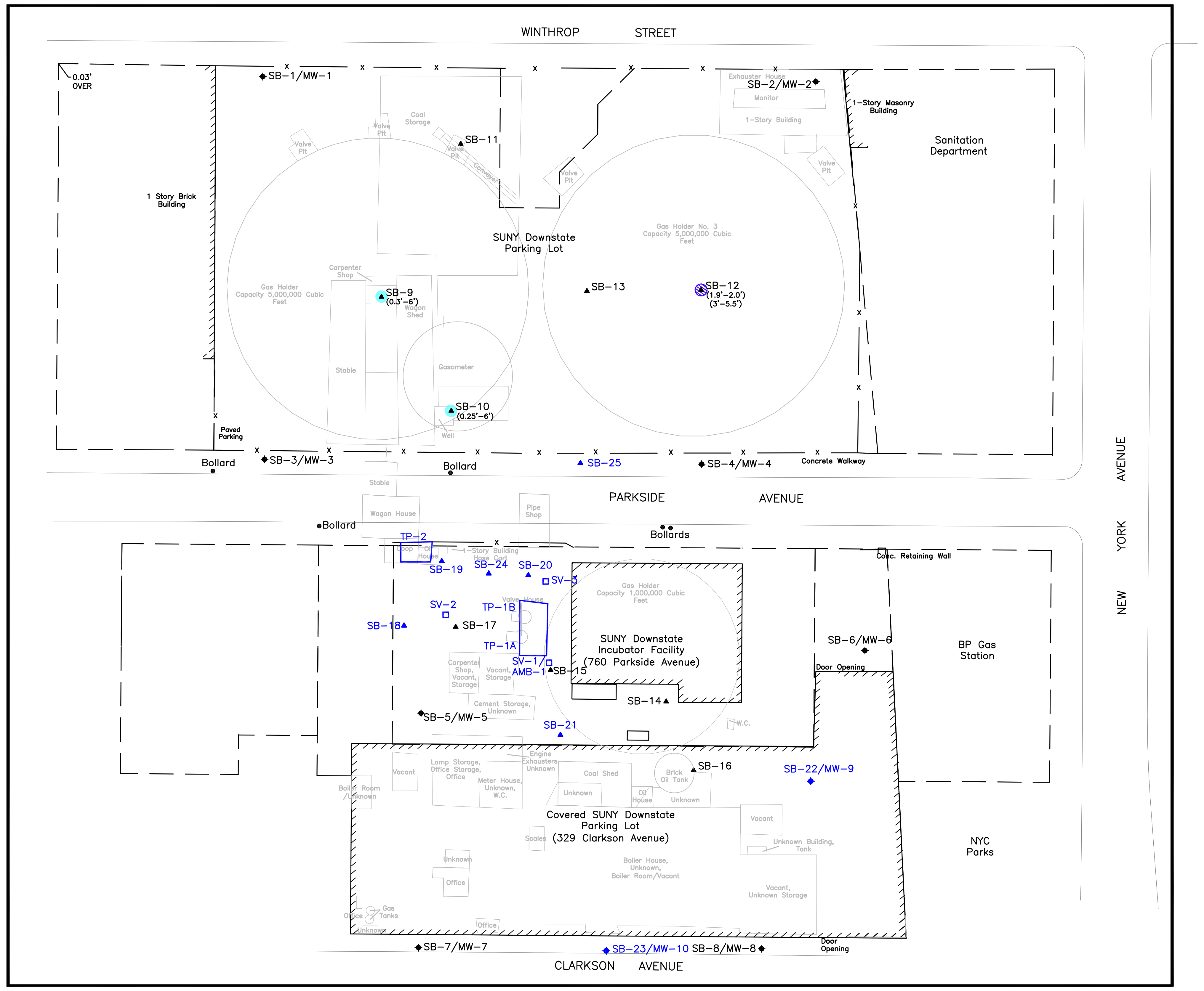
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

GROUNDWATER ELEVATION CONTOUR MAP

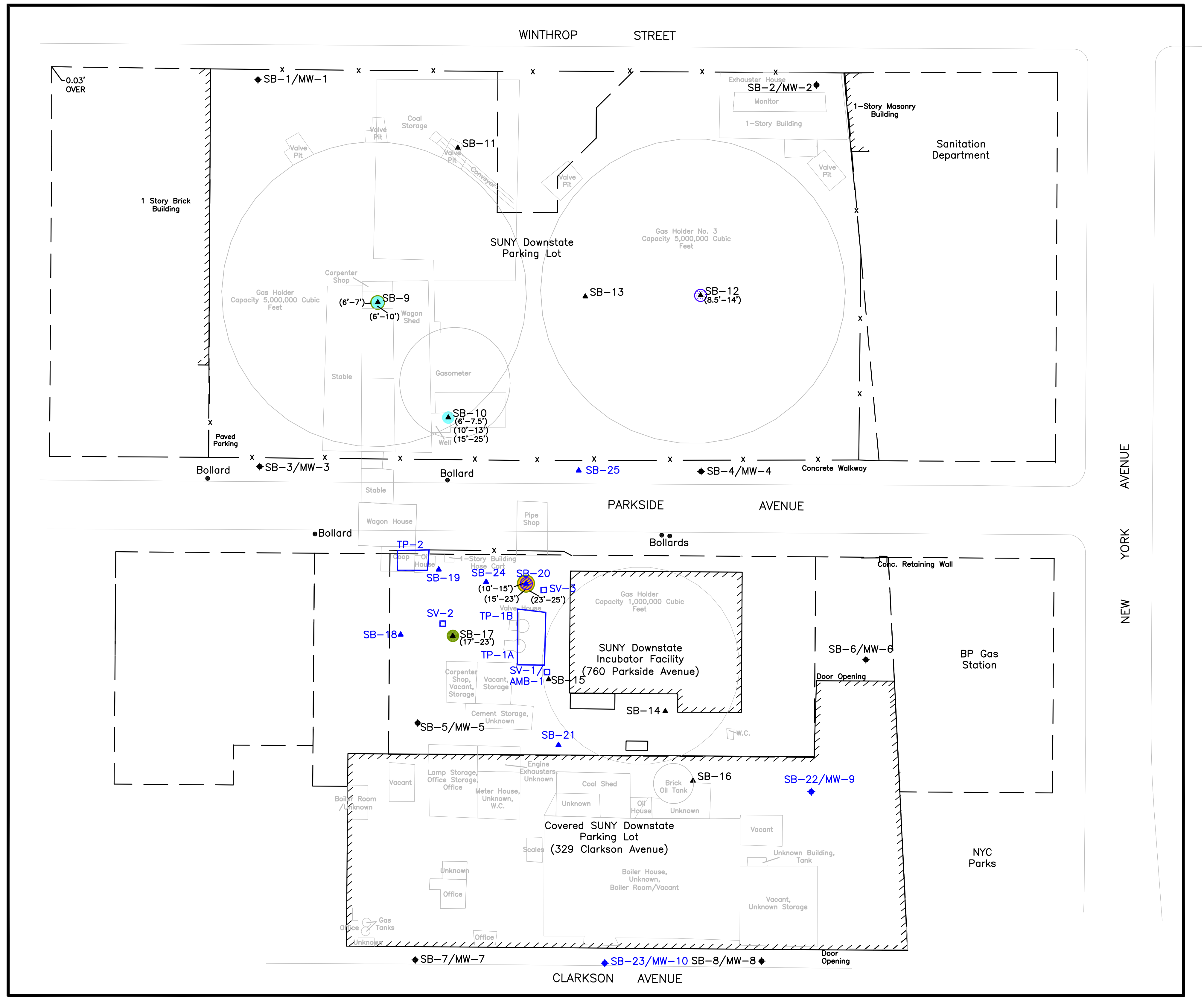
DATE: 01/10/2012 | DRWN: BcV/W–MA/XW | JOB #: 60218917–320

FIGURE 1-7

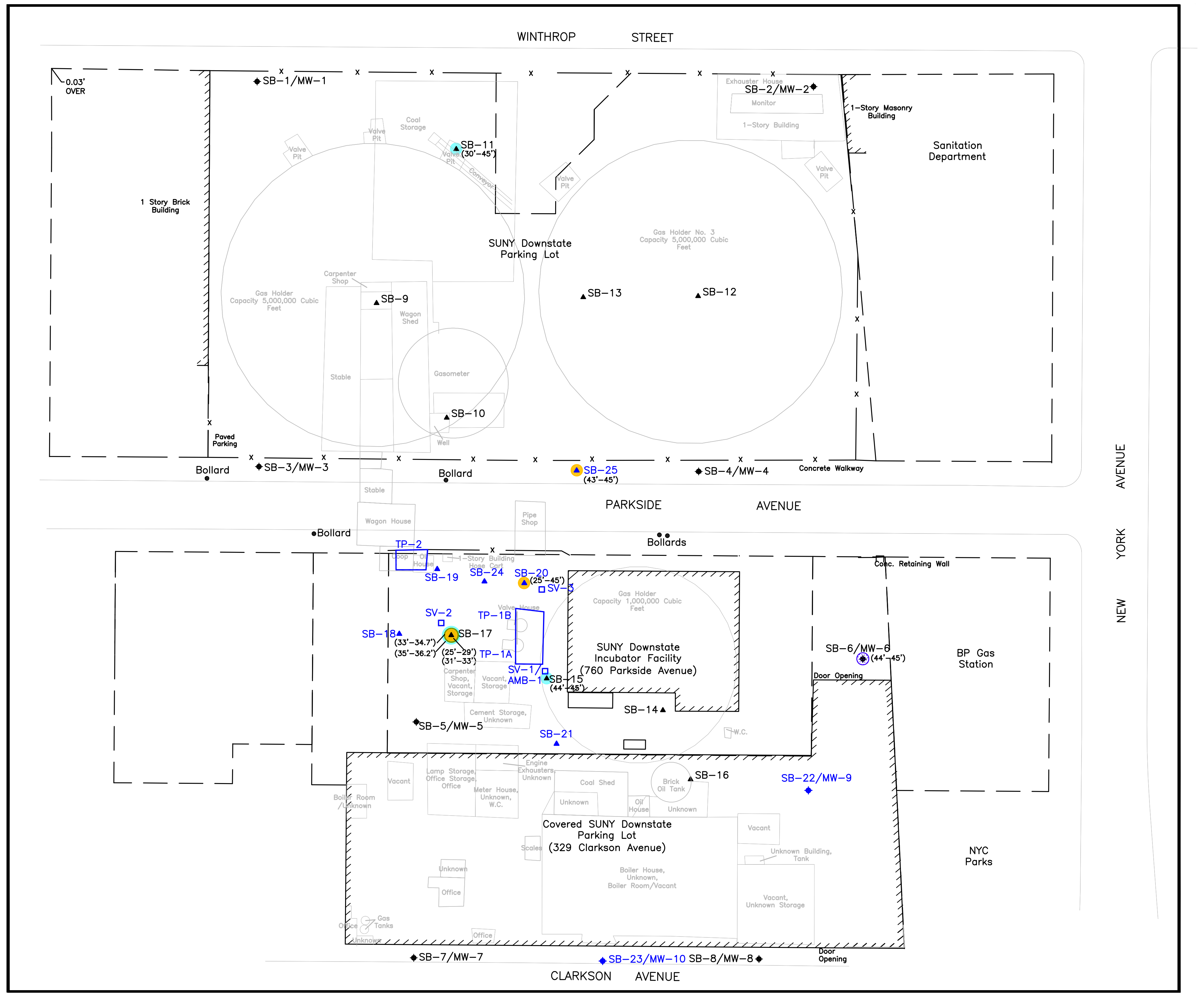
AECOM



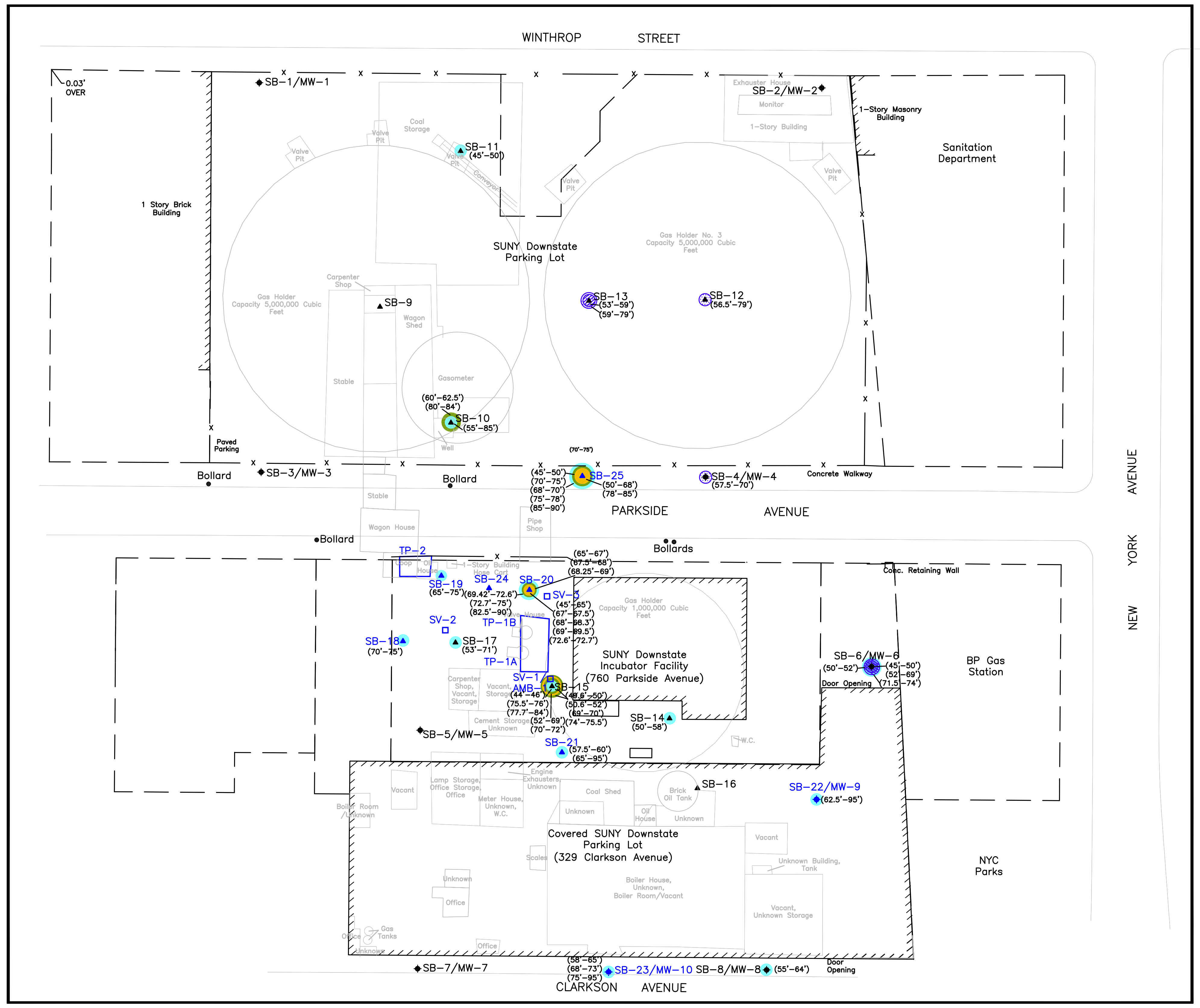
FROM 0-6 FEET BELOW GROUND SURFACE



FROM 6-25 FEET BELOW GROUND SURFACE



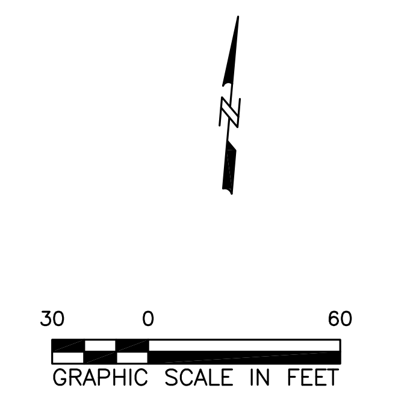
FROM 25-45 FEET BELOW GROUND SURFACE



FROM 45-95 FEET BELOW GROUND SURFACE

○	HISTORIC STRUCTURES
▨	EXISTING BUILDING
— — — —	CURRENT FEATURES AND PROPERTY BOUNDARY
—— x ——	FENCE
✦ MW–3	SC MONITORING WELL
▲ SB–10	SC SOIL BORING
●	BOLLARD
●	TAR SHEEN/STAINING
●	BLEBS, TAR COATINGS
●	TAR/NAPHTHALENE–LIKE ODORS
▨	PETROLEUM SHEEN/STAINING
◌	PETROLEUM ODORS
(8.5'–9')	DEPTH OF IMPACTS OBSERVED IN FEET BELOW GRADE SURFACE
✦ SB–22/ MW–9	SC ADDENDUM MONITORING WELL
▲ SB–18	SC ADDENDUM SOIL BORING
☐ TP–1A	SC ADDENDUM TEST PIT
▫ SV–1/AMB–1	SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)
SC	SITE CHARACTERIZATION

NO SHADING INDICATES NO IMPACTS OBSERVED



NAD 83–CORS New York East 3101

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6–B–50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7–B–19 (DATED DECEMBER 21, 1914).

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VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

SUMMARY OF VISUAL AND OLFACTORY IMPACTS

DATE: 01/10/2012 | DRWN: BcV/W–MA/XW | JOB #: 60218917–320

FIGURE 1-8

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-9 Summary of Soil Analytical Contamination Exceeding Restricted Use Commercial Sco.dwg Layout: AECOM-TBLK User: WeiX1

AECOM

Location ID	SB-11	SB-11	SB-11
Sample Date	1/31/2011	1/31/2011	1/31/2011
SamPle ID	SB-11(1-2)013111	SB-11(35.6-40)013111	SB-11(40.6-43)013111
Depth Interval	1-2	35.6-40	40.6-43
PCBs (mg/Kg)			
PCB (Total)	**1.6**	ND	ND

Location ID	SB-10	SB-10	SB-10	SB-10
Sample Date	2/1/2011	2/1/2011	2/2/2011	2/2/2011
SamPle ID	SB-10(1.5-3)020111	SB-10(5-7.5)020111	SB-10(60-62.5)020211	SB-10(80-82.5)020211
Depth Interval	1.5-3	5-7.5	60-62.5	80-82.5
Metals (mg/Kg)				
Barium	**2750**	143	12.0 J	19.3 J
Lead	**1150**	429	3.1	3.5

Location ID	SB-02	SB-02	SB-02
Sample Date	1/25/2011	1/25/2011	1/26/2011
SamPle ID	SB-2(3.5-12)012511	SB-2(46.5-49)012511	SB-2(56.5-59)012611
Depth Interval	3.5-12	46.5-49	56.5-59
PAH (mg/Kg)			
Benzo[a]pyrene	**1.5**	0.035	0.044
PCBs (mg/Kg)			
PCB (Total)	**1.2**	ND	ND

Location ID	SB-13	SB-13	SB-13
Sample Date	2/4/2011	2/7/2011	2/7/2011
SamPle ID	SB-13(0-1.5)020411	SB-13(64-66.5)020711	SB-13(77-79)020711
Depth Interval	0-1.5	64-66.5	77-79
PAH (mg/Kg)			
Benzo[a]pyrene	**1.7**	0.077	0.04

Location ID	SB-12	SB-12	SB-12
Sample Date	2/3/2011	2/4/2011	2/4/2011
SamPle ID	SB-12(3.5-4.5)020311	SB-12(69-72)020411	SB-12(75-77)020411
Depth Interval	3.5-4.5	69-72	75-77
PAH (mg/Kg)			
Benzo[a]pyrene	**3.8**	0.038	0.038

Location ID	SB-25	SB-25*1	SB-25*1
Sample Date	7/7/2011	7/11/2011	7/11/2011
SamPle ID	SB-25(4-5)062411	SB-25(90-92.5)062411	SB-25(82.5-85)062411
Depth Interval	4-5	82.5-85	90-92.5
PAH (mg/Kg)			
Benzo[a]anthracene	0.044	**26**	0.043
Benzo[a]pyrene	0.044	**21**	0.043
Benzo[b]floranthene	0.044	**17**	0.043
Dibenz(a,h)anthracene	0.044	**1.7**	0.043
Indeno[1,2,3-cd]pyrene	0.044	**7.7**	0.043

CURB LINE

HISTORIC STRUCTURES

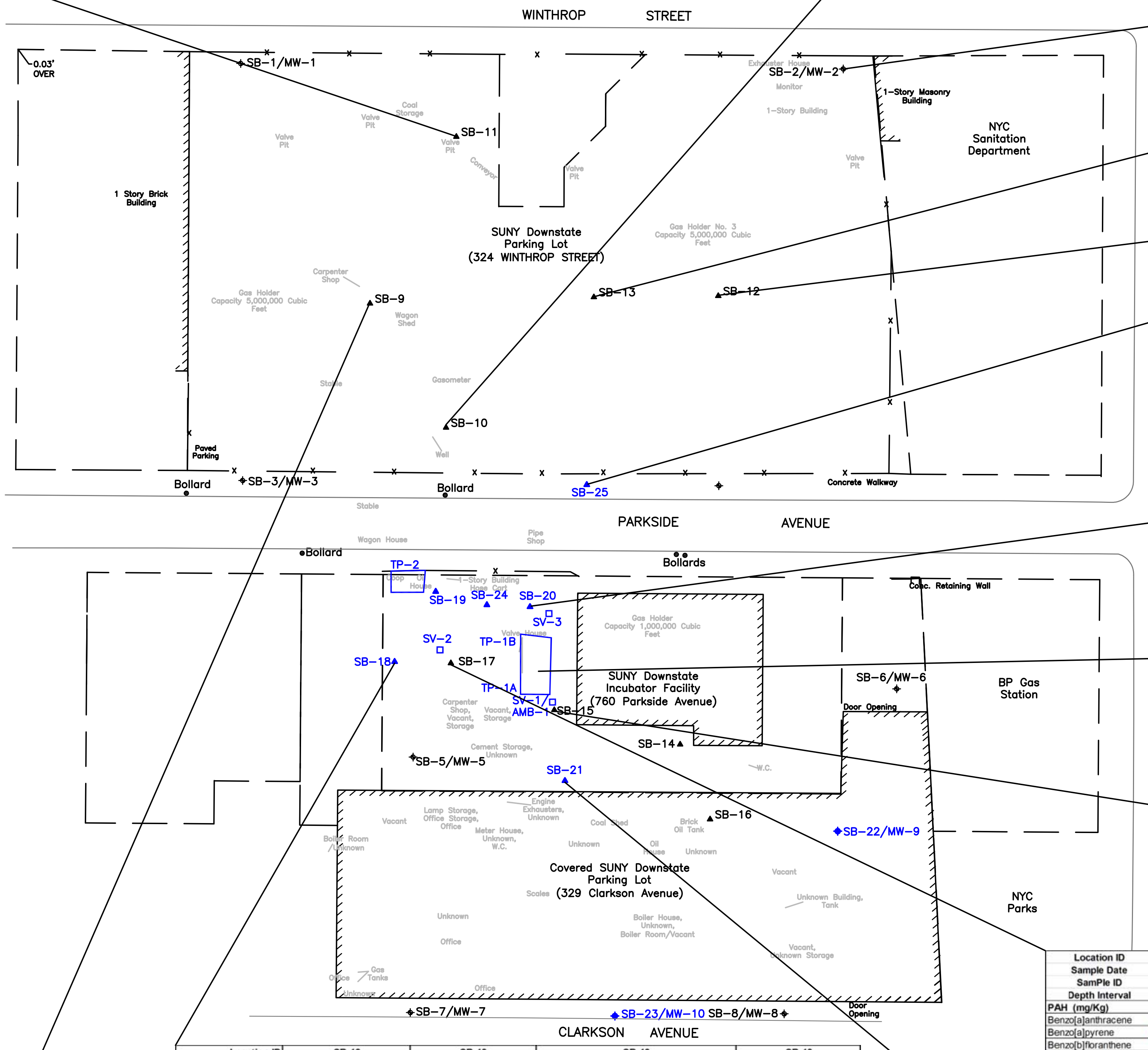
EXISTING BUILDING

CURRENT FEATURES AND PROPERTY BOUNDARY

FENCE

APPROXIMATE HISTORICAL BOUNDARY

✦ MW–3	SC MONITORING WELL
▲ SB–10	SC SOIL BORING
●	BOLLARD
✦ SB–22/ MW–9	SC ADDENDUM MONITORING WELL
▲ SB–18	SC ADDENDUM SOIL BORING
☐ TP–1A	SC ADDENDUM TEST PIT
☐ SV–1/ AMB–1	SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)
SC	SITE CHARACTERIZATION
*1	SAMPLE INTERVALS FOR SB–25 82.5–85 AND 90–92.5 WERE INADVERTENTLY REVERSED IN THE FIELD. THE DEPTHS HAVE BEEN CORRECTED ON THE TABLE.
🟦 BOLD	EXCEEDANCES FOR THE NYSDEC PART 375–6 COMMERCIAL USE
🟩 BOLD	EXCEEDANCES FOR THE NYSDEC CP–51 ALTERNATE CRITERIA OF 500 MG/KG FOR TOTAL PAHS



Location ID	SB-20	SB-20	SB-20	SB-20
Sample Date	6/23/2011	6/28/2011	6/28/2011	6/29/2011
SamPle ID	SB-20 (4-5)062311	SB-20(15-17.5)062411	SB-20(62.5-65)062411	SB-20(87.5-90)062411
Depth Interval	4-5	15-17.5	62.5-65	87.5-90
PAH (mg/Kg)				
Benzo[a]anthracene	0.038	**45**	**15**	0.042
Benzo[a]pyrene	0.038	**53**	**12**	0.042
Benzo[b]floranthene	0.038	**47**	**10**	0.042
Dibenz(a,h)anthracene	0.038	**6.8**	**1.1**	0.042
Indeno[1,2,3-cd]pyrene	0.038	**34**	4.8	0.042

Location ID	TP-1	TP-1	TP-1
Sample Date	6/23/2011	6/23/2011	6/23/2011
SamPle ID	TP-1(1-2)062311	TP-1(8)062311	TP-1(INSIDE NO VALVE HO.)062311
Depth Interval	1-2	8	0
PAH (mg/Kg)			
Benzo[a]pyrene	0.68	**2.2**	0.43
Metals (mg/Kg)			
Lead	**1080**	220	**1590**
Mercury	**3.8**	0.48	0.73

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6–B–50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7–B–19 (DATED DECEMBER 21, 1914).

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THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83–CORS NEW YORK EAST 3101)

VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

Location ID	SB-15	SB-15	SB-15
Sample Date	1/3/2011	1/10/2011	1/11/2011
SamPle ID	SB-15(4-5.5)010311	SB-15(66-68)011011	SB-15(78-80)011011
Depth Interval	4-5.5	66-68	78-80
PAH (mg/Kg)			
Benzo[a]anthracene	0.29	**23**	0.31
Benzo[a]pyrene	0.39	**18**	0.24
Benzo[b]floranthene	0.45	**16**	0.2
Indeno[1,2,3-cd]pyrene	0.27	**8.7**	0.099
Total PAHs	4.1125	**763.8**	6.6145

Location ID Sample Date SamPle ID Depth Interval	NYSDEC PART 375-6 Commercial USE
PAH (mg/Kg)	
Benzo[a]anthracene	5.6
Benzo[a]pyrene	1
Benzo[b]fluoranthene	5.6
Dibenz(a,h)anthracene	0.56
Indeno[1,2,3-cd]pyrene	5.6
Total PAHs	500^{A}
Cyanide (mg/Kg)	
Cyanide, Total	27
PCBs (mg/Kg)	
PCB (Total)	1
Metals (mg/Kg)	
Arsenic	16
Barium	400
Lead	1000
Chromium	1500
Mercury	2.8

Location ID	SB-17	SB-17	SB-17	SB-17
Sample Date	1/4/2011	1/17/2011	1/17/2011	1/17/2011
SamPle ID	SB-17(4.5-5)010411	SB-17(31-33)011711	SB-17(49-51)011711	SB-17(67-69)011711
Depth Interval	4.5-5	31-33	49-51	67-69
PAH (mg/Kg)				
Benzo[a]anthracene	1.7	**48**	2.3	0.14
Benzo[a]pyrene	**2.6**	**37**	**1.9**	0.098
Benzo[b]floranthene	2.9	**31**	2	0.1
Dibenz(a,h)anthracene	0.54	**6.9**	0.24	0.043
Indeno[1,2,3-cd]pyrene	2.8	**25**	1	0.059
Total PAHs	22.699	**561**	34.8	2.6305

Location ID	SB-18	SB-18	SB-18	SB-18
Sample Date	6/23/2011	6/27/2011	6/27/2011	6/27/2011
SamPle ID	SB-18(4-5)062311	SB-18(27.5-30)062411	SB-18(42.5-45)062411	SB-18(70-72.5)062411
Depth Interval	4-5	27.5-30	42.5-45	70-72.5
Metals (mg/Kg)				
Arsenic	**47.8**	1.9	1.3	1.0 J

Location ID	SB-21	SB-21	SB-21
Sample Date	6/23/2011	6/29/2011	6/29/2011
SamPle ID	SB-21(4.5-5)062311	SB-21(72.5-75)062411	SB-21(92.5-95)062411
Depth Interval	4.5-5	72.5-75	92.5-95
PAH (mg/Kg)			
Benzo[a]pyrene	**1.1**	0.042	0.042

Location ID	SB-09	SB-09	SB-09
Sample Date	1/28/2011	1/28/2011	1/28/2011
SamPle ID	SB-9(2-3)012811	SB-9(6-7)012811	SB-9(8-10)012811
Depth Interval	2-3	6-7	8-10
Metals (mg/Kg)			
Arsenic	4.1	**18.3**	3.7
Chromium	21.5	**3040**	19.9
Lead	93.3	**3240**	14.7
Cyanide (mg/Kg)			
Cyanide, Total	0.17 J	**72.9**	0.24 J
PCBs (mg/Kg)			
PCB (Total)	0.116	**1.89**	ND

40 0 80

GRAPHIC SCALE IN FEET

NAD 83–CORS New York East 3101

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

DATE: 01/10/2012 | DRWN: BcV/W–MA/XW | JOB #: 60218917–320

SUMMARY OF SOIL ANALYTICAL CONTAMINATION EXCEEDING RESTRICTED USE COMMERCIAL SCO

FIGURE 1-9

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-10 Summary of Groundwater Analytical Contamination Exceeding Restricted Use Commercial Sco.dwg Layout: AECOM-TBLK

AECOM

NOTE:

FLATBUSH WORKS HOLDER NO. 2 DETAILS FROM BUG DRAWING # 6-B-50 (DATED DECEMBER 22, 1913).

MODIFIED FLATBUSH HOLDER DETAILS (HOLDER NO. 3) FROM BUG DRAWINGS # 7-B-19 (DATED DECEMBER 21, 1914).

NEW HOLDER AND HOLDER NO. 3 DETAILS FROM DRAWINGS # 2-E-119 (DATED APRIL 12, 1923) AND # 2-G-155 (DATED MAY 14, 1923).

EASTERN PROPERTY LINE DETAILS FROM DRAWING # 2-G-179 (DATED AUGUST 19, 1925).

THE EARLIEST DATE OF STRUCTURE RECORDED IS SHOWN.

SURVEY CONTROL WAS ESTABLISHED UTILIZING GPS, RTK AND CONVENTIONAL SURVEYING METHODS. FIELD WORK WAS COMPLETED FEBRUARY 2011.

HORIZON DATUM IS NORTH AMERICAN DATUM OF 1983 (NAD 83-CORS NEW YORK EAST 3101)

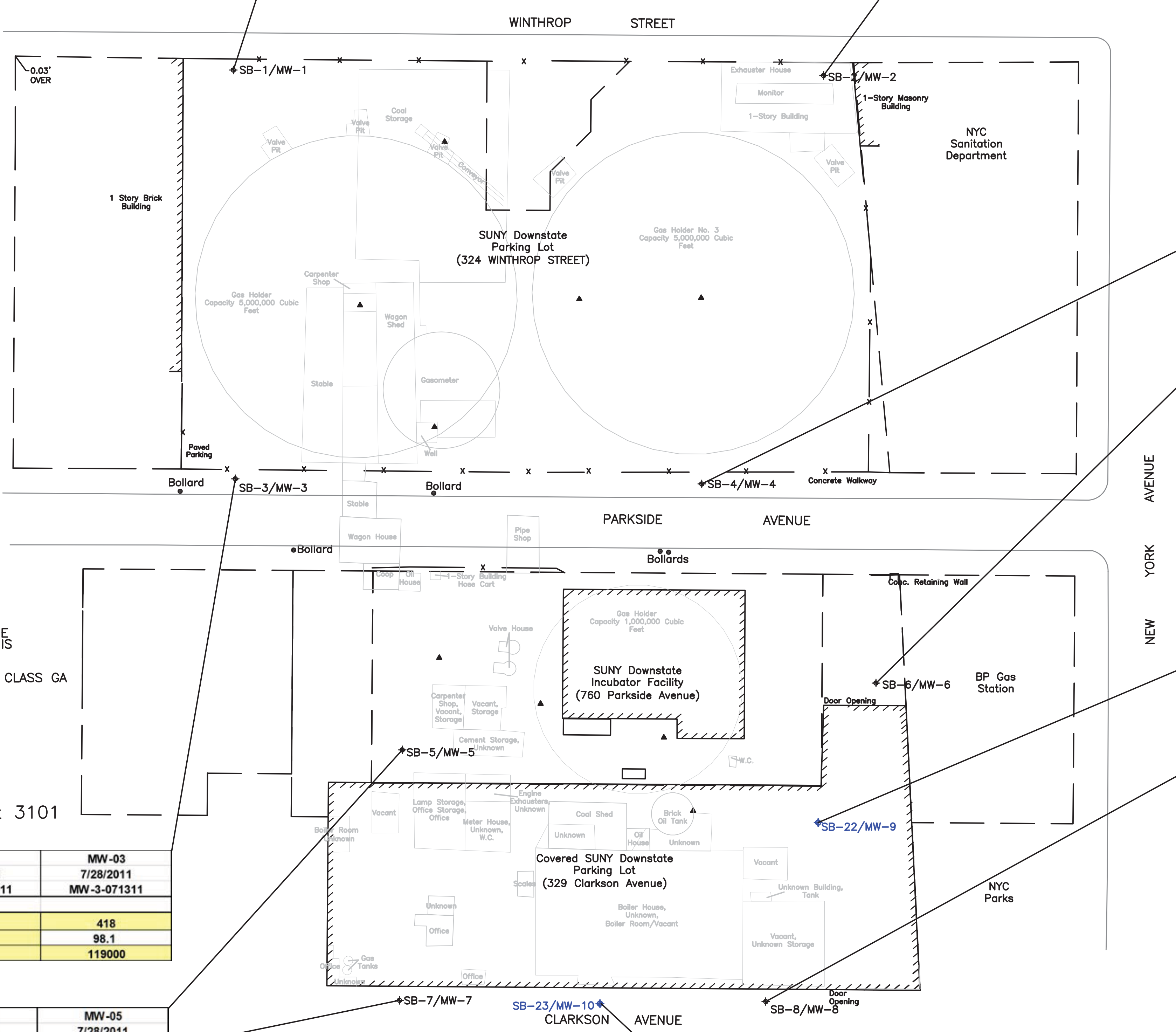
VERTICAL DATUM IS NORTH AMERICAN DATUM OF 1988 (NAVD 88)

Location ID Sample Date Sample ID	NYSDEC Groundwater Standard and Guidance Values
BTEX (ug/L)	
Ethylbenzene	5
Toluene	5
m&p-Xylene	5
o-Xylene	5
Total Xylenes	5
PAH (ug/L)	
Acenaphthene	20
Naphthalene	10
SVOC (ug/L)	
Diphenyl	5
Other VOCs (ug/L)	
Chloroform	7
Isopropylbenzene	5
Tetrachloroethene	5
Metals (mg/L)	
Iron	300
Magnesium	35,000
Manganese	300
Sodium	20,000

ND	NOT DETECTED
J	ESTIMATED VALUE
U	THE MATERIAL WAS ANALYZED FOR BUT NOT DETECTED AT OR ABOVE THE REPORTING LIMIT. THE ASSOCIATED NUMERICAL VALUES IS THE SAMPLE QUANTITATION LIMIT
BOLD	EXCEEDANCES FOR THE NYSDEC CLASS GA GROUNDWATER CRITERIA

Location ID Sample Date Sample ID	MW-01 3/9/2011 MW-1-030911	MW-01 7/28/2011 MW-1-072811
Metals (ug/L)		
Iron	4800	139 J
Magnesium	21800	36000
Manganese	2060	83.4
Sodium	70200	108000

Location ID Sample Date Sample ID	MW-02 3/9/2011 MW-2-030911	MW-02 7/29/2011 MW-2-072911
Metals (ug/L)		
Iron	413	1960
Manganese	618	47.8
Sodium	71800	57400



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GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

	CURB LINE
○	HISTORIC STRUCTURES
▨	EXISTING BUILDING
— — —	CURRENT FEATURES AND PROPERTY BOUNDARY
— x —	FENCE
✦ MW-3	SC MONITORING WELL
●	BOLLARD
✦ SB-22/MW-9	SC ADDENDUM MONITORING WELL
SC	SITE CHARACTERIZATION

N

Location ID Sample Date Sample ID	MW-04 3/10/2011 MW-4-031011	MW-04 7/29/2011 MW-4-072911
Metals (ug/L)		
Iron	549	<150 U
Manganese	3010	2360
Sodium	54000	63500

Location ID Sample Date Sample ID	MW-06 3/10/2011 MW-6-031011	MW-06 8/1/2011 MW-6-080111
BTEX (ug/L)		
Ethylbenzene	510	320
Toluene	5.6	2.8
Total Xylenes	1170	456
Other VOCs (ug/L)		
Isopropylbenzene	32	17
PAH (ug/L)		
Naphthalene	78	40
Metals (ug/L)		
Iron	1780	1810
Manganese	1120	812
Sodium	238000	246000

Location ID Sample Date Sample ID	MW-09 8/1/2011 MW-9-080111
Other VOCs (ug/L)	
Isopropylbenzene	9.9
Metals (ug/L)	
Iron	2270
Manganese	1010
Sodium	133000

Location ID Sample Date Sample ID	MW-08 3/9/2011 MW-8-030911	MW-08 7/29/2011 MW-8-072911
BTEX (ug/L)		
Ethylbenzene	11	0.50 J
m&p-Xylene	16	0.36 J
o-Xylene	31	7.7
Total Xylenes	47	8.06
Other VOCs (ug/L)		
Isopropylbenzene	44	10
PAH (ug/L)		
Acenaphthene	26	7.4 J
Naphthalene	150	<10 U
SVOC (ug/L)		
Diphenyl	45	6.5 J
Metals (ug/L)		
Iron	5460	5880
Manganese	1850	2030
Sodium	163000	150000

Location ID Sample Date Sample ID	MW-03 3/10/2011 MW-3-031011	MW-03 7/28/2011 MW-3-071311
Metals (ug/L)		
Iron	1880	418
Manganese	2390	98.1
Sodium	96900	119000

Location ID Sample Date Sample ID	MW-05 3/9/2011 MW-5-030911	MW-05 7/28/2011 MW-5-072811
Other VOCs (ug/L)		
Tetrachloroethene	6.5	4.3
Metals (ug/L)		
Sodium	172000	199000

Location ID Sample Date Sample ID	MW-07 3/9/2011 MW-7-030911	MW-07 7/29/2011 MW-7-072911
Other VOCs (ug/L)		
Tetrachloroethene	5.3	1.7
Metals (ug/L)		
Iron	105 J	1210
Manganese	432	49.9
Sodium	142000	141000

Location ID Sample Date Sample ID	MW-10 7/29/2011 MW-10-072911
Other VOCs (ug/L)	
Chloroform	8.2
Isopropylbenzene	6.9
Metals (ug/L)	
Iron	1800
Manganese	636
Sodium	120000

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

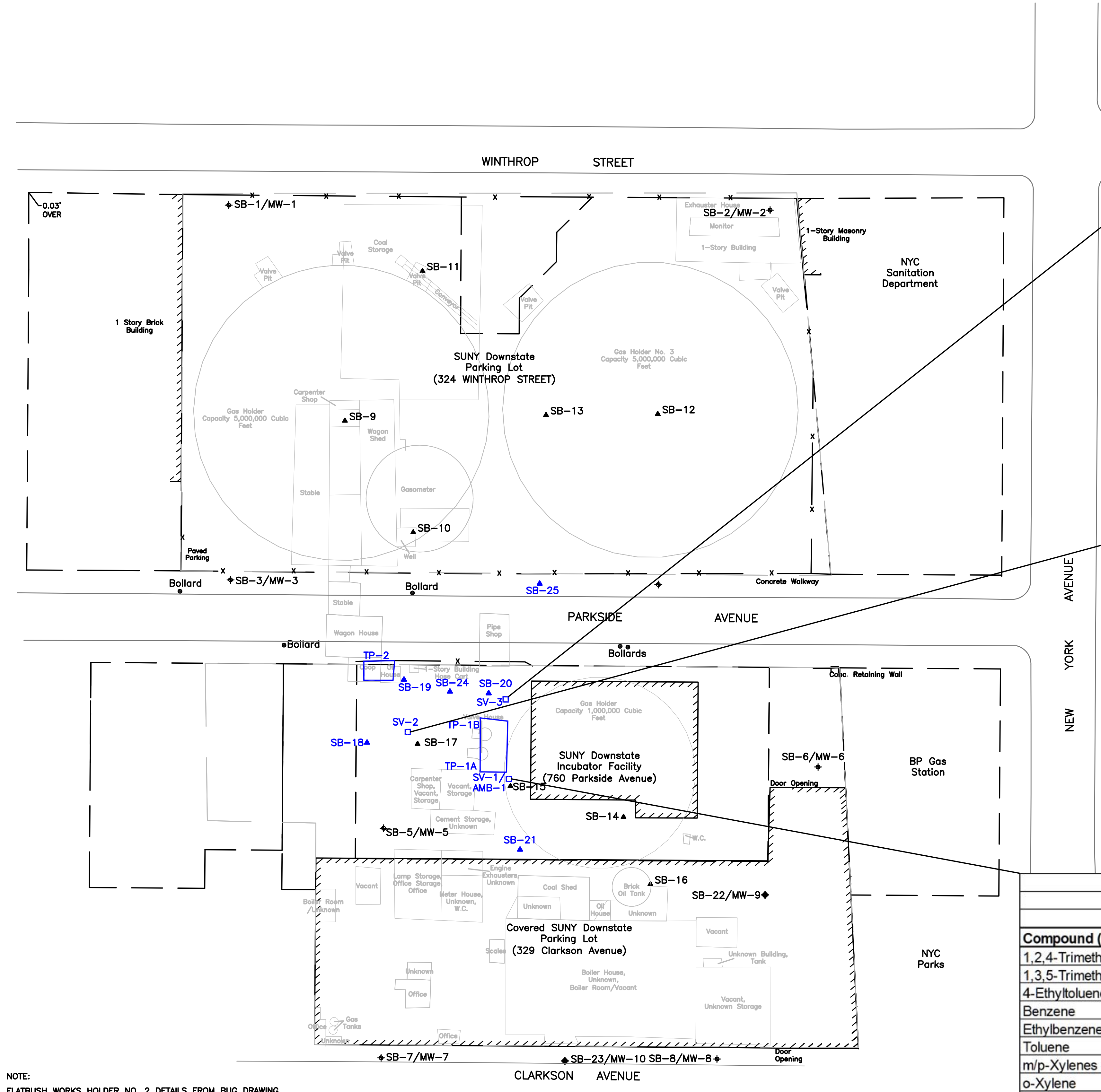
SUMMARY OF GROUNDWATER ANALYTICAL CONTAMINATION EXCEEDING AWQSGV

DATE: 01/10/2012 | DRWN: BcV/W-MA/XW | JOB #: 60218917-320

FIGURE 1-10

File: B:\work\60144412\Cad\SMP\Updated_20120110\Figure 1-11 Summary of Soil Vapor Analytical Results.dwg Layout: AECOM-TBLK User: WeiX1 Plotted: Jan 10, 2012 - 1:33pm Xref's:

AECOM



Type of Sample	Soil Vapor
Sample ID	SV-3
Sampling Date	6/22/2011
Compound (µg/m³)	
1,2,4-Trimethylbenzene	**27.4**
1,3,5-Trimethylbenzene	**7.82**
4-Ethyltoluene	**4.97**
Naphthalene	**6.03**
Styrene	**2.73**
2-Butanone (MEK)	**13.6**
Acetone	**182 J**
Chloroform	**1.66**

Type of Sample	Soil Vapor
Sample ID	SV-2
Sampling Date	6/22/2011
Compound (µg/m³)	
1,2,4-Trimethylbenzene	**11.5**
Benzene	**13.6**
Ethylbenzene	**5.86**
Toluene	**45.0**

Type of Sample	Soil Vapor
Sample ID	SV-1
Sampling Date	6/22/2011
Compound (µg/m³)	
1,2,4-Trimethylbenzene	**23.3**
1,3,5-Trimethylbenzene	**5.95**
4-Ethyltoluene	**8.36**
Benzene	**11.5**
Ethylbenzene	**21.0**
Toluene	**87.8**
m/p-Xylenes	**75.3**
o-Xylene	**21.0**
Chloroform	**2.00**
Trichloroethene (TCE)	**9.57**

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GRAPHIC SCALE IN FEET

NAD 83-CORS New York East 3101

CURB LINE	
HISTORIC STRUCTURES	
EXISTING BUILDING	
CURRENT FEATURES AND PROPERTY BOUNDARY	
FENCE	
APPROXIMATE HISTORICAL BOUNDARY	
✦ MW-3	SC MONITORING WELL
▲ SB-10	SC SOIL BORING
●	BOLLARD
✦ SB-22/MW-9	SC ADDENDUM MONITORING WELL
▲ SB-18	SC ADDENDUM SOIL BORING
☐ TP-1A	SC ADDENDUM TEST PIT
□ SV-1/AMB-1	SC ADDENDUM SOIL VAPOR AND AMBIENT AIR SAMPLE (APPROXIMATE LOCATIONS)
SC	SITE CHARACTERIZATION

Notes:

All units in micrograms per cubic meter (µg/m³)

1 - Non-residential background indoor air concentrations are equal to the 90th percentile values observed by the USEPA in a 2001 study which are the values recommended for comparison in the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (NYSDOH, October 2006), Table C2.

2 - Target Shallow (< 5ft bgs) Soil Gas Concentrations calculated by dividing the NHSDOH background indoor air concentrations by the USEPA's default attenuation factor of 0.1 recommended in the November 2002 USEPA Draft Guidance for Evaluating the Vapor Instrusion to Indoor Air.

Bold - Compound detected in a concentration greater than the method detection limit.

Exceeds NYSDOH Background Indoor Air Concentrations.

Exceeds Soil Vapor Screening Levels4

J - The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.

Type of Sample Sample ID Sample Date	Background Indoor Air Concentrations (Non-Residential)[1]	Target Shallow Soil Gas Concentrations[2]
Compound (ug/m³)		
1,2,4-Trimethylbenzene	9.5	95
1,3,5-Trimethylbenzene	3.7	37
4-Ethyltoluene	3.6	36
Benzene	9.4	94
Ethylbenzene	5.7	57
Naphthalene	5.1	51
Styrene	1.9	19
Toluene	43	430
m/p-Xylenes	22.2	222
o-Xylene	7.9	79
2-Butanone (MEK)	12	120
Acetone	98.9	989
Chloroform	1.1	11
Trichlorethene (TCE)	4.2	42

NOTE:

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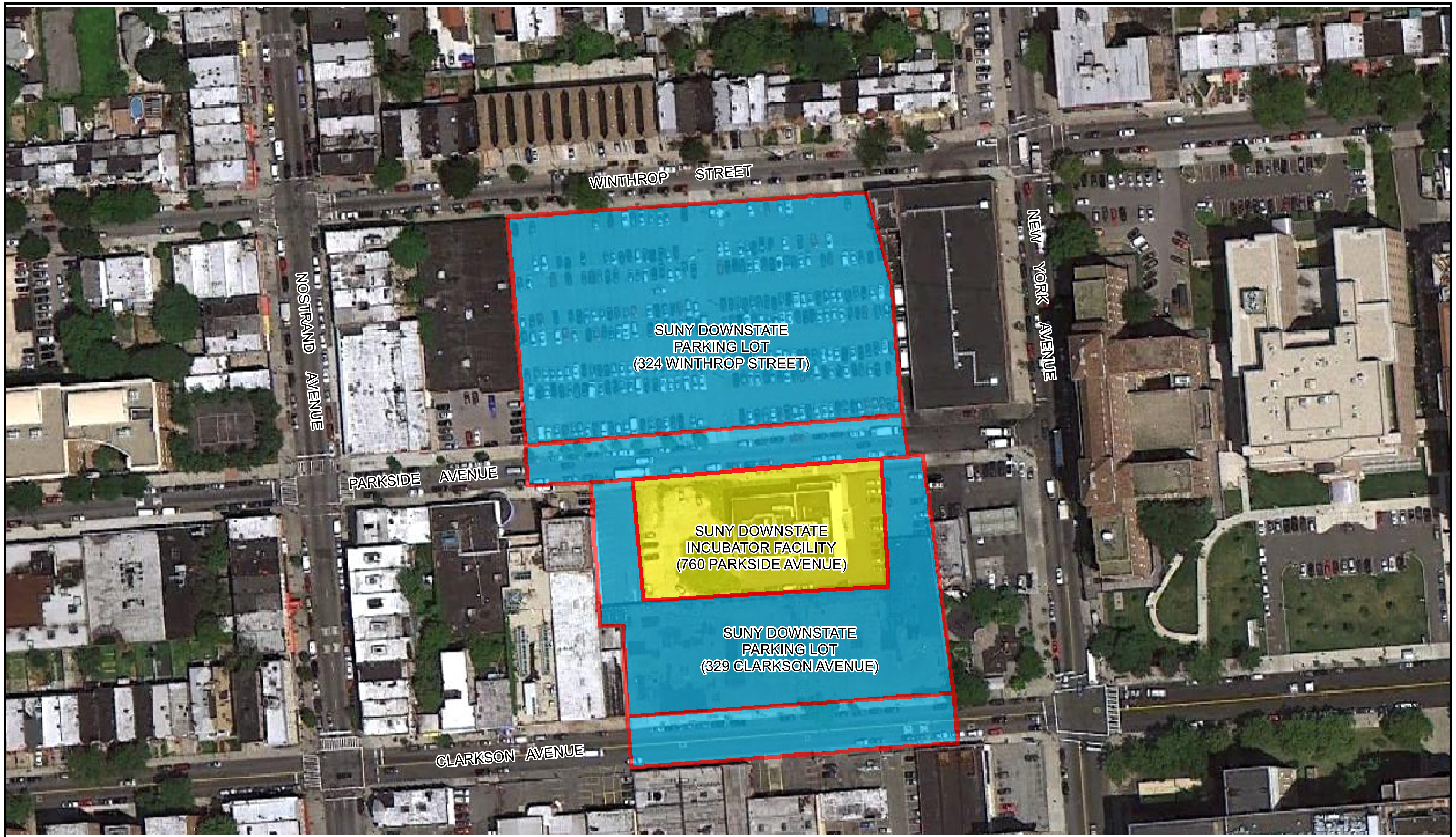
NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

SUMMARY OF SOIL VAPOR ANALYTICAL RESULTS

DATE: 01/10/2012 | DRWN: BcV/W-MA/XW | JOB #: 60218917-320

FIGURE 1-11



LEGEND

🟨 PERVIOUS AND IMPERVIOUS COVER SYSTEM

🟦 IMPERVIOUS COVER SYSTEM (CONCRETE, ASPHALT, AND BUILDING FOUNDATIONS)

AECOM

NATIONAL GRID
FLATBUSH STATION A & B
FORMER GAS HOLDER SITE

COMPOSITE COVER SYSTEM LOCATIONS

DATE: 01/10/2012 | DRWN: XW | JOB #: 60218917-320

FIGURE 2-1

Appendices

Appendix A

Metes and Bounds Description

TO BE INSERTED FOLLOWING METES AND BOUNDS SURVEY

Appendix B

Environmental Easement

TO BE INSERTED FOLLOWING EXECUTION OF ENVIRONMENTAL EASEMENT

Appendix C

Excavation Work Plan

Excavation Work Plan

(Appendix C of the Site Management Plan)

Flatbush Station A&B Former Gas Holder Site
Brooklyn, New York
NYSDEC Site No.: 2-24-061
Order on Consent Index #: A2-0552-0606

Contents

1.0 Notification

At least 15 business days prior to the start of any activity that is anticipated to encounter residual MGP contamination, the Property owner(s) or their representative(s) will notify National Grid and New York State Department of Environmental Conservation (NYSDEC). Currently, this notification will be made to:

National Grid Project Manager:
Name: Andrew Prophete
Address: 287 Maspeth Avenue, Brooklyn, NY 11221
Telephone: (718) 963-5412
Fax: (718) 963-5611
Email: Andrew.prophete@us.ngrid.com

NYSDEC Project Manager:
Name: Section Chief
Address: New York State Department of Environmental Conservation
Site Control Section, Bureau of Technical Support
625 Broadway Albany, New York 12233-7014
Telephone: (518) 402-9543
Fax: (518) 402-9595

This notification will include:

- A detailed description of the work to be performed, including the location and aerial extent, plans for re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control (EC);
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this Excavation Work Plan (EWP);
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix D of the Site Management Plan [(SMP); AECOM, 2010];
- Identification of disposal facilities for potential waste streams; and

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

2.0 Excavation Work Plan

2.1 Soil Screening Methods

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially residual MGP contaminated material. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Certificate of Completion (COC).

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

2.2 Stockpile Methods

Stockpiles containing known or suspected impacts will be continuously encircled with a berm. Contaminated water draining from the soils containing known or suspected impacts will be collected from inside the bermed area and disposed of off-site in an appropriate manner. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles containing known or suspected impacts will be kept covered at all times with appropriately anchored tarps. Stockpiles containing known or suspected impacts will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles containing known or suspected impacts will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. Stockpiled material not being used will be removed within 30 days following disposal facility characterization.

2.3 Materials Excavation and Load Out

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated residual MGP contaminated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this EWP.

The presence of utilities and easements on the project site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under the SMP is posed by utilities or easements on the project site.

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

.

Locations where vehicles enter or exit the project site shall be inspected daily for evidence of off-site soil tracking. If necessary, trucks will be cleaned (via approved dry or wet methods) of loose soil found on outside of vehicle or tires.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the project site are clean of dirt and other materials derived from the project site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

2.4 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.

At a minimum, trucks should have competent cover systems and functional tailgates to prevent leakage of liquids. Trucks transporting residual MGP contaminated soils shall be lined with 6-mil polyethylene sheeting large enough to fully cover the top of the load. The truck covers shall be an impermeable soil cover. Additional automatic mesh tarps will be used to secure the liners. Loose-fitting canvas-type truck covers or mesh covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used. All trucks transporting residual MGP contamination will be decontaminated prior to leaving the project site. Decontaminated water, if any, will be collected and disposed of off-site in an appropriate manner.

The following truck transport routes are recommended for transporting residual MGP contamination:

1. Trucks will be required to enter and exit the project site via Rogers Avenue and Norstrand Avenue in Brooklyn.
2. The entry truck route (Figure 1) shall be as follows:
   - Traveling East of Prospect Parkway (NW-27E) to Exit 5
   - Left onto Caton Avenue.
   - Continue on Linden Avenue
   - Left onto Rogers Avenue.
   - Right onto Parkside Avenue.
   - Right onto Site.
3. The exit trucking route (Figure 2) shall be:
   - Right out of Site onto Parkside Avenue
   - Right onto New York Avenue
   - Right onto Church Avenue
   - Right onto Prospect Avenue/NY-27W

It is the property owner/contractor’s responsibility to follow all applicable state, local, and municipal rules, regulations, and guidelines (including NYCDOT and NYSDOT) regarding truck routes.

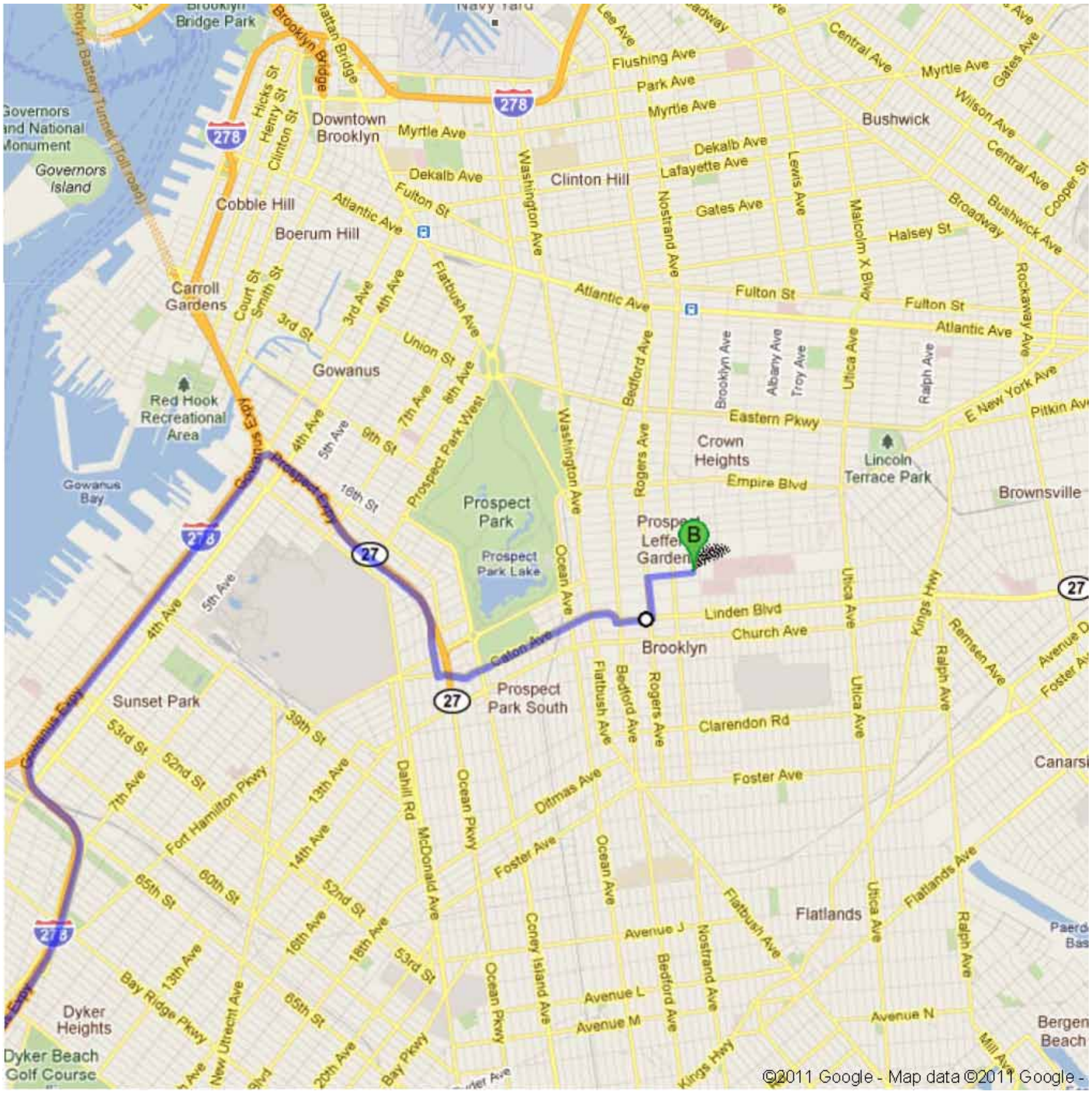


Figure 1 Truck Entry Route

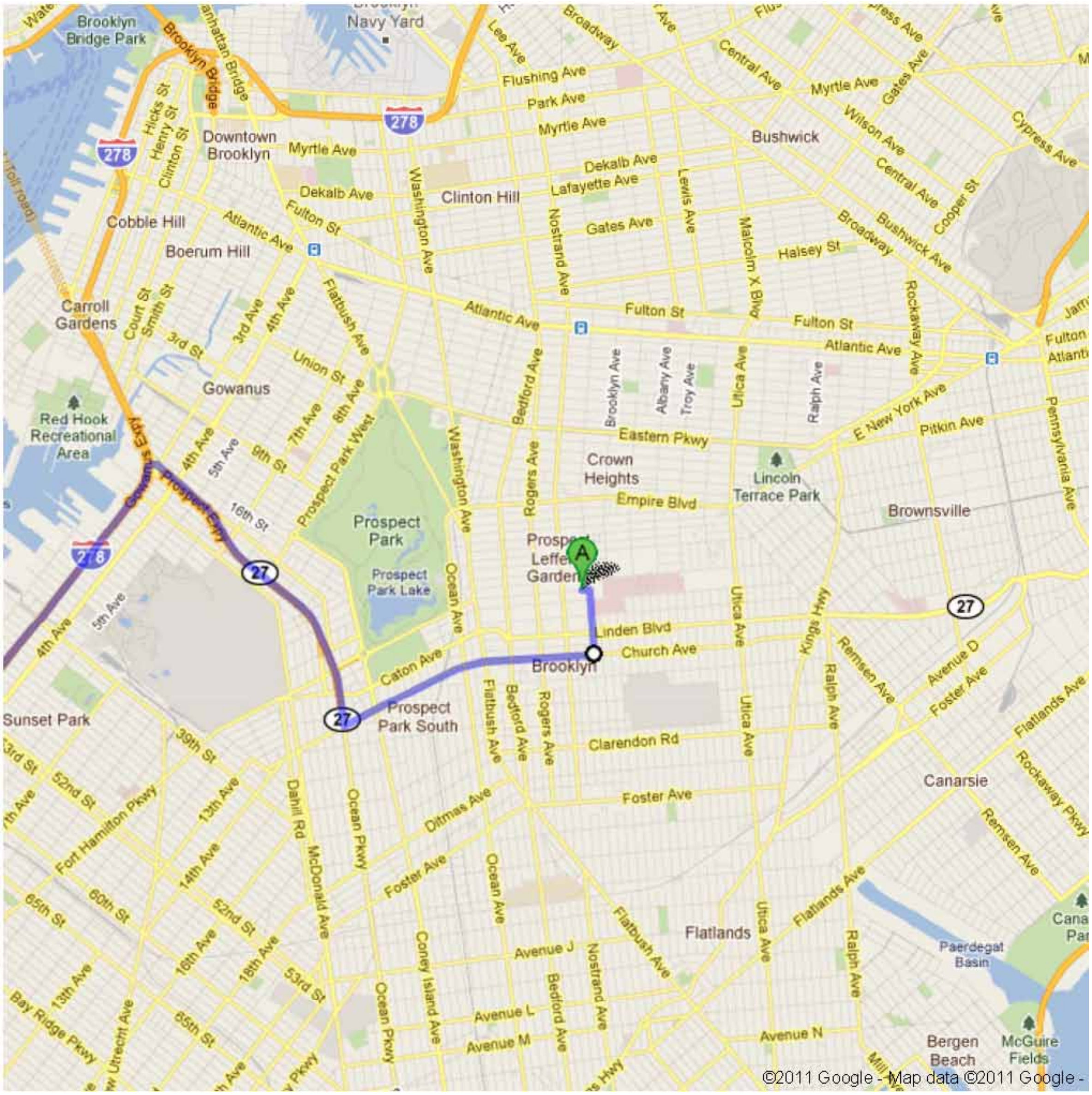


Figure 2 Truck Exit Route

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

Egress points for truck and equipment transport from the project site will be kept clean of dirt and other materials during any project site activity and development.

2.5 Materials Disposal Off-Site

All soil/fill/solid waste excavated and removed from areas known to have residual MGP contamination will be designated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this project site is proposed for unregulated off-site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the DEC. Unregulated off-site management of materials from this project site will not occur without formal DEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate (i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc). Actual disposal quantities and associated documentation will be reported to the DEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

2.6 Materials Reuse On-Site

This section provides details for methods to be followed for materials reuse on-site. ‘Reuse on-site’ means reuse on-site of material that originates at the project site and which does not leave the project site during the excavation. All residual MGP contaminated material exposed and removed as part of the work at the project site shall be disposed off-site at detailed in this EWP.

All other material removed from the project site will require NYSDEC approval prior to any reuse on-site. The qualified environmental professional will ensure that procedures defined for materials reuse by the NYSDEC and DER-10 are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and non-residual MGP contaminated soil, that is approved by NYSDEC for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a composite cover system (CCS), within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

2.7 Fluids Management

All liquids to be removed from the project site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the project site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream or river) will be performed under a SPDES permit.

2.8 Cover System Restoration

After the completion of soil removal and any other invasive activities, the CCS will be restored in a manner that complies with the Decision Document. The demarcation layer, consisting of orange snow fencing material or equivalent material will be placed in excavation areas with residual MGP contamination. The demarcation layer will provide a visual reference to the top of the 'Residual MGP Contamination Zone', the zone that requires adherence to special conditions for disturbance of residual MGP contaminated soils defined in this SMP. If applicable, Figures 1-8, 1-9, and 1-10 of the SMP will be updated to show the revised residual MGP contamination. The revised figures will be included in the subsequent Periodic Review Report and in any updates to the SMP. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the 'Residual MGP Contamination Zone". A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the SMP.

2.9 Backfill from Off-Site Sources

All materials proposed for import onto the project site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the project site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the project site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards are listed in Table 2-1 of the SMP. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this project site, will not be imported onto the project site without prior approval by NYSDEC. Solid waste will not be imported onto the project site. Additionally all imported soils must meet 6NYCRR Part 375 Restricted Use Commercial SCOs.

Trucks entering the project site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

2.10 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

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

2.11 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc., as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In that case, a reduced list of analytes will be proposed to the DEC for approval prior to sampling.

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. Reportable quantities of petroleum product will also be reported to the DEC spills hotline, and included in the periodic reports prepared pursuant to Section 5 of the SMP.

2.12 Community Air Monitoring Plan

Air sampling stations will be placed upgradient and downgradient of generally prevailing wind conditions. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the Community Air Monitoring Plan (Appendix D of the SMP) will be reported to DEC and DOH Project Managers.

2.13 Odor Control Plan

Fugitive emissions can be generated from a variety of activities including excavation, drilling, and dewatering and/or from the temporary staging of materials for characterization, consolidation, and scheduling for transportation.

Due to the COIs associated with the remedial activities at former MGP sites; fugitive emissions can take the form of volatile organic compounds (VOC's), odor, and/or dust. Dust can be entrained with low levels of high molecular weight constituents, while VOC's can volatilize into ambient air. Odor emissions may result from the atmospheric exposure of contaminated media. Contamination may be present in soils and groundwater. The potential for odor generation from groundwater is less than that from solids. The constituent concentrations associated with these odors are typically less than the levels that potentially pose a health risk as the odor threshold of COI's are typically less than health based action levels.

This odor control plan is capable of controlling emissions of nuisance odors off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, 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. DEC and DOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

A three-tiered set of controls are proposed for this Plan:

- Level I - Built into the design of the Plan and includes proactive measures to minimize the effect of fugitive emissions. Level 1 includes air monitoring to ensure that levels of VOC's and dust are under site-specific action levels.
- Level II – Procedures that are implemented in response to specific increases in fugitive emissions, but are not likely to have a significant impact in the schedule of project site activities.
- Level III – More aggressive procedures, also initiated in response to specific increases in fugitive emissions that are likely to have a more significant impact on production schedule and project site activities.

The Site Manager will be required to progressively implement these options until emission sources are controlled and ambient concentrations no longer have the potential to pose a health risk.

2.13.1 Level 1 Controls

Level 1 Controls are built into the design of the field activities and involve physical controls, project site layout, and scheduling.

2.13.1.1 Physical Controls

The simplest form of physical control is the use of visual barrier cloth on the project site perimeter fencing. The resistance caused by the visual barrier will elevate the discharge point of emissions leaving the site to the top of the perimeter fence and will promote better mixing and dispersion. Another form of simple physical control is the required use of tarps on trucks that move or transport impacted material.

All stockpiles of impacted material should be covered, if left inactive for a period of more than 2 hours.

All trucks used for off-site transport should have tarps in place to cover impacted material as detailed in Section 2.2. On-site haul routes should be routinely wetted to control dust using a hose, sprinkler, or dedicated water truck.

2.13.1.2 Site Layout

The dispersion of fugitive emissions is controlled by meteorological conditions and their impact generally decreases with distance from the source. If possible, transfer/storage areas will be placed either downwind or significantly upwind of off-site receptors.

The height of the stockpiles should be lower than the top of the perimeter fencing (8 feet) to utilize the benefit of the barrier cloth. If stockpiles must be staged near the fence line (within 100 feet), they should be less than 8-feet in height.

2.13.1.3 Scheduling

Every effort should be made to minimize the amount of time that potentially contaminated material is stored on-site. Appropriate strategies involve the in-place precharacterization of soils to be excavated and the sampling of stockpiles as soon as they are placed. Efficient scheduling/coordination of operations can also limit the impact of active emission sources. Close coordination of excavation activities can decrease the surface area of disturbed material, thereby reducing the size of the emission source. A smaller source area can facilitate the implementation of additional controls, if required.

2.13.2 Level II Controls

Air monitoring will routinely be performed at the fence line of the project site as delineated in the CAMP during all work activities. The results will be compared to site-specific action levels for VOC's and total particulates.

Level II controls will be enacted if the exceedance is confirmed or odors are detected at the fence line. If the action levels are exceeded, additional monitoring will be conducted to confirm the result. Level II controls will be enacted if the exceedance is confirmed. The Site Manager must then work through the applicable list of site controls until the fence line monitoring results for all parameters are determined to be less that their associated action levels. Specific Level II controls are discussed below.

2.13.2.1 Suppressing Agents

Several agents that can be applied over emissions sources have been determined to be effective in controlling emissions. These include odor suppressant foam for VOC mitigation and water spray for dust suppression.

The following suppressing agents have been identified for use but additional agents may be used or substituted for other proven agents such as odex, hydromulch, or ecosorb.

Odor suppressant foam

Odor suppressant foam can provide immediate, localized control of VOC and odor emissions. The foam is created by the injection of air into a foam concentrate/water mixture using a Pneumatic Foam Unit. The foam is applied via a hose to cover source areas to a depth of 3 to 6 inches. Foam (Rusmar AC-600 or equivalent) is a short term remedy and can be actively used to control VOC and odor emissions from active excavations/stockpiles, and during the loading of trucks. It is shipped as a concentrate and diluted with water at the site. Under normal conditions, this foam can last for several hours. However, it has been observed to degrade quickly in direct sunlight or precipitation so it must be applied liberally and frequently to all areas that require odor control.

Water spray

A spray of water can be used to minimize the amount of dust created. A water hose is effective for controlling dust over a small area, while lawn sprinklers or a dedicated water truck may be more efficient for extended control of large areas or on-site haul routes.

2.13.2.2 Tarps

Tarps can provide effective control for source areas that are likely to be inactive for extended periods of time. To be effective, the size of the source area should be controlled such that it can be covered using a single tarp. Rolls of 6-mil polyethylene will be used to cover inactive stockpiles. Tarps will also be used for covering exposed soils loaded into trucks. All trucks will be lined with 6 mil polyethylene sheeting, the liners will be large enough to overlap and fully cover the top of the load. Additional automatic mesh tarps will be used to secure the liners.

2.13.3 Level III Controls

Level III controls are to be implemented when Level II controls have been exhausted and ambient concentrations of emissions continue to exceed the site-specific action levels. Each of the control options listed in this subsection has the potential to significantly affect the schedule/production rate of site activities. These delays may be required periodically to ensure that acceptable levels of fugitive emissions are maintained, and are preferable to a complete work cessation to control an emission event.

2.13.3.1 Production/Schedule

It may be necessary to reduce the excavation rate to reduce the surface area of disturbed media or slow the generation rate of stockpiles. These activities would result in smaller source areas that could be more effectively controlled using Level II techniques.

2.13.3.2 Meteorological Conditions

It may be necessary to limit certain activities to those periods when preferred meteorological conditions exist, such as wind direction or low temperatures are present. Most of the work for the project will be performed in the winter months, therefore reducing the potential for volatilization.

2.13.3.3 Relocation of Activities

Another option is cease work and move the remedial activities to lesser-impacted areas until adequate control measures can be implemented or more favorable meteorological conditions return. Also, it may be beneficial to temporarily relocate material loading and transfer activity areas to other areas of the project site or within subsurface excavations to utilize the natural dispersion of emissions in the atmosphere, or shelter from the wind.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

2.14 Dust Control Plan

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

- Dust suppression will be achieved through the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles;

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production;
- Gravel will be used on roadways to provide a clean and dust-free road surface; and
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

2.15 Other Nuisances

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

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

Appendix D

Health and Safety Plan and Community Air Monitoring Plan

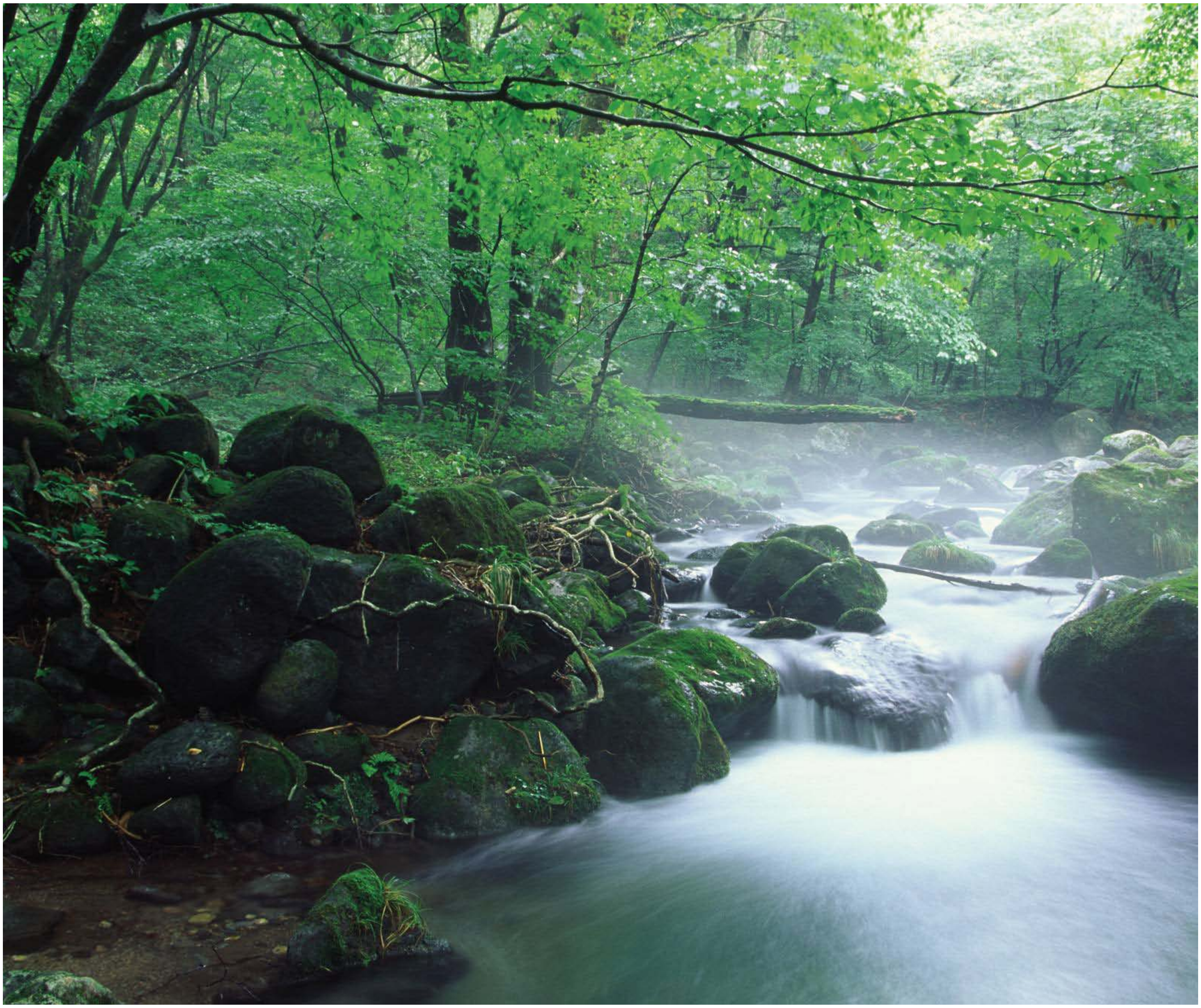
AECOM

Health and Safety Plan

Appendix D of the Site Management Plan

Flatbush Station A&B Former Gas Holder Site

Brooklyn, Kings County, New York



AECOM

Health and Safety Plan

Appendix D of the Site Management Plan

Flatbush Station A&B Former Gas Holder Site

Brooklyn, Kings County, New York

January 2012

Contents

1.0 Introduction

This Health and Safety Plan (HASP) is required as an element of the remedial program at the Flatbush Station A&B Former Gas Holder site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the NYS Department of Environmental Conservation (NYSDEC). The HASP is appended to the Site Management Plan [(SMP), AECOM, 2011] as Appendix D which was developed in accordance with Order on Consent Index A2-0552-0606, Site Number 224061 [NYSDEC, 2007], which was executed in 2007.

It is important to note that:

- This HASP as a part of the SMP details Site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);

- Failure to comply with this SMP is also a violation of the ECL, 6 NYCRR Part 375 and the Order on Consent (Index Number A2-0552-0606, Site Number 224061) for the Site, and thereby cause for applicable penalties.

1.1 HASP Purpose

The purpose of this HASP is to identify hazards associated with the Flatbush Station A&B Former Gas Holder site located in Brooklyn, New York and specifies engineering and administrative controls and personal protective equipment necessary to mitigate the risks associated with these hazards. This HASP addresses the hazards recognized prior to writing or updating the documents. As new hazards are encountered, a Job Hazard Assessment (JHA) or Job Safety Analysis (JSA) must be conducted and the results input into the HASP.

This HASP also assigns responsibilities for the implementation of safety programs on this project and defines monitoring and emergency response planning specific to the project.

1.2 HASP Applicability

This HASP has been developed by AECOM. It establishes the health and safety procedures required to minimize potential risk to field personnel and contractor personnel involved with:

- Ground intrusive activities including utility work, boring completion, monitoring well installation, and excavation; and

- Activities related to implementation of the SMP including soil vapor intrusion and groundwater monitoring.

For purposes of further discussion in this SMP, the term "Site" will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue as described in Section 1.2.1 of the SMP.

This HASP addresses the hazards associated with the Site and has been written to comply with the requirements of the Occupational Safety and Health Administration (OSHA) Personal Protective Equipment Standard (29 CFR 1910.132) for all activities and the OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120) for tasks where there are potential exposures to subsurface contaminants. All activities covered by this HASP must be conducted in complete compliance with this HASP and with all applicable federal, state, and local health and safety regulations. Personnel covered by this HASP who cannot or will not comply will be excluded from project site activities.

This plan should be distributed to the employees of any contractors who are involved with any activities covered under the Flatbush Site Management Plan [(SMP); AECOM, 2011]. Each employee must sign a copy of the attached Acknowledgement and Acceptance form (see Attachment A).

This HASP only pertains to the tasks that are listed in Section 3.0 of the SMP. A task specific HASP or addendum to this HASP will be developed at a later date for any other subsequent investigative/remedial activities at the project site.

1.3 Organization/Responsibility

1.3.1 Project Manager

The project manager is responsible for ensuring that the requirements of this HASP are implemented when applicable. Some of the specific responsibilities for each of the personnel include:

- The PM will assure that all personnel to whom this HASP applies have received a copy of it;
- Providing adequate authority and resources to the on-site SSO to allow for the successful implementation of all necessary safety procedures;
- Supporting the decisions made by the SSO;
- Coordinating the activities of all subcontractors and ensuring that they are aware of the pertinent health and safety requirements for this project.

1.3.2 Site Safety Officer

The SSO will be on-site during all activities covered by this HASP. The SSO is responsible for enforcing the requirements of this HASP once work begins. The SSO has the authority to immediately correct all situations where noncompliance with this HASP, by other staff or contractors, is noted and to immediately stop work in cases where an immediate danger is perceived. Some of the SSO's specific responsibilities include:

- Coordinate work activities, review safety issues, and plan for upcoming activities;
- Assuring that all personnel to whom this HASP applies have submitted a completed copy of the HASP receipt and acceptance form;
- Assuring that all personnel to whom this HASP applies have read the HASP in its entirety prior to any site work and have attended a pre-entry briefing and any subsequent safety meetings that are conducted by and/or the selected Contractor during the implementation of the program;
- Procuring and distributing the PPE and safety equipment needed for this project;
- Verifying that all PPE and health and safety equipment are in good working order;

- Verifying that subcontractors are prepared with the PPE, respiratory protection and safety equipment required for this program;
- Stopping or modifying the contractor's work, if necessary, to ensure compliance with the Community Air Monitoring Plan;
- Monitoring and controlling the safety performance of all personnel to ensure that required safety and health procedures are being followed;
- Conducting accident/incident investigations and preparing accident/incident investigation reports, in conjunction with the contractor's SSO;
- Conducting the pre-entry briefing prior to beginning work and subsequent safety meetings as necessary and in coordination with the contractor's SSO; and,
- Initiating emergency response procedures in accordance with Section 11.0 of this HASP, and in coordination with the contractor's SSO.

1.3.3 Field Personal

All field personnel covered by this HASP are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading the HASP in its entirety prior to the start of project site work;
- Submitting a completed HASP Acceptance Form to the SSO prior to the start of work;
- Attending the required pre-entry briefing prior to beginning on-site work and any subsequent safety meetings that are conducted during the implementation of the program;
- Participating in any site-wide safety meetings;
- Bringing forth any questions or concerns regarding the content of the HASP to the PM or the SSO prior to the start of work;
- Reporting all accidents, injuries and illnesses, regardless of their severity, to the SSO; and,
- Complying with the requirements of this HASP and the requests of the SSO.

1.4 Management of Change/Modification of the HASP

1.4.1 Management of Change

The procedures in this HASP have been developed based on Site history, previous Site investigations, and completed remedial activities. Every effort has been made to address the chemical and physical hazards that may be encountered by personnel during Site activities. However, unanticipated Site-specific conditions or situations may occur during the implementation. As such, this HASP must be considered a working document that is subject to change to meet the needs of this dynamic project.

1.4.2 HASP Modification

Should significant information become available regarding potential on-site hazards, it will be necessary to modify this HASP. All proposed modifications to this HASP must be reviewed and approved by the NYSDEC and the NYS Department of Health (NYSDOH) before such modifications are implemented. Any significant modifications must be incorporated into the written document as addenda and the HASP must be reissued. Sign-off forms will accompany each addendum and must be signed by all personnel covered by the addendum. The HASP addenda should be distributed during the daily safety meeting so that they can be reviewed and discussed. Attendance forms will be collected during the meeting.

1.4.3 Job Safety Analysis (JSA)

A JSA will be prepared for each task to be performed prior to commencing work. The use of new techniques will be reviewed and if new hazards are associated with the proposed changes, they will be documented and evaluated on the JSA form. An effective control measure must also be identified for each new hazard. JSA forms will be reviewed by National Grid prior to being implemented. Once approved, the completed forms will be reviewed with all field staff during the daily safety meeting. A blank JSA form is presented as Attachment B.

1.4.4 Employees Working Alone

Employees working alone at project sites will review the JSA for their tasks as they are conducting their daily overview and reconnaissance of the site. After completing the JSA review/revision and site reconnaissance, the employee should call the Project Manager and report any new hazards or site conditions observed.

2.0 Site Description

2.1 Site Location

The Site is located in Brooklyn, Kings County, New York and is identified as Block 4827, Lots 24 and 30, portion of Block 4828 Lot 21, Block 4828 Lot 22, and portion of Parkside Avenue and Clarkson Avenue on the New York City (NYC) Tax Map. The Site is an approximately 5-acre area bounded by Winthrop Street to the north, Clarkson Avenue to the south, and commercial properties to the east and to the west. Parkside Avenue dissects the Site into two parcels – a northern parcel consisting of Block 4827 Lots 24 and 30 and a southern parcel consisting of Block 4828 Lots 21 and 22 and portion of Clarkson Avenue. The portion of the Site north of Parkside Avenue consists of a paved parking lot The portion south of Parkside Avenue includes 760 Parkside Avenue property which consists of a paved parking lot, an unpaved parking lot, and a two story building known as SUNY Downstate Incubator Medical Facility; 329 Clarkson Avenue which includes an open paved parking lot and driveways and an enclosed paved parking lot; and portion of Clarkson Avenue.

2.2 Site History

2.2.1 Operational/Disposal History

The first indication of gas manufacturing activity at the Site is believed to be around1873 when the Flatbush Gas Works operated at the Site location. Two gas holders, GH#1 (150,000 cubic yard capacity) and GH#2 (1 million cubic yard capacity), are believed to have been constructed at the Site between 1890 and 1905. By 1929 the ownership of the facility has been transferred to BUG. Between 1947 and 1954, the 1 million cu ft holder and associated structures located south of Parkside Avenue were removed. The twin gas holders and associated structures remain unchanged on the northern parcel until they are decommissioned between 1979 and 1980, however available data was insufficient to identify when gas storage and distribution activities were discontinued.

2.2.2 Remedial History

A Site Characterization (SC) was performed to characterize the nature and extent of contamination at the Site. The results of the SC are described in detail in the Site Characterization Report dated December 2011 (AECOM, 2011).

2.3 Potential Contaminants of Concern

Potential contaminants of concern in soil and groundwater include:

- Volatile Organic Compounds (VOCs), primarily Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)
- Semi Volatile Organic Compounds (SVOCs), primarily naphthalene and low molecular weight PAHs
- Cyanide, bound to iron to form ferric-ferrocyanide, is a component of some Manufactured Gas Plant (MGP) tars.

3.0 Chemical Hazard Assessment and Control

3.1 Chemical Hazards

Typical wastes associated with former MGP operations could include VOCs such as BTEX, polycyclic aromatic hydrocarbons (PAHs), tar-like materials, cyanide complexes and compounds, and certain trace metals associated with ash and clinkers.

3.1.1 Volatile Organic Compounds

The VOCs associated with MGP wastes include BTEX. Exposure to the vapors of BTEX above their respective OSHA permissible exposure limits (PELs) may produce irritation of the mucous membranes of the upper respiratory tract, nose, and mouth. Overexposure may also result in the depression of the central nervous system (CNS). Symptoms of such exposure include drowsiness, headache, fatigue and drunken-like behaviors. Prolonged overexposure to benzene vapors has detrimental effects on the blood-forming system ranging from anemia to leukemia. The PEL for benzene is 1 part per million (ppm), as an 8 hour time-weighted average (TWA). The American Conference of Governmental Industrial Hygienists (ACGIH) recommends a threshold limit value (TLV) of 0.5 ppm, as an 8-hr TWA. The OSHA PEL for ethylbenzene is 100 ppm, as an 8-hr TWA. The PEL for toluene is 200 ppm, as an 8-hr TWA. However, the ACGIH recommends a TLV of 50 ppm for toluene. Xylene is a flammable, colorless liquid with an OSHA PEL of 100 ppm, as an 8-hour TWA. Inhalation of xylene vapors above the PEL may result in motor activity changes, irritability, and drunken-like behaviors. Xylene vapors are also irritating to the eye.

3.1.2 Polycyclic Aromatic Hydrocarbons

Typical coal gasification byproducts (coal tar) are referred to as PAH compounds. PAH compounds are a family of multiple ring aromatic compounds commonly found in fossil fuels and formed from the incomplete combustion of organic materials. Repeated contact with PAH compounds may cause photosensitization of the skin, producing skin burns after subsequent exposure to ultra-violet light. Certain PAHs as a group are considered potential human carcinogens (CaPAH). OSHA regulates PAHs as coal tar pitch volatiles (CTPV) and has established a PEL for CTPV of 0.2 mg/m3, as an 8-hr TWA.

Of the PAH compounds typically present at MGP sites, naphthalene is typically present at higher concentrations than the other compounds. Naphthalene is easily detected due to its characteristic moth-ball like odor. The inhalation of high concentrations of naphthalene vapor may result in nausea, vomiting, abdominal pain, and irritation of the bladder. Prolonged overexposure may result in renal shut down. The OSHA PEL for naphthalene, as an 8-hr TWA, is 10 ppm.

3.1.3 Oxide Box Wastes

Blue staining is the characteristic associated with the presence of oxide box wastes (ferrocyanide). Therefore, the presence of this material is very easily identified during field investigations. The cyanides associated with oxide box wastes are present in a form that is generally unavailable or complexed with metals such as iron, which makes the cyanide more stable. Thus, the reported effects of free cyanide are not applicable. OSHA has not established a PEL for ferro/ferri cyanide compounds. Similarly, the ACGIH has not recommended a TLV for these compounds.

3.1.4 Metals

Lead is a common component of urban fill and soils present at industrial sites, such as former MGP and electrical generating sites. In general, the inhalation of metal dusts is irritating to the upper respiratory tract and nasal mucous membranes. Most metal dusts may cause dermatitis and/or eye irritation. The early symptoms of lead poisoning, as a result of overexposure (either through ingestion or inhalation) include fatigue, sleep disturbance, headache, aching bones and muscles, digestive irregularities, abdominal pains, and decreased appetite. Chronic overexposures to lead affect the CNS and male and female reproductive systems. Lead has also been identified as a fetotoxin. The OSHA PEL for inorganic lead is 50 micrograms per cubic meter (ug/m^3).

3.1.5 Dust

Dust generated during coring or cutting of concrete, boring, or excavations can be hazardous to the respiratory system and irritating to the eyes. Dust can also carry the contaminants of concern potentially exposing workers by skin contact and inhalation. The ACGIH has established an eight-hour exposure limit for dust at 3 mg/M3. The concentrations of the chemicals of concern in the soil are low enough that inhalation of dust would not by itself be an exposure hazard. However contamination of skin and clothing can provide additional exposures. Therefore the generation and contact with dust should be minimized.

Water or other methods should be used to control dust during dusty operations; however care must be used to prevent electrical shock if electric tools are used in the same area. If dusts become irritating and engineering controls such as the application of water cannot be used, respirators should be donned as discussed in Section 7.

3.1.6 Hazardous Substances Brought On-Site

A material safety data sheet (MSDS) must be available for each hazardous substance that are brought on the property. This includes solutions/chemicals that will be used to decontaminate sampling equipment or to calibrate air monitoring equipment. These MSDSs will remain on site for the duration of the program. Additionally, the Contractor will maintain a binder of MSDSs for the materials they are using on site in their trailer for all employees to review, if necessary.

In addition, all containers of hazardous materials that brought on site must be labeled in accordance with OSHA's Hazard Communication Standard. Either the original manufacturer’s label or an NFPA 704M label specific for the material (as shown at the right) is considered to be an acceptable label.

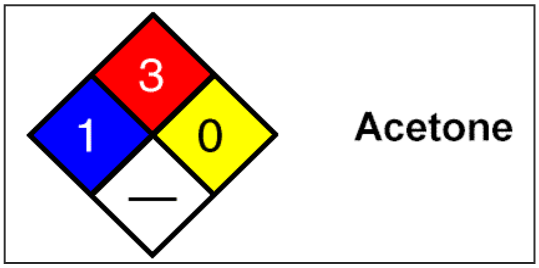


Table 3-1 Summary of Hazardous Properties of Potential Contaminants

Chemical Name	PEL[1]	TLV[2]	VP[3]	VD[4]	SG[5]	SOL[6]	FP[7]	LEL[8]	UEL[9]
Benzene	1	0.5	75	2.8	0.88	<1	12	1.2	7.8
Ethyl Benzene	100	100	7	4	0.88	<1	55	0.8	6.7
Hydrogen Cyanide	10	4.7 STEL	630	.94	0.69	100	0	5.6	40

Chemical Name	PEL[1]	TLV[2]	VP[3]	VD[4]	SG[5]	SOL[6]	FP[7]	LEL[8]	UEL[9]
Naphthalene	10	10	0.08	4.4	1.15	<1	174	0.9	5.9
Toluene	200	50	21	4	0.87	<1	40	1.1	7.1
Xylene	100	100	9	4	0.86	<1	81	1.1	7.0

[1] Permissible Exposure Limit in ppm

[2] Threshold Limit Value in ppm

[3] Vapor Pressure in mm Hg

[4] Vapor Density (air = 1)

[5] Specific Gravity (water = 1)

[6] Solubility in Water in %

[7] Flash Point in □F

[8] Lower Explosive Limit in % by volume

[9] Upper Explosive Limit in % by volume

NA = Not Applicable

? = Not known

C = Ceiling limit not to be exceeded

3.2 Chemical Exposure and Control

3.2.1 Chemical Exposure Potential

Employees can be exposed by inhalation to the chemicals of concern during the installation of the soil borings and sampling activities or utility maintenance or excavation. Another route of potential exposure to the contaminants of concern is via direct dermal contact with soils and groundwater during sampling.

Although highly unlikely, exposure to all of the contaminants of concern can occur via ingestion (hand-to-mouth transfer). The decontamination procedures described in Section 9.0 address personal hygiene issues that will limit the potential for contaminant ingestion.

3.2.2 Chemical Exposure Control

The chemical hazards associated with the ground intrusive activities and SMP monitoring activities can be controlled in several ways, including:

Perform air monitoring (Section 6) in the worker's breathing zone to determine exposure to the chemicals of concern during the installation of soil borings and the sampling program. If exposures exceed the action levels, respiratory protection as discussed in Section 7, will be donned.

To avoid direct dermal contact with contaminated media, protective clothing, as described in Section 7 will be required when collecting samples and decontaminating sampling equipment.

3.3 Hazardous Waste Management

Waste generated as a result of investigation activities will be containerized local to the point of generation, sampled for characterization purposes and secured prior to off-site transportation and disposal. Upon receipt of analytical results, the project team will work with National Grid to properly characterize, profile and dispose of the waste(s).

4.0 Physical Hazards and Controls

4.1 Working Around Heavy Machinery

4.1.1 Drill Rig

Use of a drill rig to advance soil borings and install monitoring wells will require all personnel in the vicinity of the operating rig to wear steel-toed boots, hard hats, hearing protection and safety eyewear. Drill rigs are considered to be heavy equipment, and therefore precautions must be incorporated into job activities when working in close proximity to drill rigs. In addition the wearing the PPE that has been determined to be necessary for the project, employees will need to ensure that Drill Rig Operators conduct inspections of the drill rig on a daily basis. A drill rig inspection is included in Attachment B as a reference. Focal points of the inspection should include checking hydraulic lines, tools and drilling equipment, emergency stop switches, and other parts of the equipment to insure that they are maintained in a safe operating condition.

Employees will also consider the staging their work area so that they are not within the shadow of the drill rig's mast. Working within this area creates a potential to be contacted by the drill rig if it were to tip over on its side. Likewise, when establishing a drilling location, the rig shall be positioned so that it won't clip overhead power lines should it tip over.

Additionally, the following safety requirements must be adhered to:

- All drill rigs and other machinery with exposed moving parts must be equipped with an operational emergency stop device. Drillers and geologists must be aware of the location of this device. This device must be tested prior to job initiation and periodically thereafter.
- The driller must never leave the controls while the tools are rotating unless all personnel are kept clear of rotating equipment.
- A long-handled shovel or equivalent must be used to clear drill cuttings away from the hole and from rotating tools. Hands and/or feet are not to be used for this purpose.
- A remote sampling device must be used to sample drill cuttings if the tools are rotating or if the tools are readily capable of rotating. Samplers must not reach into or near the rotating equipment. If personnel must work near any tools, which could rotate, the driller must shut down the rig prior to initiating such work.
- Driller's Drillers, helpers and geologists must secure all loose clothing, long hair, or jewelry when in the vicinity of drilling operations.
- Only equipment, that has been approved by the manufacturer, may be used in conjunction with drilling equipment Pins that protrude excessively from augers shall not be allowed
- No person shall climb the drill mast while tools are rotating.
- No person shall climb beyond 6 feet above ground on the drill mast without the use of ANSI-approved fall protection (approved belts, lanyards and a fall protection slide rail) or portable ladder that meets the requirements of OSHA standards.
- When using the rig's hoist to lift or move objects other than the equipment associated with the direct push operation, an assessment of the force required to perform the lift and the rig's design

specifications must be made to determine whether the lift can be made safely. In all cases personnel must not be in line with the cable when it is under tension.

- If drilling operations are to be performed within an enclosed space proper procedures must be followed to prevent the accumulation of carbon monoxide within the work area.
- Open doors and windows and provide ventilation to the outside.
- Employ the use of a mechanical ventilation system, i.e. blower or fan, appropriately sized for the room to circulate fresh air.
- Connect equipment exhaust points to hoses that can be direct ventilated to an outside area.

4.1.1.1 Rotary Auger & Rotating Parts

Exposure to rotating parts can occur when working near the drilling rig or the internal combustion engine. All rotating parts should be covered with guards to prevent access by workers. When performing maintenance activities that require the rotating parts to be exposed, workers should not allow loose clothing, hands, or tools to approach the rotating parts. Guards must be replaced as soon as possible after completing the maintenance task.

Operation of drilling equipment also creates hazards associated with pinch points and rotating equipment. Employees will evaluate work procedures to avoid placing their body and extremities in the path of rotating equipment and tools to avoid being struck by moving equipment, tools and machinery. Similarly, these hazards also create pinch point hazards where the body and extremities, especially the hands, can be caught in moving equipment and crushed. Employees will evaluate equipment and tool use procedures to identify pinch points and develop procedures to avoid placing body parts in a position where they can be caught in moving equipment, tools and machinery.

4.1.1.2 Direct Push Hazards

Use of the Direct Push System to advance soil borings and collect soil samples will require all personnel in the vicinity of the operating unit to wear steel-toed boots, hardhats, hearing protection and safety eyewear. Personnel shall not remain in the vicinity of operating equipment unless it is required for their work responsibilities. Additionally, the following safety requirements must be adhered to:

- A remote vehicle ignition is located on the control panel of the Geoprobe unit. This allows the operator to start and stop the vehicle engine from the rear. This device must be tested prior to job initiation and periodically thereafter. All employees should be aware of how to access and operate the rear ignition.
- The driller must never leave the controls while the probe is being driven.
- Drillers, helpers and geologists must secure all loose clothing when in the vicinity of drilling operations.
- The Geoprobe vehicle shall not be moved any distance with the probe in the extended position. Check for clearance at roof or the vehicle before folding the Geoprobe out of the carrier vehicle.
- Be sure the parking brake is set, or vehicle wheels have been chocked, before probing.
- Never allow the derrick foot to be lifted more than 6" off of the ground surface.
- Deactivate hydraulics when adding or removing probe rods, anvils or any tool in the hammer.
- Verify that all threaded parts are completely threaded together before probing.

Cuts and Lacerations

Geoprobe soil samples are collected in acetate liners that must be cut open in order to collect the sample. Additionally, tubing will need to be cut to facilitate groundwater sampling. Additional tasks for the job may also pose laceration hazards. Tube-cutters are available and should be used to eliminate this hazard. However, if it is necessary to use knives or blades, follow the safety precautions listed below:

- Keep your free hand out of the way
- Secure the acetate liner so it won't roll or move while you are cutting
- Use only sharp blades; dull blades require more force which results in less knife control
- Pull the knife at an angle to your body; pulling motions are easier to manage
- Don't put your knife in your pocket
- Use a hooked knife (i.e. linoleum knife) or a utility knife with a self-retracting blade
- Wear leather or Kevlar® gloves when using knives or blades.

4.1.1.3 **Sonic Drilling**

Use of a Sonic Drill Rig to advance soil borings, collect soil samples and/or install monitoring wells will require all personnel in the vicinity of the operating unit to wear steel-toed boots, hardhats, hearing protection and safety eyewear. Personnel shall not remain in the vicinity of operating equipment unless it is required for their work responsibilities. Additionally, the following safety requirements must be adhered to:

- A remote vehicle ignition may be located on the control panel of the Drill Rig. This allows the operator to start and stop the vehicle engine from the rear. This device must be tested prior to job initiation and periodically thereafter. All employees should be aware of how to access and operate the rear ignition.
- The driller must never leave the controls while the probe is being driven.
- Drillers, helpers and geologists must secure all loose clothing when in the vicinity of drilling operations.
- The Drill Rig shall not be moved any distance with the mast in the extended position. Check for clearance at roof or the vehicle before folding the Rig out of the carrier vehicle.
- Be sure the parking brake is set, vehicle wheels have been chocked and/or outrigger stabilizers have been positioned before drilling.
- Never allow the derrick foot to be lifted more than 6" off of the ground surface.
- Deactivate hydraulics when adding or removing rods, anvils or any tool in the hammer.
- Verify that all threaded parts are completely threaded together before drilling.

4.1.2 Soil Loading Machinery

Heavy equipment including excavators and soil loading machinery will be used to excavate impacted soils. Heavy equipment at the project site requires all employees working in the exclusion zone to wear ANSI-approved hard hats, steel-toed safety shoes/boots, safety glasses and hearing protection, as well as traffic vests as indicated above.

Operators will inspect the equipment daily before use to ensure safe operating conditions and to determine that the brakes and operating systems are in proper working condition and that all required safety devices are in place and functional (i.e., reverse gear alarms are working properly).

All personnel will place the spotter within close proximity to the operating machinery. When working around heavy equipment, employees should:

- make sure that the operator is aware of your presence/activities;
- stay in the operator's line of sight, don't work in his/her blind spot;
- approach areas where equipment is operating from a direction visible to the operator;
- be aware of the swing radius of the excavator;
- do not walk or work underneath loads handled by digging equipment;
- do not ride in buckets of loaders;
- stand away from soil stockpile areas to avoid being struck by any spillage or falling materials.; and,
- develop a series of hand signals to facilitate communication with the operator.

4.2 Trench/Excavation Cave-In or Collapse

The excavation depths vary depending on the activity to be completed. In some instances the proposed depths exceed five feet. Under no circumstances is the project team to enter an unshored or unsloped excavation greater than five feet in depth. If samples need to be collected, they will be collected from the bucket of the backhoe or by using a remote sampling device.

4.3 Concrete and Asphalt Coring & Cutting

Cutting and coring concrete and asphalt can involve numerous hazards. The noise generated as a result of the tools used, and adequate hearing protection is necessary when conditions outlined in the Noise section below are encountered. Tools used which can include drills and saws, must be appropriately guarded to prevent hands, PPE, and other objects from being caught-up in the moving parts and drawing employees in. Dust may also be generated while cutting concrete and either respiratory protection or dust suppression will need to be utilized to prevent exposure. Additional consideration must be given chemical hazard concerns that may exist in the materials underlying the concrete.

4.4 Corrosive Liquids

Site activities may require the use of corrosive liquids for preserving samples once collected, identifying substances in the field, or as part of system operations and maintenance. When corrosive liquids are identified in the work area, PPE upgrades will need to include an appropriate glove to mitigate the hazard, protective eye wear to guard against splashing liquids, and the potential need for poly-coated Tyvek to be worn. Additionally, the job task will be analyzed to determine if splashing and spilling can be minimized through the use of special equipment or procedures. Examples include using a funnel, identifying an alternative substance for use, and more.

4.5 Flying Objects Hazards

Activities involving the use of power tools, drilling rigs, and hand tools, among other activities, can create flying object hazards where objects can become projectiles. When flying objects represent projectiles employees need to use equipment that is appropriately guarded to minimize the creation of projectile hazards, and also use the appropriate PPE including hard hats, safety goggles, face shields to prevent projectiles from causing injuries to employees.

4.6 Hand Safety

4.6.1 Glove Selection

To protect onsite workers from hand injuries, the following gloves will be used for when performing a specific duty:

Brightly colored gloves will be used to help emphasize and easily locate the hands. It is recommended that the color of gloves be changed monthly to draw attention to the hands.

Pinch points are found between a moving object and a stationary object, or between two continuously moving objects. Yellow hand stickers will be placed on equipment to remind workers of pinch points.

4.6.2 Working with Glassware

Glass bottles, laboratory equipment, and VOA vials can break and cause lacerations and puncture wounds. The follow preventive measures should be taken to reduce the potential for broken glassware.

- Package all glassware such that there is no glass to glass contact during transportation or storage;
- Assume that any time glass strikes another object it is damaged;
- Inspect all glassware for cracks, scratches, and other damage before using;
- Lids and caps should be “finger tight” unless there is a torque specification and you use a torque wrench;
- Never fill a glass container (other than VOA vials with a septum) liquid full, always leave an air space to buffer thermal expansion of the liquid; and
- Avoid rapid temperature changes when filling glass containers.

Glass often has flaws that cannot be detected by visual inspection and the force needed to open and tighten lids can cause these flaws to fracture the glass. Any time force is applied to glass, workers should wear leather or preferably Kevlar® gloves. Kevlar® glove liners are available for use under Nitrile or cotton gloves.

4.6.3 Hand Tools

Rules for the safe use of hand tools:

- Select the right size tool for the job. Don’t use “cheaters” and avoid pulling old tools from the waste stream. There’s a reason why they were thrown away!
- All hand tools must be in safe condition.
- Handles must be sound, straight and tight-fitting.

- Always inspect tools before use and replace or repair worn or damaged tools.
- Always keep the cutting edges sharp and never test a cutting edge with your finger.
- When working on an elevated surface (ladder, truck, scaffold), ensure your tools are secure. Falling tools can cause serious injury.
- Always carry your tools correctly and never put sharp or pointed tools in your pocket.
- When carrying hand tools, always point the cutting edge to the ground.
- Always keep your tools in a dry place to prevent rust.
- Cutting tools must be kept sharp and properly shaped.
- Secure work pieces prior to cutting or drilling.
- Keep the unused hand and other people away from the tool.

4.6.4 Specific Tool Use

4.6.4.1 Screwdrivers

Most screwdrivers are not designed to be used on electrical equipment. Use an insulated screwdriver for electrical work.

Do not hold an object in the palm of one hand and press a screwdriver into it; place the object on a bench or table. Never hammer with a screwdriver. Never use a screwdriver with a broken handle, bent or burred blade, etc.

4.6.4.2 Pliers

Do not use pliers as a substitute for hammers, wrenches, pry bars, etc. Use insulated pliers when doing electrical work. Inspect the pliers frequently to make certain that they are free of breaks or cracks.

Use the right type of pliers for the specific task – adjustable, locking (Vise Grip®), standard, bolt size fit, pipe wrench.

4.6.4.3 Hammers

Use the correct hammer for the specific type of striking work (task) to be done. Always wear safety glasses when using a hammer to strike an object. Always use the claw portion of a hammer to remove nails and not as a pick or awl. Have an unobstructed view and swing when using a hammer. Watch for overhead interference on back and forward swing. Use a good grip and use something other than your hand to hold a nail when starting hammering. Check for defects on the handle and head before using. If the hammer head shows signs of mushrooming, replace it immediately.

Handles may be wood, tubular/solid steel or fiberglass. Replace any hammer with a loose handle before the head flies off and causes injury to you or someone else. Tighten loose handles with the proper wedges; never use nails or staples for wedges. If a steel or fiberglass handle is loose replace it, since it is more difficult to repair than a wooden one. Some fiberglass handles can be tightened with the aid of a repair kit with epoxy materials.

4.6.4.4 Wrenches

Select the correct size of wrench for the job. Never use a pipe wrench as a wrench handle extension. Too much leverage can ruin a tool and cause injury.

To avoid sudden slips, stand in a balanced position and always pull on the wrench instead of pushing against the fixed jaw, particularly when a pinch point is created. Wear gloves when using a wrench in a confined space.

Whenever possible use a box end wrench instead of an open end wrench to avoid slipping.

4.6.4.5 Chisels

Always wear safety goggles or a face shield when using a chisel. Drive chisels outward and away from your body. Do not use chisels to pry. Keep edges sharp for most effective work and protect when not in use. Driven tools (chisels, punches, etc.) must be dressed to remove any mushrooming. Use the proper hammer when using a chisel.

4.6.4.6 Knives

Always perform a thorough Job Safety Analysis (JSA) to define the proper cutting tool for the task.

Always place the item to be cut on a solid surface, attempt to hold the cut item without your hand and cut in a direction away from the body and hand.

Always keep hands and body clear of the knife stroke. Always keep the cutting tool blades sharp.

Make sure there is plenty of open space around you when using any cutting tool.

Use the following safer tools in replace of fixed open blade knives (FOBK) whenever possible:

- Self-retracting utility knives
- Guarded utility knives
- Shears, snips, and/or scissors
- Concealed blade cutters
- Pipe cutters
- Specialty cutters (e.g. Geoprobe Acetate Liner Cutter)
- Ratcheting tools

4.6.5 Power Tools

To prevent hazards associated with the use of power tools, workers should observe the following general precautions:

- Never carry a tool by the cord or hose.
- Never yank the cord or the hose to disconnect it from the receptacle.
- Keep cords away from heat, oil and sharp edges.
- Disconnect tools when not using them, before servicing or cleaning them and when changing accessories such as blades, bits and cutters.
- If a tool is only temporarily being removed from the power source and the cord is not in the immediate control of the user, it is strongly suggested that a cord plug lockout be used to prevent the tool from accidentally being re-plugged in.

- Secure work with clamps or vise, freeing up both hands to operate the tool.
- Avoid accidental starting. Do not hold fingers on the switch button when carrying a plugged-in tool.
- Keep tools sharp and clean for best performance.
- Wear appropriate clothing. Loose clothing or jewelry can become caught in moving parts.
- Keep all guards in place.

4.6.6 Electric Tools

A variety of power tools may also be used during the proposed activities. When using portable tools that are electrically powered, follow the safety precautions listed below:

- Check to see that electrical outlets used to supply power during field operations is of the three wire grounding type.
- Extension cords used for field operations should be of the three wire grounding type and designed for hard or extra-hard usage. This type of cord uses insulated wires within an inner insulated sleeve and will be marked S, ST, STO, SJ, SJO or SJTO.
- NEVER remove the ground plug blade to accommodate ungrounded outlets.
- Do not use extension cords as a substitute for fixed or permanent wiring. Do not run extension cords through openings in walls, ceilings or floors.
- Protect the cord from becoming damaged if the cord is run through doorways, windows or across pinch points.
- Examine extension and equipment cords and plugs prior to each use. Damaged cords with frayed insulation or exposed wiring and damaged plugs with missing ground blades MUST BE REMOVED from service immediately.
- All portable or temporary wiring which is used outdoors or in other potentially wet or damp locations must be connected to a circuit that is protected by a ground fault circuit interrupter (GFCI). GFCI's are available as permanently installed outlets, as plug-in adapters and as extension cord outlet boxes. DO NOT CONTINUE TO USE A PIECE OF EQUIPMENT OR EXTENSION CORD THAT CAUSES A GFCI TO TRIP.
- When working in flammable atmospheres, be sure that the electrical equipment being used is approved for use in Class I, Division I atmospheres.
- Do not touch a victim who is still in contact with current. Separate the victim from the source using a dry, nonmetallic item such as a broomstick or cardboard box. Be sure your hands are dry and you are standing on a dry surface. Turn off the main electrical power switch and then begin rescue efforts.

4.7 Noise Exposure

The use of drilling equipment and construction machinery can expose the field team to noise levels that exceed the OSHA PEL of 90 dB for an 8-hour day. Exposure to noise can result in the following:

- Temporary hearing losses where normal hearing returns after a rest period;
- Interference with speech communication and the perception of auditory signals;
- Interference with the performance of complicated tasks; and,

- Permanent hearing loss due to repeated exposure resulting in nerve destruction in the hearing organ.

Since personal noise monitoring will not be conducted during the proposed activities, employees must follow this general rule of thumb: If the noise levels are such that you must shout at someone two (2) feet away from you, you need to be wearing hearing protection. Employees can wear either disposable earplugs or earmuffs but all hearing protection must have a minimum noise reduction rating (NRR) of 27 dB.

4.8 Overhead Materials

Overhead materials can include objects, tools, utilities, equipment and machinery that are, or have the potential to be, elevated above the work area. Overhead materials pose a significant safety risk because of the force that can be generated when they fall and strike an employee. Special attention should be paid when setting up a work area to evaluate the potential for overhead materials to cause traumatic blunt force trauma. Consideration must be given to potential for these overhead objects to be contacted during the course of work by employees and Subcontractors, and what the result of contacting these overhead materials will be.

If possible, the work area should be adjusted or moved so that no overhead materials present a hazard. Likewise, if the object overhead can be relocated to remove the hazard, that is the preferred course of mitigation. When the hazard can’t be eliminated, then protective measures to shield the employees from being struck by falling objects should be taken. As a last resort, and as part of the minimum PPE for project site work, employees working in areas where falling objects pose a hazard will wear a hard hat.

4.9 Pinch Points

The use of hand tools, mechanical equipment, heavy machinery and more can create pinch points within the working area. Pinch points can be recognized when moving objects are present in the work space in close proximity to employees, and it is reasonable to assume that a part of the employee’s body can be caught between the moving objects. Pinch points will be considered when performing a Job Safety Analysis for the task being performed and recommendations will be made to reduce the potential for body parts to become caught in moving parts, including but not limited to:

- The use of PPE, e.g. gloves, boots, etc, to protect exposed body parts;
- Guarding machinery and equipment to prevent body parts from being caught in the moving objects;
- Using tools as an extension of the body to avoid placing body parts in the path of harm. When tools are used as an extension of the body consideration will be given to how the tool may become a hazard if it is caught within moving parts.

4.10 Slips, Trips and Fall Hazards

On any work area, it is expected that the ground might be uneven. The ground surface might be unreliable due to settling. Surface debris might be present and wet or swampy areas can exist.

Employees should walk around, not over or on top of debris or trash piles. When carrying equipment, identify a path that is clear of any obstructions. It might be necessary to remove obstacles to create a smooth, unobstructed access point to the work areas on project site.

During the winter months, snow shovels and salt crystals or calcium chloride should be kept on site to keep work areas free of accumulated snow and ice. Furthermore, use sand or other aggregate material to help keep work surfaces from being slippery, especially where salt/calcium chloride cannot be used. In addition, make sure work boots have soles that provide good traction. When walking on ice is necessary crampons or Yaktrax® should be used.

Maintaining a work environment that is free from accumulated debris is the key to preventing slip, trip and fall hazards at construction sites. Essential elements of good housekeeping include

- Orderly placement of materials, tools and equipment;
- Placing trash receptacles at appropriate locations for the disposal of miscellaneous rubbish;
- Prompt removal and secure storage of items that are not needed to perform the immediate task at hand; and,
- Awareness on the part of all employees to walk around, not over or on, equipment that might have been stored in the work area.

4.11 Splashing Liquids

Groundwater sampling activities can produce splashing hazards in the work area. Employees will use techniques that minimize the production of splashing hazards while handling liquids, including groundwater, sample container preservatives, decontamination solutions and any other liquids in the work area. Employees will also evaluate the working tasks to consider the use of goggles while working with liquids.

4.12 Back Safety

Using the proper techniques to lift and move heavy pieces of equipment is important to reduce the potential for back injury. The following precautions should be implemented when lifting or moving heavy objects:

- Use mechanical devices to move objects that are too heavy to be moved manually.
- If mechanical devices are not available, ask another person to assist you.
- Bend at the knees, not the waist. Let your legs do the lifting.
- Do not twist while lifting.
- Bring the load as close to you as possible before lifting.
- Be sure the path you are taking while carrying a heavy object is free of obstructions and slip, trip and fall hazards.

4.13 Traffic Safety

4.13.1 Transportation Plan

The Excavation Work Plan (Appendix A of the SMP) contains a transportation plan for the Site. This plan addresses requirements for accessing the project site, limitations of public use of the streets or sidewalks adjacent to the project site, securing any necessary permits to use and/or close public streets and sidewalks, and the need for flaggers and signage when traffic flow will be impeded on public streets.

4.13.2 Basic Procedures

To make certain that motorists are aware of our presence, all employees who are potentially exposed to traffic hazards should wear orange or yellow ANSI Class II or III safety vests. Work area should be delineated with traffic cones, or other suitable warning barriers, to prevent motorists from inadvertently driving through. As for vests, cones or other barrier materials should be reflectorized if work will be performed during dusk or evening hours. Where it is not feasible to implement such procedures, a standby observer should be assigned to warn the work crew of any impending traffic hazards.

4.13.3 Work On/Adjacent to Public Roadways

For projects that involve potential exposure to traffic on or adjacent to public roadways, consult the "Work Zone Traffic Control" handbook, under "Traffic Control" on AECOM's H&S Website, at the following web address: http://intranet.AECOM.com/healthweb.

The handbook was developed by the State of Maine DOT and provides examples of traffic control applications for typical road work situations (e.g., closure of one lane of a two lane road, stationary work on the shoulder of a road, mobile work along the shoulder of a road, etc.). Although it was written to reflect the basic requirements of Part VI of the Federal Highway Administration's (FHWA) Manual of Uniform Traffic Control Devices (MUTCD), this handbook is not a regulatory document. Since specific requirements will vary from state to state, and within a state, by county, city or town.

4.13.4 Flagging/Redirecting Traffic

Specific requirements exist when traffic must be redirected around a work area that is on or adjacent to a public roadway. In certain locations only police officers may redirect traffic. As a minimum, OSHA requires that flaggers be formally trained in accordance with the requirements specified in ANSI D6.1-1971.

http://www.atssa.com/cs/flagger

When traffic must be redirected, and the local police do not perform that role, a traffic control firm should be hired (these are frequently listed in the yellow pages under "safety").

4.14 Driving Safety

Drivers must be licensed to drive the class of vehicle they are operating and trained in defensive driving. Drivers and passengers must comply with all traffic laws and posted signs, and will not operate a vehicle if under the influence of impairing medication, alcohol, or any other substance.

Make sure that the following basic safe driving practices are followed at all times while working on this project:

- Always wear a seat belt while operating a motor vehicle or while traveling as a passenger.
- Obey speed limits and local traffic laws at all times.
- Obtain proper directions to the project site in advance and take the route that is most likely to be free of known traffic hazards (e.g., congestion, construction, etc.) and that avoids travel through potentially dangerous neighborhoods.
- Abstain from distractions while driving (e.g., the use of cell phones, eating/drinking, reading maps, etc.) If necessary, stop the vehicle and pull over to perform such activities safely.

- Do not operate a motor vehicle if you are tired and/or have not had sufficient rest. AECOM's H&S policy 1.2 limits the maximum length of the workday to 16 hours for fieldwork. This limit includes the time spent driving to/from a site.

- All unattended personnel transport vehicles will not be allowed to idle, and must be turned off when not in use.

4.14.1.1 Planning / Preparation

- Prior to departure, check traffic reports, weather conditions, road construction, and road closures. If necessary, develop an alternate route and new, approved JMP (Journey Management Plan).

- Prior to entering the vehicle, inspect the vehicle.

- Leave early to allow for contingencies.

4.14.1.2 Secure Packing

Do not move your vehicle unless all equipment and supplies are secured. Items and material which may roll, slide, or move about in your vehicle while traveling are a major hazard. Secure the load!

4.14.1.3 Emergency Procedures

Always move out of traffic if possible; even if those in front of you have stopped. Stopping on an active highway can precipitate being hit from the rear. If you must stop on an active roadway, leave at least one car length in front of you, and watch the rear mirror, so you can ease up if someone behind can't stop. Keep your flashers on in this situation. If you are the only driver coming to a stop on an active roadway, leave the flashers on and when safe to do so, exit the car and get to a safe location.

If you must stop due to vehicle failure, etc. try to coast out of traffic. Put on your flashers, and tie a white handkerchief, etc. on the driver's side door or mirror. If you remain in the vehicle, lock the doors. Use your cell phone to summon help.

4.15 Utility Hazards

4.15.1 Underground Utilities

Law requires that a utility clearance be performed prior to initiation of any subsurface work.

Dig Net of New York City and Long island
(800) 272-4480 or http://www.dignetnycli.com/

Call to request a mark-out of natural gas, electric, telephone, cable television, water and sewer lines in the proposed drilling locations. In many locations, a separate location request must be submitted to the municipality providing potable water, sanitary and storm sewerage. Work will not begin until the required utility clearances have been performed.

Utility clearance organizations typically do not mark-out underground utility lines that are located on private property. As such, the drilling contractor must exercise due diligence and try to identify the location of any private utilities on the property being investigated in several ways, including:

- Obtaining as-built drawings for the areas being investigated from the property owner;
- Visually reviewing each proposed soil boring locations with the property owner or knowledgeable site representative;
- Performing a geophysical survey to locate utilities;
- Hiring a private line locating firm to determine the location of utility lines that are present at the property;
- Identifying a no-drill zone; or
- Hand digging in the proposed soil boring locations if insufficient data is available to accurately determine the location of the utility lines.

The client or property owner may have specific requirements and procedures for underground utility clearance.

4.15.2 Overhead Utilities

All overhead lines will be considered “energized” unless properly de-energized, grounded and tested by the utility company before working within the clearance distance as defined below. The SSO must observe de-energizing process and reconfirm that the lines are de-energized on a daily basis.

Any vehicle or mechanical equipment that is capable of having parts of its structure elevated near energized overhead lines shall be operated so that a minimum clearance of 10 feet is maintained at all times. This 10 foot distance shall be increased a minimum of 0.4 inches for each 1 kV over 50 kV. If the voltage of the overhead line is unknown, maintain a clearance distance of 35 feet from ground projection of the nearest power line to the vehicle. Any work within the clearance distance must be approved by the Regional Health and Safety Manager and the utility company.

Precautions must be taken when handling lengths of pipe or tubing that can approach overhead power and utility lines. When working with pipe or tubing, maintain a distance equal to the length of pipe plus the clearance distance defined above.

4.16 Weather

4.16.1 Inclement Weather

The Site Safety Officer will check the weather forecast for the project area each morning prior to mobilization. Predicted weather conditions will be included in the Job Safety Analysis. Weather changes should initiate a review and update of the JSA as necessary.

Severe weather can occur with little warning. The employee must be aware of the potentials for lightning, flash flooding and high wind events.

Be Prepared, Know What is Coming your Way

- Listen to the radio for severe weather alerts.
- Check the Storm Prediction Center's web page for alerts and warnings.

http://www.spc.noaa.gov/products/wwa/

- Pay attention to the weather in your area, up wind of your location, and in the watershed upstream from your location.
- When in the field, be aware of the route you must take to get to shelter.
- When working in low areas be aware of the potential for flash flooding and the route to higher ground.

4.16.2 Heat Stress

4.16.2.1 Types of Heat Stress

Heat related problems include heat rash, fainting, heat cramps, heat exhaustion and heat stroke. Heat rash can occur when sweat isn't allowed to evaporate; leaving the skin wet most of the time and making it subject to irritation. Fainting may occur when blood pools to lower parts of the body and as a result, does not return to the heart to be pumped to the brain. Heat related fainting often occurs during activities that require standing erect and immobile in the heat for long periods of time. Heat cramps are painful spasms of the muscles due to excessive salt loss associated with profuse sweating.

Heat exhaustion results from the loss of large amounts of fluid and excessive loss of salt from profuse sweating. The skin will be clammy and moist and the affected individual may exhibit giddiness, nausea and headache.

Heat stroke occurs when the body's temperature regulatory system has failed. The skin is hot, dry, red and spotted. The affected person may be mentally confused and delirious. Convulsions could occur. EARLY RECOGNITION AND TREATMENT OF HEAT STROKE ARE THE ONLY MEANS OF PREVENTING BRAIN DAMAGE OR DEATH. A person exhibiting signs of heat stroke should be removed from the work area to a shaded area. The person should be soaked with water to promote evaporation. Fan the person's body to increase cooling.

Increased body temperature and physical discomfort also promote irritability and a decreased attention to the performance of hazardous tasks.

4.16.2.2 Early Symptoms of Heat-Related Health Problems:

decline in task performance

incoordination

decline in alertness

unsteady walk

excessive fatigue

reduced vigilance

muscle cramps

dizziness

4.16.2.3 Susceptibility to Heat Stress Increases due to:

lack of physical fitness

lack of acclimatization

increased age

dehydration

obesity

drug or alcohol use

sunburn

infection

People unaccustomed to heat are particularly susceptible to heat fatigue. First timers in PPE need to gradually adjust to the heat.

4.16.2.4 The Effect of Personal Protective Equipment

Sweating normally cools the body as moisture is removed from the skin by evaporation. However, the wearing of certain personal protective equipment (PPE), particularly chemical protective coveralls (e.g., Tyvek), reduces the body's ability to evaporate sweat and thereby regulate heat buildup. The body's efforts to maintain an acceptable temperature can therefore become significantly impaired by the wearing of PPE.

4.16.2.5 Measures to Avoid Heat Stress:

The following guidelines should be adhered to when working in hot environments:

- Establish work-rest cycles (short and frequent are more beneficial than long and seldom).
- Identify a shaded, cool rest area.
- Rotate personnel, alternative job functions.
- Water intake should exceed sweat produced. Most workers exposed to hot conditions drink less fluids than needed because of an insufficient thirst. **DO NOT DEPEND ON THIRST TO SIGNAL WHEN AND HOW MUCH TO DRINK.** Consume enough liquid to force urination every two hours. In humid climates ice water or ice should be consumed to help maintain normal body temperature since evaporation does not provide an efficient mechanism for heat removal.
- Eat light meals before and during work shifts. Avoid highly salted foods.
- Drink sports drinks such as Gatorade® diluted 1:1 with water.
- Save most strenuous tasks for non-peak heat hours such as the early morning or at night.
- Avoid alcohol during prolonged periods of heat. Alcohol will cause additional dehydration.
- Avoid double shifts and/or overtime.

The implementation and enforcement of the above mentioned measures will be the joint responsibility of the Project Manager and health and the Site Safety Officer. Potable water and fruit juices should be made available each day for the field team.

4.16.2.6 Heat Stress Monitoring Techniques

Site personnel should regularly monitor their heart rate as an indicator of heat strain by the following method:

Radial pulse rates should be checked by using fore-and middle fingers and applying light pressure top the pulse in the wrist for one minute at the beginning of each rest cycle. If the pulse rate exceeds 110 beats/minute, the next work cycle will be shortened by one-third and the rest period will be kept the same. If, after the next rest period, the pulse rate still exceeds 110 beats/minute, the work cycle will be shortened again by one-third.

4.16.3 Cold Stress

4.16.3.1 Type of Cold Stress

Cold injury is classified as either localized, as in frostbite, frostnip or chilblain; or generalized, as in hypothermia. The main factors contributing to cold injury are exposure to humidity and high winds, contact with wetness and inadequate clothing.

The likelihood of developing frostbite occurs when the face or extremities are exposed to a cold wind in addition to cold temperatures. The freezing point of the skin is about 30° F. When fluids around the cells of the body tissue freeze, skin turns white. This freezing is due to exposure to extremely low temperatures. As wind velocity increases, heat loss is greater and frostbite will occur more rapidly.

4.16.3.2 Symptoms of Cold Stress

The first symptom of frostbite is usually an uncomfortable sensation of coldness, followed by numbness. There might be a tingling, stinging or aching feeling in the affected area. The most vulnerable parts of the body are the nose, cheeks, ears, fingers and toes.

Symptoms of hypothermia, a condition of abnormally low body temperature, include uncontrollable shivering and sensations of cold. The heartbeat slows and can become irregular, the pulse weakens and the blood pressure changes. Pain in the extremities and severe shivering can be the first warning of dangerous exposure to cold.

Maximum severe shivering develops when the body temperature has fallen to 95° F. Productive physical and mental work is limited when severe shivering occurs. Shivering is a serious sign of danger. Immediately remove any person who is shivering from the cold.

4.16.3.3 Methods to Prevent Cold Stress

When the ambient temperature, or a wind chill equivalent, falls to below 40°F (American Conference of Governmental Industrial Hygienists recommendation), project site personnel who must remain outdoors should wear insulated coveralls, insulated boot liners, hard hat helmet liners and insulated hand protection. Wool mittens are more efficient insulators than gloves. Keeping the head covered is very important, since 40% of body heat can be lost when the head is exposed. If it is not necessary to wear a hard hat, a wool knit cap provides the best head protection. A facemask may also be worn.

Persons should dress in several layers rather than one single heavy outer garment. The outer piece of clothing should ideally be wind and waterproof. Clothing made of thin cotton fabric or synthetic fabrics such as polypropylene is ideal since it helps to evaporate sweat. Polypropylene is best at wicking away moisture while still retaining its insulating properties. Loosely fitting clothing also aids in sweat evaporation. Denim is not a good protective fabric. It is loosely woven which allows moisture to penetrate. Socks with a high wool content are best. If two pairs of socks are worn, the inner sock should be smaller and made of cotton, polypropylene or similar types of synthetic material that wick away moisture. If clothing becomes wet, it should be taken off immediately and a dry set of clothing put on.

If wind conditions become severe, it might become necessary to shield the work area temporarily. The SSO and the PM will determine if this type of action is necessary. Heated break trailers or a designated area that is heated should be available if work is performed continuously in the cold at temperatures, or equivalent wind chill temperatures, of 20° F.

Dehydration occurs in the cold environment and can increase the susceptibility of the worker to cold injury due to significant change in blood flow to the extremities. Drink plenty of fluids, but limit the intake of caffeine

4.16.4 Work/Rest Cycles for Cold Weather

If wind chill temperatures fall below minus 25°F, breaks from the cold will occur at a rate of one every hour. If wind chill temperatures fall below minus 45°F, all work will cease and persons will be required to go indoors. Also see Section 1.1.1 regarding shift duration. However, these guidelines can be modified at any time based on actual project site conditions and professional judgment rendered by either the Field Manger and/or SSO. For example, the Field Manger and/or SSO will evaluate field crew fitness; the condition of their cold-weather gear, including boots; and will observe employees alertness, including fatigue and rate of cold tolerance/acclimation.

If weather conditions warrant, portable tents might become necessary to shield the work area from wind, rain, snow, etc. The SSO and the Field Manager will determine if this type of action is necessary. However, under no conditions will the tents be heated and as a precautionary measure, a Photoionization Detector (PID) with a 10.6 ev lamp will be used to monitor the breathing zone of personnel inside the tent. See Section 6 for action levels based on PID readings. A JSA should be prepared and discussed with all workers detailing the precautions for working in these cold weather conditions.

4.17 Well Development and Groundwater Monitoring

During purging and development of borings into monitoring wells, the PPE indicated in Section 7 below will be worn to avoid chemical contact / exposure, as well as physical trauma. Bailing wells requires proper gloves, eye protection, and possibly protective coveralls to prevent splashing. Back and lifting precautions outlined in Section 5.1 shall be used to avoid ergonomic injuries.

4.18 Confined Spaces

Confined Space entry may be required for personnel to enter vaults or manholes in the work areas. The following procedures must be followed in an event confined space entry is necessary. Proper permits must be obtained and regulatory agencies notified prior to performing a confined space entry.

When working in industrial settings, it is common to need to enter a confined space to make observations, collect samples, or perform other duties. AECOM employees or sub contractors must not enter any confined space containing a hazard.

A confined space is defined as any space that meets the following criteria:

- Is not designed for human occupancy
  - excludes vehicles, elevator cabins etc,
  - includes elevator shafts and wells, tanks, vaults, etc.
- Is large enough to physically enter with the whole body, and
- Has a restricted exit path (you must climb over pipes, through man ways, etc.)

If the confined space contains any hazard, entry may only be made if permitted in writing by the space owner or the Regional Health and Safety Manger, the entry is monitored by an observer, and with the prior written approval of the Regional Health and Safety Manager.

Typical hazards include but are not limited to:

- Flammable materials
- Toxic materials
- Corrosive materials
- Exposed electrical circuits
- Falls greater than six feet
- Moving machinery
- Oxygen deficient atmosphere

If there is any doubt about whether a space meets the above criteria, call the Health and Safety Staff.

4.19 Hot Work

Prior to initiation of any hot work procedures, a “Hot Work Permit” (Attachment B) must be approved by a National Grid representative and the SSHO.

4.20 Biological Hazards

If the program is implemented in the spring, summer or fall, biological hazards associated with adjacent woods and wetlands may pose a potential concern for employees involved with project oversight.

4.20.1 Poisonous Plants

Persons working on this program should be aware of the possible presence of poisonous plants and insects. **Poison ivy** is a climbing plant with leaves that consist of three glossy, greenish leaflets. Poison ivy has conspicuous red foliage in the fall. Small yellowish-white flowers appear in May through July at the lower leaf axils of the plant. White berries appear from August through November. Poison ivy is typically found east of the Rockies. **Poison oak** is similar to poison ivy but its leaves are oak-like in form. Poison oak occurs mainly in the south and southwest. **Poison sumac** typically occurs as a small tree or shrub and may be 6-20 feet in height. The bark is smooth, dark and speckled with darker spots. Poison sumac is typically found in swampy areas and east of the Mississippi. The leaves have 7-13 smooth-edged leaflets and drooping clusters of ivory-white berries appear in August and last through spring.

The leaves, roots, stems and fruit of these poisonous plants contain urushiol. Contact with the irritating oil causes an intensely itching skin rash and characteristic, blister-like lesions. The oil can be transmitted on soot particles when burned and may be carried on the fur of animals, equipment and apparel.

Proper identification of these plants is the key to preventing contact and subsequent dermatitis. Wear long sleeves and pants when working in wooded areas. In areas of known infestation, wear Tyvek coveralls and gloves. Oils are easily transferred from one surface to another. If you come in contact with these poisonous plants, wash all exposed areas immediately with cool water to remove the oils. Some commercial products such as Tecnu's Poison Oak-n-Ivy Cleanser claim to further help with the removal of oils.

4.20.2 Ticks

Ticks are bloodsuckers, attaching themselves to warm-blooded vertebrates to feed. If a tick is not removed, or if the tick is allowed to remain for days feeding on human blood, a condition known as **tick paralysis** can develop. This is due to a neurotoxin, which the tick apparently injects while engorging. This neurotoxin acts upon the spinal cord causing incoordination, weakness and paralysis.

Deer ticks are associated with the transmission the bacteria that causes Lyme Disease. Female deer ticks are about one-quarter inch in length and are black and brick red in color. Males are smaller and all black. The early stages of Lyme disease, which can develop within a week to a few weeks of the tick bite, is usually marked by one or more of these signs and symptoms:

- Tiredness
- Chills and fever
- Headache
- Muscle and/or join pain
- Swollen lymph glands
- Characteristic skin rash (i.e. bullseye rash)

Tick season lasts from April through October; peak season is May through July. You can reduce your risk by taking these precautions:

- During outside activities, wear long sleeves and long pants tucked into socks. Wear a hat, and tie hair back.
- Use insecticides to repel or kill ticks. Repellents containing the compound DEET can be used on exposed skin except for the face, but they do not kill ticks and are not 100% effective in discouraging ticks from biting. Products containing permethrin kill ticks, but they cannot be used on the skin -- only on clothing. When using any of these chemicals, follow label directions carefully.
- After outdoor activities, perform a tick check. Check body areas where ticks are commonly found: behind the knees, between the fingers and toes, under the arms, in and behind the ears, and on the neck, hairline, and top of the head. Check places where clothing presses on the skin.
- Remove attached ticks promptly. Removing a tick before it has been attached for more than 24 hours greatly reduces the risk of infection. Use tweezers, and grab as closely to the skin as possible. Do not try to remove ticks by squeezing them, coating them with petroleum jelly, or burning them with a match.
- Report any of the above symptoms and all tick bites to the RHSM for evaluation.

4.20.3 Mosquito-Borne Illnesses

4.20.3.1 Eastern Equine Encephalitis

Eastern equine encephalitis is a rare disease that is spread to horses and humans by infected mosquitoes. It is among the most serious of a group of mosquito-borne virus diseases that can affect the central nervous system and cause severe complications and even death. Although relatively small outbreaks of human disease have occurred in the United States, the frequency of this disease is increasing with most cases reported from the eastern seaboard states, the Gulf Coast, and some inland mid-western areas.

After infection, the virus invades the central nervous system, including the spinal cord and brain. Most people have no symptoms; others get only a mild flu-like illness with fever, headache, and sore throat. For people with infection of the central nervous system, a sudden fever and severe headache can be followed quickly by seizures and coma. About half of these patients die from the disease. Of those who survive, many suffer permanent brain damage and require lifetime institutional care. Symptoms usually appear 4 to 10 days after the bite of an infected mosquito. Confirming diagnosis is based on tests of blood or spinal fluid.

4.20.3.2 West Nile Virus

West Nile encephalitis is an infection of the brain caused by the West Nile virus, which is transmitted by infected mosquitoes. Following transmission from an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of the brain tissue. However, most infections are mild and symptoms include fever, headache and body aches. More severe infections may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis and rarely, death. Persons over the age of 50 have the highest risk of severe disease.

Prevention centers on public health action to control mosquitoes and on individual action to avoid mosquito bites. To avoid being bitten by the mosquitoes that cause the disease, use the following control measures:

- If possible, stay inside between dusk and dark. This is when mosquitoes are most active.
- When outside between dusk and dark, wear long pants and long-sleeved shirts.
- Spray exposed skin with an insect repellent, preferably containing DEET.

4.20.4 Wasps and Bees

Wasps (hornets and yellow-jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either below or above the ground. Yellow-jackets tend to build their nests in the ground but hornets tend to build their nests in trees and shrubbery.

To avoid bees and wasps when working outdoors:

- Avoid the use of heavily scented soaps, shampoos, perfumes, colognes, after-shaves and cosmetics.
- Avoid shiny buckles and jewelry.
- Cover exposed skin and wear gray, white or tan rather than bright colors. Flowery prints and black especially attract insects.
- Remove food sources from site that may attract bees. Social wasps thrive where humans discard food.

- Check for new nests during the warmer hours of the day during July, August and September. Bees are very active then.

Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once while wasps sting multiple times because their stinger is barbless. Wasps and bees will sting in defense of itself or its nest. To avoid being stung:

- Slowly raise your hands to protect your face, remaining calm and stationary for a while and then move very slowly away.
- Never swing, strike or run rapidly away since quick movement often provokes attack and painful stings.
- Restrain from throwing rocks or spraying nests with water.
- Avoid creating loud noises and disturbance near the nest

When a wasp or bee stings, they inject a venomous fluid under the skin. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it with tweezers. Then,

- Wash the area carefully with soap and water. This should be continued several times a day until the skin is healed.
- Apply a cold or ice pack, wrapped in cloth for a few minutes.
- Apply a paste of baking soda and water and leave it on for 15 to 20 minutes.
- Take acetaminophen for pain.

Wasp stings can be life-threatening to persons who are allergic to their venom.

If you develop hives, difficulty breathing or swallowing, wheezing or similar symptoms of allergic reaction, **SEEK MEDICAL ATTENTION IMMEDIATELY**. People with known allergies to insect stings should NEVER work alone.

5.0 Air Monitoring

The Site is known to have tar impacts dating from the Site's historical use as an MGP. As such, the contaminants of concern are VOCs and SVOCs. The primary VOCs of concern are BTEX. The primary SVOCs of concern are PAHs such as naphthalene and benzo(a)pyrene. Airborne dust is also a concern and must be monitored due to its ability to co-transport contaminants and because of its nuisance properties. Odors, though not necessarily indicative of high contaminant concentrations, could create a nuisance and will be monitored and controlled to the extent practicable

5.1 Monitoring

5.1.1 VOC Monitoring

A photoionization detector (PID), such as a RaeSystems MiniRae 2000 PID equipped with a 10.6 ev lamp or equivalent, will be used to screen the breathing zone of employees during all subsurface investigations as Site and off-Site area conditions warrant but no less than at least once every hour. If breathing zone concentrations of total VOCs are sustained (5 minutes) above 5 ppm (calibrated to isobutylene), a measurement will be made for the presence of benzene using a colorimetric detector tube. In the absence of benzene, respiratory protection will be donned if total VOC concentration is sustained at 25 units as indicated by the PID. If benzene is present at concentrations of 1 ppm or more as indicated by the detector tube, respiratory protection will be donned. Requirements for respiratory protection are outlined in Section 6.2 of this HASP.

5.1.2 Dust Monitoring

Dust control measures, as described in this HASP, will be implemented to prevent and/or control the concentration of airborne dust levels during the subsurface activities. A MIE Data-Ram total dust monitor, or its equivalent, will be used to monitor the effectiveness of these engineering controls and to determine if measures to mitigate the dust are effective and/or if respiratory protection is required.

An action level of 0.15 mg/m^3 has been established for total dust (sustained within the breathing zone for 15-minutes) and is based on the PEL for PAHs. The total dust monitor will be used to determine that total dust levels within the established restricted areas are maintained below this action level. The readings will be taken at the locations within the restricted area, and during the time periods, which are likely to represent worst case conditions. The determination of worst case will be made by the SSO and will be dependent upon such variables as the type of work being performed and number of personnel or level of activity in the zone.

Task	Instrument	Action Limit and Action
All tasks involving potential exposure to contaminated soils and/or groundwater	Photoionization Detector	**5 ppm calibrated to isobutylene**; Don respiratory protection as discussed in Section 6
All tasks involving exposure to site chemicals of concern	Colorimetric detector tubes or Draeger Chip System for Benzene	**0.5 ppm Benzene** Don respiratory protection described in section 6.2
All tasks with the potential to generate dust.	Particulate meter	**>1.0 mg/m^3**; Apply dust suppression controls and don respiratory protection **>1.5 mg/m^3**; **STOP WORK** until levels are reduced below1.0 mg/m^3

5.2 Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) has been developed for the Site. The Site is located in a commercial community. This CAMP presents methods and procedures that will be used to provide protection for the downwind residences and businesses by assuring that the work activities do not spread constituents off-site through the air.

The community air monitoring will be performed around the project site perimeter and will measure the concentrations of organic vapors and dust. Air monitoring will be continuous during the activities. Monitoring will be conducted prior to mobilization to establish a baseline. The CAMP developed as per the NYSDEC DER-10 (NYSDEC, January 2010) is attached as Attachment C.

5.3 Personal Air Sampling

The need for personal air sampling is not anticipated during the activities covered by this HASP. The Project Manager can prescribe personal air sampling based on observations or concerns recognized during the project.

5.4 Calibration and Recordkeeping

Equipment will be calibrated in accordance with the Contractor's standard operating procedures. A log of the calibrations and readings will be kept in the field notebook. Daily calibration information will also be recorded in the field notebook.

6.0 Personal Protective Equipment

Personal protective equipment (PPE) will be worn during these activities to prevent on-site personnel from being injured by the safety hazards posed by the project site and/or the activities being performed. In addition, chemical protective clothing will be worn to prevent direct dermal contact with the project site's chemical contaminants. The following table describes the PPE to be worn for certain specific tasks. At a minimum, steel toe safety shoes, safety glasses with side shields, and nitrile or NAPL-resistant gloves will be worn when working in the areas with remaining contamination as detailed in the SMP.

6.1 Chemical Protective Clothing

PPE Item	Environmental Monitoring	Excavation and Utility Work	Sample Collection
Hard Hat	✓	✓	✓
Steel Toed Safety Shoes	✓	✓	✓
Safety Glasses with Sideshields	✓	✓	✓
ANSI-approved Class II Traffic Vest	✓	✓	✓
Outer Nitrile Gloves with inner Latex liners			✓
Kevlar gloves			
Hearing Protection	✓	✓	✓

6.2 Engineering Controls to Prevent Exposure to Contaminants of Concern

Engineering controls will be used by the Contractor to control dusts, vapors and odors both inside the structure and at the project site perimeter, if necessary. If the engineering controls are unsuccessful at controlling employee exposures within the structure to below the action limits defined in Section 5.1.1 and 5.1.2 of this HASP, then Level C respiratory protection will be required.

6.3 Respiratory Protection

Respiratory protection, as described below, will be required if worker breathing zone PID concentrations are sustained above the action levels in the following table.

Task	Action Limit	Respiratory Protection	Level
All tasks involving potential exposure to contaminated soils and/or groundwater	5 ppm as Isobutylene for 5 minute	Half or full face mask respirator with combination organic vapor/HEPA cartridges	C
	10 ppm as Isobutylene	Full face respirator with organic vapor/HEPA cartridges	C
	50 ppm as isobutylene	**STOP WORK**	
All tasks involving potential exposure to contaminated soils and/or groundwater	0.5-10 ppm as Benzene on Draeger tube	Half or full face mask respirator with combination organic vapor/HEPA cartridges	C
	10 ppm as Benzene on Draeger tube	Full face respirator with organic vapor/HEPA cartridges	C
	50 ppm as Benzene on Draeger tube	**STOP WORK**	
All tasks with the potential to produce Dust	1.0 mg/m^3 particulates in air	Half or full face mask respirator with combination organic vapor/HEPA cartridges	C
	1.5 mg/m^3 particulates in air	**STOP WORK** and apply dust suppression techniques until levels have returned to ambient conditions	C

Respiratory protection (half or full face mask respirator with combination organic vapor/HEPA cartridges) should also be donned if odors become objectionable at any time or if respiratory tract irritation is noticed.

All employees who are expected to don respiratory protection must have successfully passed a qualitative or quantitative fit-test within the past year for the brand, model and size respirator they plan to don.

If worn, respirators will be cleaned after each use with respirator wipe pads and will be stored in plastic bags after cleaning. Respirators will be thoroughly cleaned using disinfectant material within one week following any respirator use. Refer to the cleaning instructions provided with the respirator or specified by Appendix B-2 to the OSHA regulations at 29 CFR 1910.134.

6.4 Other Safety Equipment

The following is a list of additional safety items that may need to be available at the project site depending on the facility activity level, proximity to emergency assistance and other factors:

- Portable, hand-held eyewash bottles,
- First aid kit,
- Type A-B-C Fire extinguisher,
- Fire blanket,
- Emergency telephone and, if available, two-way radio on facility frequency,
- Emergency air horn,
- Drinking water, ice and cups,
- Caution tape or traffic cones,
- High visibility traffic vests (if working near vehicle traffic),
- Traffic cones or barricades,
- Flashlight/lantern, and
- Spill containment kit.

7.0 Site Control/Decontamination

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, hazardous work areas will be clearly identified and decontamination procedures will be required for personnel and equipment leaving those areas.

7.1 Designation of Zones

AECOM designates work areas or zones as suggested in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, November 1985. They recommend that the areas surrounding each of the work areas to be divided into three zones:

- Exclusion or "Hot" Zone
- Contamination Reduction Zone
- Support Zone

7.1.1 Exclusion Zone

An exclusion zone will be established around the work area. The perimeter of the exclusion zone will be marked with caution tape, traffic cones or other identifier so that employees, visitors, and client or host employer personnel are aware of the work being conducted.

All field and contractor personnel entering these work areas must wear the prescribed level of protective equipment.

7.1.2 Contamination Reduction Zone

A decontamination zone will be established adjacent to each work area. Personnel will remove contaminated gloves and other disposable items in this area and place them in a plastic bag until they can be properly disposed of.

7.1.3 Support Zone

The support zone will include the area outside of the exclusion zone.

7.1.4 Site Access Control

The public will be restricted from the project site and monitoring well locations (during monitoring) by fences, barricade tape, traffic cones, and/or signs.

7.1.5 Parking and Staging Areas

Parking will be restricted to areas that have been cleared of tall grass and combustible material. Vehicles parked on the public streets will be marked with cones both in front of and behind the vehicle.

7.1.6 Pedestrian Walkways

Pathways within the work areas will be kept clear of obstructions. Public pathways will be clearly marked to provide access to the business onsite and protect the public from the hazards of the project.

7.2 General Site Safety Practices

The following measures are designed to augment the specific health and safety guidelines provided in this plan.

- The "buddy system" will be used at all times by all field personnel. No one is to perform field work alone. Standby team member must be intimately familiar with the procedures for initiating an emergency response. If an employee will be alone in a work area, they will develop a procedure to contact their Supervisor or PM on a regular schedule to confirm that the employee is safe. Subcontractors working on-site can help fulfill the role of a Buddy while project site activities are occurring.
- Eating, drinking, chewing gum or tobacco, smoking or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in the immediate work area and the decontamination zone. Water and Ice may be consumed in all areas to prevent heat stress but precautions must be taken to prevent contamination of the water and ice.
- Smoking is prohibited in all work areas. Matches and lighters are not allowed in these areas.
- Hands must be thoroughly washed upon leaving the work area and before eating, drinking or any other activities.
- Beards or other facial hair that interfere with respirator fit are prohibited.
- The use of alcohol or illicit drugs is prohibited during the conduct of field operations.
- All equipment must be decontaminated or properly discarded before leaving the project site in accordance with the project work plan.
- Parking and pedestrian areas will be established and communicated to all workers.

8.0 Decontamination

8.1 Personal Decontamination

Proper decontamination is required of all personnel before leaving the project site. Decontamination will occur within the contamination reduction zone.

Regardless of the type of decontamination system required, a container of potable water and liquid soap should be made available so employees can wash their hands and face before leaving the project site for lunch or for the day.

8.2 PPE Decontamination

Disposable PPE, such as Tyvek coveralls, gloves, etc. will be removed in the decon zone and placed in garbage bags. Final disposal of contaminated PPE will be in accordance with the work plan.

If worn, respirators assigned to an individual will be cleaned after each use with respirator wipe pads and will be stored upright in plastic bags. Respirators will be thoroughly cleaned using disinfectant material within one week following any respirator use. Respirators that have the potential to be shared by employees within the workplace will be completely dismantled and thoroughly cleaned after each use. Refer to the cleaning instructions provided with the respirator or specified by Appendix B-2 to the OSHA regulations at 29 CFR 1910.134.

8.3 Equipment Decontamination

Equipment will be decontaminated prior to being moved to other locations. Decontamination procedures will be specified in the Field Sampling and Analysis Plan (FSAP).

9.0 Medical Monitoring and Training Requirements

Each worker subject to this HASP shall have copies of documentation that the requirements for training, medical surveillance, and respirator use are current. Copies of these documents shall be made available to any owner or their representative upon request.

9.1 Medical Monitoring

All personnel performing activities covered by this HASP must be active participants in a medical monitoring program that complies with 29 CFR 1910.120(f). Each individual must have completed an annual surveillance examination and/or an initial baseline examination within the last year prior to performing any work on the project site covered by this HASP.

9.2 Health and Safety Training

9.2.1 HAZWOPER

All personnel performing activities covered by this HASP must have completed the appropriate training requirements specified in 29 CFR 1910.120 (e). Each individual must have completed an annual 8-hour refresher training course and/or initial 40-hour training course within the last year prior to performing any work on the project sites covered by this HASP.

9.2.2 Pre-Entry Briefing/Tailgate Meetings

Prior to the commencement of daily project activities, a pre-entry briefing or tailgate meeting will be conducted by the SSO to review the specific requirements of this HASP, review and revise the JSA, discuss Incidents, Near Misses and lessons learned from the previous day’s activities, and discuss project site conditions that have changed since the previous day or trip to the project site. Attendance at the daily tailgate meeting is mandatory for all personnel covered by this HASP at the project site and must be documented on the attendance form provided in Attachment A. HASP sign-off sheets should also be collected at the time of the tailgate meetings. All documentation should be maintained in the project file.

The pre-entry briefing must be completed for each new employee before they begin work at the project site. Short safety refresher meetings will be conducted, as needed, throughout the duration of the project.

10.0 Emergency Response

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." This section is written to comply with the requirements of 29 CFR 1910.38 (a).

The basic elements of an emergency evacuation plan include:

- employee training
- alarm systems
- escape routes
- escape procedures
- critical operations or equipment
- rescue and medical duty assignments
- designation of responsible parties
- emergency reporting procedures
- methods to account for all employees after evacuation

10.1 Spill Response

Employees are only authorized to respond to incidental spills and releases of hazardous substances. The following criteria must be met for a spill to be considered incidental with the employee having the ability to respond to the spill:

- Quantity of spilled material is minimal enough where additional, third party assistance is not needed to manage the spill
- Material is not immediately threatening to impact an open water way
- The conditions of the spill do not present a hazardous condition that is immediately dangerous to life and health (IDLH)
- The employee responding has:
  - received training on proper spill response techniques relative to the spilled material
  - full knowledge of what has been spilled and the proper clean up techniques to be used
  - the means to protect themselves against exposure to harmful conditions caused by the spill including the necessary PPE
  - the means to containerize and dispose of the spilled material properly

Employees may be equipped with the following materials, assembled into a spill response kit, to manage incidental workplace spills:

- Absorbent pads or media, i.e. speedy-dry, kitty litter
- Broom and dust pan to clean up spent granular spill control media or impacted earth
- Shovel to clean up impacted earth or create a dam or dyke to prevent the spill area from increasing
- Disposal drums and over-pack drums
- Appropriate waste identification labels
- Appropriate PPE

If a spill is not considered incidental, then additional assistance will be sought to aid in clean-up. The responding employee shall contact the Project Manager and provide initial notification of the release. The Project Manager will then notify the client representative and determine a suitable course of action. Chem-trec may be contacted to provide additional support in responding to a spill. Consideration will need to be given to whether or not the spill is deemed to be a reportable quantity (RQ) by the EPA, if the National Spill Response Center needs to be contacted due to surface water impact, and if local, state or federal agencies need to be contacted to provide information related to public health threats and environmental impact.

All petroleum related spills above 5-gallons on an non-impermeable surface, and in the vicinity of a waterway must be reported to the PM, RSM, and DEC PM, with the PM providing notification to the client representative, no matter how small the spill is. After initial response actions have been completed an incident investigation will be performed to determine the root causes of the incident and corrective actions, and lessons learned shall be shared to prevent future reoccurrence. Once the response is complete, the responding employee will also conduct an inventory of supplies used during the response effort and re-stock any used response equipment that could not be decontaminated and reused.

10.2 Employee Training

Employees must be instructed in the site-specific aspects of emergency evacuation. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed.

10.3 Alarm System/Emergency Signals

An emergency communication system must be in effect at all project sites. The simplest and most and effective emergency communication system in many situations will be direct verbal communications. Each project site must be assessed at the time of initial site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices cannot be clearly perceived above ambient noise levels (i.e., noise from heavy equipment; drilling rigs, backhoes, etc.) and anytime a clear line-of-sight cannot be easily maintained amongst all personnel because of distance, terrain or other obstructions.

Verbal communications will be adequate to warn employees of hazards associated with the immediate work area. A portable phone will be located at the project site to ensure that communications with local emergency responders is maintained, when necessary.

10.4 Escape Routes and Procedures

The escape route from the project site and an emergency muster point will be determined and provided to all workers during the project mobilization.

Prior to mobilizing to a new project area, the Site Safety Officer or his designee will confirm that the escape routes are clear and lead to a safe area.

10.5 Employee Accounting Method

The SSO is responsible for identifying all personnel on-site at all times. Field personnel and subcontract employees will notify the SSO when they enter and leave the project site. The SSO will account for all FIELD PERSONNEL and its subcontract employees following an evacuation.

10.6 Injuries and Illnesses

The phone numbers of the police and fire departments, ambulance service, and local hospital are provided in the emergency reference sheet on page 1. This sheet will be posted in the site vehicle.

10.6.1 First Aid

Minor injuries will be treated on project site using materials from the first aid kit or other local sources. All cuts and abrasions will be cleaned with potable water and a clean dressing applied. The injured employee will be evaluated at the end of the work day and the following day when the employee arrives at the project site to determine whether the wound has started the healing process. The wound will be protected from contamination during the project activities.

10.6.2 Professional Treatment

In the event an injury or illness requires more than first aid treatment, the SSO will accompany the injured person to the medical facility and will remain with the person until release or admittance is determined. The escort will relay all appropriate medical information to the on-site project manager and the RSM.

If the injured employee can be moved from the accident area, he or she will be brought to the CRZ where their PPE will be removed. If the person is suffering from a back or neck injury the person will not be moved and the requirements for decontamination do not apply. The SSO must familiarize the responding emergency personnel about the nature of the site and the injury. If the responder feels that the PPE can be cut away from the injured person's body, this will be done on-site. If this not feasible, decontamination will be performed after the injured person has been stabilized.

10.7 Designation of Responsible Parties

The SSO is responsible for initiating emergency response. In the event the SSO can not fulfill this duty, the alternate SSO will take charge.

10.8 Emergency Response Drills

A table-top run through of the evacuations procedures will be conducted the first day on the project site and reviewed with all workers arriving on site after that date.

Emergency Response drills and subsequent personnel briefings on evacuation procedures will be documented in the safety briefing agenda or briefing notes.

10.9 Incident Reporting and Investigation

Any incident (other than minor first aid treatment) resulting in injury, illness or property damage requires an Incident investigation and report. The investigation should be conducted as soon as emergency conditions are under control. The purpose of the investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided. An Incident investigation form is presented in Attachment B of this HASP. The injured employee's supervisor, the Project Manager, and the RSM should be notified immediately of the injury.

If a subcontractor employee is injured, they are required to notify the SSO. Once the incident is under control, the subcontractor will submit a copy of their company's Incident investigation report to the SSO.

10.10 EMERGENCY REFERENCES

Ambulance:	911
Fire:	911
Police:	911
Medical Services:	Kings County Hospital 451 Clarkson Avenue, Brooklyn, NY 11203
Hospital Telephone:	(718) 245-3131
On Site Telephone:	Bring portable communications.

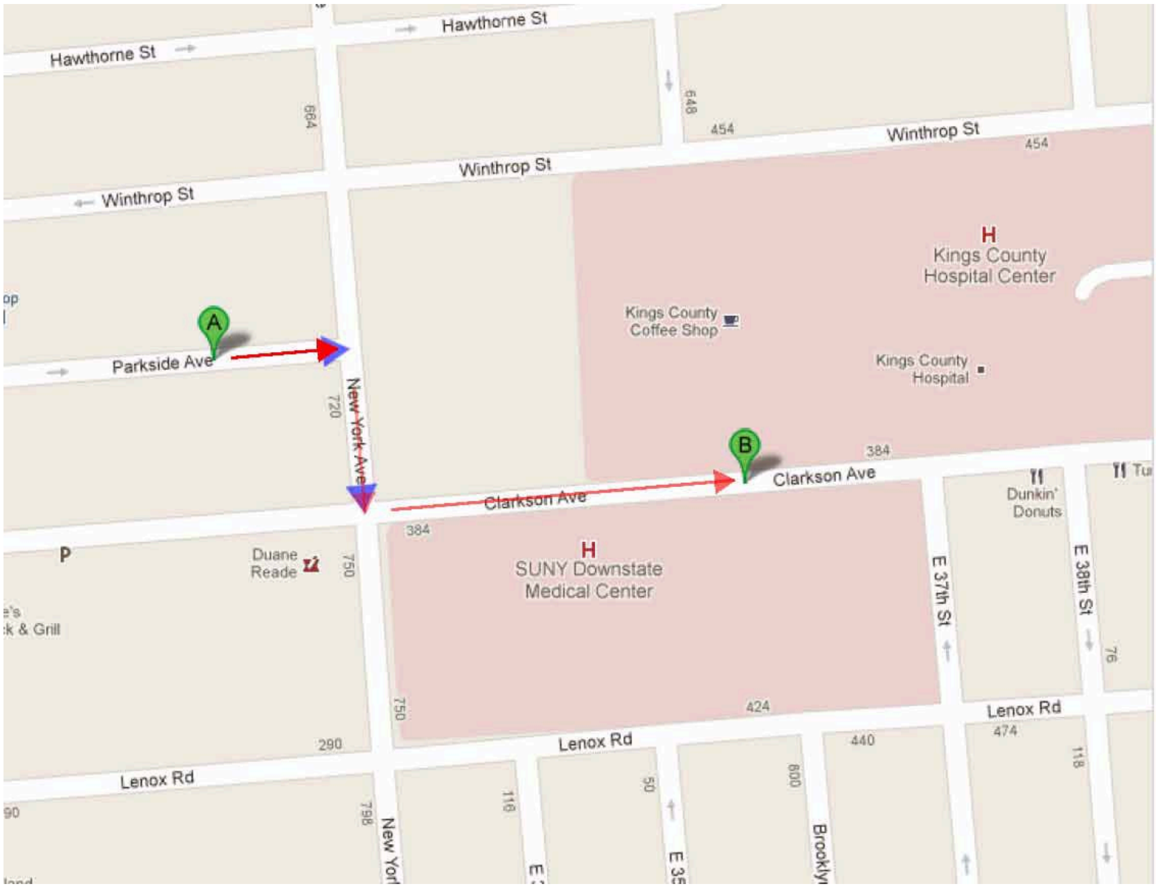
10.11 Emergency Route Directions

1. Head East from the Site towards New York Avenue
2. Turn Right onto New York Avenue towards Clarkson Avenue
3. Turn the 1st Left onto Clarkson Avenue
4. Arrive at 451 Clarkson Avenue

Total Distance: 0.4 miles

Total Estimated Time: 1 minute

Map Showing Route from the site to the Hospital:



Attachment A

Health and Safety Plan Receipt and Acceptance Form

Health and Safety Plan Receipt and Acceptance Form

Flatbush Station A&B Former Gas Holder Site

Brooklyn, New York

I have received a copy of the Health and Safety Plan prepared for the above referenced site, I have read and understand its content and I agree that I will abide by its requirements.

Name	Signature	Company	Date

Attachment B

EHS Field Forms

Blank Job Safety Analysis Form

Job Safety Analysis

AECOM

JSA Type: ☐ Investigation ☐ O&M ☐Office ☐ Construction ☐ Other	☐ New ☐ Revised	**Date**:

Work Activity:

Personal Protective Equipment (PPE):

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job Steps[1]	❷ Potential Hazards[2]	❸ Critical Actions[3]	STOP Stop Work Criteria
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•
		•	•
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		•	•
		•	•
		•	•

1 – Target number of job steps: six to ten

2 – Codes for Potential Hazards:

Caught Between (CB)	Contacted By (CBy)	Caught On (CO)	Fall To Below (FB)	Overexertion (O)	Struck Against (SA)
Caught In (CI)	Contact With (CW)	Exposure (E)	Fall - Same Level (FS)	Release To (RT)	Struck By (SB)

3 – Types of Critical Actions: Elimination, Engineering Controls, Safe Work Practice / SOP, Administrative Controls, and/or PPE.

4 – Stop Work Trigger: Condition or situation that would require work to be stopped and hazards re-assessed.

Job Hazard Analysis

JHA Type: ☐ Investigation ☐ O&M ☐Office ☒ Construction

☒ New ☐ Revised

Date

Office: Manhattan Client: National Grid USA Location: Flatbush Station A&B Former Gas Holder Site, Brooklyn, New York

Work Type: Excavation

Work Activity: Excavation and backfilling on the National Grid and Offsite Properties, loading and transport of impacted materials, dewatering, water treatment and discharge, excavation soil (if required) and water sampling

Personal Protective Equipment (PPE):

Minimum PPE is Level D including: hard hat, safety glasses or goggles, steel-toed boots, high visibility safety vest, hearing protection as needed, and gloves as needed (type dependent on job-specific requirements).

Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for air monitoring, and emergency procedures.

Development Team	Position/Title	Reviewed By	Position/Title	Date

Field staff must review job-specific work plan and coordinate with project manager to verify that all up-front logistics are completed prior to starting work including, but not limited to, permitting, and notification to required contacts (e.g. site managers, clients, subcontractors, etc.). Additionally, safety meeting must be performed and documented at the beginning of each workday. Relevant forms should be updated if modifications are made in the field. Also consider weather conditions (heat, cold, rain, lightning).

❶ Job Steps	❷ Potential Hazard	❸ Critical Actions
1. General Site Safety	Hand injury	• Use shears rather than utility knives whenever practical. • Wear leather or heat-resistant gloves while performing manual work. • Avoid touching hot surfaces without proper protective equipment. • Identify and avoid pinch points • Use only appropriate tools for the task.
	Slip, Trip, and Fall on same level or to lower level	• Maintain a clean work area and good housekeeping practices by drying wet surfaces, cleaning up muddy areas, and keeping unnecessary equipment and supplies out of walkways. • Inspect tread on steel-toed boots for signs of wear and replace as necessary • When carrying field equipment maintain clear view of footing • Never run while on the job site • Use backpacks for moving gear around the site to keep hands free. • Be aware of slippery conditions.
	Lifting – Back and Foot injury	• Follow standard safe lifting practices. • Wear proper PPE, i.e., steel-toed shoes with metatarsals. • Use Mechanical lifting devices when ever possible. • Ensure path is clear prior to lifting and moving materials.
	Overexertion when lifting supplies/equipment	• Use equipment whenever possible. • Procure help when lifting awkward loads or materials that weigh greater than 60 lbs. • Use proper lifting techniques.
	Contact with electrical energy	• Use operable GFCIs for any tool. • Inspect electrical equipment for frayed cords,

		damaged parts, etc. at least once a week.
	Heat Stress	• Monitor self and other workers when ambient temperature exceed 85°F • Wear appropriate clothing • Consume sufficient quantities of water/electrolytes to avoid dehydration • Monitor yourself and co-workers for signs of heat stress • Take frequent breaks and take shelter to cool-off if feeling signs of heat stress
	Fall to Lower Level (from trailers, equipment)	• Limit walking on elevated surface • Clean mud from boots prior to walking on trailers • Only rental company personnel to remove equipment off of low boy trailers (should equipment be rented)
	Trip/Slip/Fall on Same Level	• Establish and enforce housekeeping protocol
	Safety equipment not in place or operating	• Perform an initial and weekly inspection of heavy equipment
2. Equipment Mobilization	Struck by Heavy Equipment	• Ensure backup alarms are operable • Never approach equipment without establishing eye contact with operator • Establish protocol for hand and arm signals • Limit walking on elevated surface
	Fall to Lower Level (from trailers, equipment)	• Clean mud from boots prior to walking on trailers • Only rental company personnel to remove equipment off of low boy trailers (should equipment be rented)
	Trip/Slip/Fall on Same Level	• Establish and enforce housekeeping protocol
	Safety equipment not in place or operating	• Perform an initial and weekly inspection of heavy equipment
3. Excavation	Struck by Heavy Equipment/ Heavy equipment operations	• Ensure backup alarms are operable • Keep proper clearance from equipment • Be aware of excavator swing radius • Establish eye contact with operator(s) prior to approaching equipment • Listen for backup indicators • Operators should always wear seat belts while equipment is running • Operators must be aware of their surroundings at all times • Establish protocol for hand and arm signals
	Fall to Lower Level (from trailers, equipment)	• Limit walking on elevated surface • Clean mud from boots prior to walking on trailers • Only rental company personnel to remove equipment off of low boy trailers (should equipment be rented)
	Trip/Slip/Fall on Same Level	• Establish and enforce housekeeping protocol
	Safety equipment not in place or operating	• Perform an initial and weekly inspection of heavy equipment

	Hydrocarbon exposure/ Chemical exposure and Dust exposure	• Perform air monitoring prior to entering excavation area (MultiRae meter) • Continue to monitor periodically throughout the day • Properly document all calibration activities and readings performed on the proper sheets • Continue to monitor periodically throughout the day • Properly document all calibration activities and readings performed on the proper sheets
	Noise	• Use hearing protection and make sure it is inserted properly
	Sidewall instability	• Carefully examine the condition of the sidewall prior to approaching the edge • Signs of instability: look for active sloughing of soils, water seepage in the sidewall, and the presence of tension cracks in the surface above the side wall • Never stand in the excavation immediately adjacent to a side wall • If it is necessary to enter the excavation, always select a sloped route that is not too steep and proceed slowly
	Uneven ground	• Wear steel-toed boots that extend over the ankle • Never run while on the job site
	Underground utilities	• Check utility plans and expose if necessary prior to work
4. Loading haul trucks	Heavy equipment operation	• Keep proper clearance from equipment • Be aware of loaders rapid movements • Establish eye contact with operator(s) and truck drivers prior to approaching equipment • Listen for backup indicators
	Impacted Soil Exposure	• Wear splash proof PPE over Nomex coveralls when spraying trucks • Don face shield prior to spraying trucks
	Falling material	• Never stand on the opposite side of a trailer that is being loaded; material may spill over the side
Truck decontamination	Impacted Soil Exposure	• Wear splash proof PPE over Nomex coveralls when spraying trucks • Don face shield prior to spraying trucks
	Slips, trips, falls	• Exposed liner in sump area is very slippery, extreme caution must be used • Never run around the decon area • The decon area will be kept in an order fashion
	Heavy equipment operation	• Never approach a truck until it comes to a complete stop • Truck driver and decon personnel must make eye contact prior to approaching the truck or before truck movement is initiated • Driver shall sound the horn once prior to pulling out to serve as a warning to decon personnel • Decon personnel shall give a visual indication that all is clear prior to the driver

		pulling out of the decon area
	Falling material	• Decon personnel shall take care to avoid standing directly under the trailer as they try to remove pieces of sludge that may be lodged on the truck. • Use extension poles to remove loose material overhead
Backfill excavation	Heavy equipment operations	• Keep proper clearance from equipment • Be aware of heavy truck traffic • Establish eye contact with operator(s) prior to approaching equipment • Listen for backup indicators • To the maximum extent possible, remain clear of confined areas in which multiple pieces of equipment are operating
	Noise	• Use hearing protection and make sure it is inserted properly
	Uneven ground – backfilled ground may be very uneven, padfoot compactor leaves a rough uneven	• Wear steel-toed boots that extend over the ankle • Never run while on the job site; caution should be used while traversing backfilled areas
Soil Sampling (If Needed)	Chemical exposure and Dust exposure	• Perform air monitoring prior to entering excavation area (dust monitor and PID) • Continue to monitor periodically throughout the day • Properly document all calibration activities and readings performed on the proper sheets
	Entering excavations	• NEVER enter an excavation deeper than 4 feet bgs!!! Sampling in deep excavations will be conducted using the backhoe. • Maintain a safe distance from where the current excavation is being conducted. • Be sure the operators are aware of your location at all times. • Always wear proper PPE including gloves while sampling.
Truck/Vehicle Traffic	Contact with Pedestrian and Road Traffic	• Ensure all site personnel are wearing orange safety vests. • If necessary, employ flagmen on public street.
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Job Hazard Analysis

JHA Type: ☐ Investigation ☐ O&M ☐ Office ☒ Construction | ☒ New ☐ Revised | Date:

Office: Client: Loc: Flatbush Station A&B Former Gas Holder Site, Brooklyn, NY

Work Type: Demolition | Work Activity: Various Demolition

Personal Protective Equipment (PPE):

Minimum PPE is Level D including: Safety glasses, Steel toed boots, hard hat, Leather gloves, orange safety vest, face shield, hear protection (plugs and/or muffs)

Additional PPE may be required in the Health & Safety Plan (HASP). Also refer to the HASP for air monitoring, and emergency procedures. Please refer to Excavation JHA for additional site-specific requirements.

Development Team	Position/Title	Reviewed By	Position/Title	Date

❶ Job Steps	❷ Potential Hazard	❸ Critical Actions
Jack-Hammering Concrete (hand operated hammer)	1. Flying Debris	• Wear appropriate PPE: hardhat with face shield, safety glasses, leather gloves, steel-toed boots, full body clothing.
	2. Noise	• Wear appropriate hearing protection in areas where decibel levels are > 85db • Be sure to use the hearing protection properly (either plugs, muffs or both)
	3. Vibration/ergonomic hazards	• Where appropriate footwear and gloves to lessen the effects of vibration on the body • Take frequent breaks: share the task with coworkers. • Use proper body positioning, avoid straining the back when moving the hammer
	4. Steel reinforcement bar removal	• Wear proper hand protection (leather gloves)

Hammering Concrete using backhoe/excavator hammer attachment	1. Flying Debris	• Wear appropriate PPE: hardhat with face shield, safety glasses, leather gloves, steel-toed boots, full body clothing.
	2. Noise	• Wear appropriate hearing protection in areas where decibel levels are > 85db • Be sure to use the hearing protection properly (either plugs, muffs or both)
	3. Heavy Equipment Operation	• Keep proper clearance from equipment • Be aware of excavator or backhoe swing radius • Establish eye contact with operator(s) prior to approaching equipment • Listen for backup indicators • To the maximum extent possible, remain clear of confined areas in which multiple pieces of equipment are operating • Operators should always wear seat belts while equipment is running • Operators must be aware of their surroundings at all times
Loading debris onto trucks	1. Heavy Equipment Operation	• Keep proper clearance from equipment • Be aware of excavator or backhoe swing radius • Establish eye contact with operator(s) prior to approaching equipment • Listen for backup indicators • To the maximum extent possible, remain clear of confined areas in which multiple pieces of equipment are operating • Operators should always wear seat belts while equipment is running • Operators must be aware of their surroundings at all times
	2. Manually handling/moving concrete and steel debris	• Avoid hand injuries by wearing proper hand protection (leather gloves are recommended) • Do not attempt to lift more than you're capable of lifting safety • If debris is too large to handle, employ heavy equipment to move it. • Wear appropriate eye protection, hard hat, and steel-toed boots
	3. Heavy Equipment (Truck Traffic)	• Keep proper clearance from moving trucks • Maintain eye contact with drivers or communicate your actions with them • Listen for backup indicators • Stay clear of areas around the truck while they are being loaded with debris; falling debris could cause serious injury or a fatality.

Health and Safety Plan Pre-Entry Briefing Attendance Form

Health and Safety Plan Pre-Entry Briefing Attendance Form

Flatbush Station A&B Former Gas Holder Site

Brooklyn, New York

Conducted by:		**Date Performed:**	
Topics Discussed:	1. Review of the content of the HASP (Required)		
	2.		
	3.		
	4.		

Printed Name	Signature	Representing

Drill Rig Inspection Form

Drilling Safety Audit

Project Name:
Date:
Auditor:

Project Number:
Subcontractor Audited:

General Safety		
Safety Officer Designated for Job:	☐ Yes	☐ No
Name:		
Safety Meeting Performed (Daily)	☐ Yes	☐ No
Personal Protective Equipment (PPE)		
Hard Hats	☐ Yes	☐ No
Safety Glasses	☐ Yes	☐ No
Steel Toed Boots	☐ Yes	☐ No
Hearing Protection	☐ Yes	☐ No
Work Gloves	☐ Yes	☐ No
Orange Work Vests	☐ Yes	☐ No
Traffic Cones and Signs	☐ Yes	☐ No
Other	☐ Yes	☐ No
Disposal of PPE in Proper Waste Containers (if applicable)	☐ Yes	☐ No
Comments:		
Daily Inspections of Drill Rig:		
Structural Damage, Loose Bolts	☐ Yes	☐ No
Proper Tension in Chain Drives	☐ Yes	☐ No
Loose or Missing Guards, Fluid Leaks	☐ Yes	☐ No
Damaged Hoses and/or Damaged Pressure	☐ Yes	☐ No
Gages and Pressure Relief Valves	☐ Yes	☐ No
Comments:		

Check and test all safety devices such as:		
Emergency shutdown switches, at least daily	☐ Yes	☐ No
Check all gages and warning lights and ensure control levers are functioning properly	☐ Yes	☐ No
First Aid and fire extinguishers on drill rig	☐ Yes	☐ No
Back up alarm functioning properly	☐ Yes	☐ No
Comments:		
Drill Crew Training Requirements:		
40-hour OSHA Training	☐ Yes	☐ No
8-hour Annual Refresher Training	☐ Yes	☐ No
Drill Rig Training/Safe Operating Practices	☐ Yes	☐ No
First Aid/CPR	☐ Yes	☐ No
Emergency Procedures	☐ Yes	☐ No
Emergency Phone Numbers Posted	☐ Yes	☐ No
Site Orientation	☐ Yes	☐ No
Health and Safety Plan Review	☐ Yes	☐ No
Comments:		
Housekeeping:		
Suitable storage for tools, materials, and supplies	☐ Yes	☐ No
Pipes, drill rods, casing, and augers stacked on racks to prevent rolling and sliding	☐ Yes	☐ No
Platforms and other work areas free of debris materials and obstructions	☐ Yes	☐ No
Comments:		

Hand Tools:		
Tools in good condition	☐ Yes	☐ No
Broken tools discarded and replaced	☐ Yes	☐ No
Right tool used for the right job	☐ Yes	☐ No
Comments:		

Drilling Operations:		
Mast or derrick down when moving rig	☐ Yes	☐ No
Overhead obstructions identified before mast is raised	☐ Yes	☐ No
Drill rig stabilized using leveling jacks or solid cribbing	☐ Yes	☐ No
Secure and lock derrick	☐ Yes	☐ No
Comments:		

Overhead and Buried Utilities:		
Buried utilities identified and marked	☐ Yes	☐ No
Safe distance of drill rig from overhead power lines	☐ Yes	☐ No
Comments:		

Wire Line Hoists Wire Rope and Hardware:		
Inspection for broken wires where reduction in rope diameter, wire diameter, fatigue, corrosion, damage from gear jamming, crushing, bird caging, kinking	☐ Yes	☐ No
Inspect and lubricate parts daily	☐ Yes	☐ No
Comments:		

Auger Operations: What to look for:

- A system of responsibility between the operator and the tool handler when connecting and disconnecting auger sections and inserting and removing auger fork.
- During connecting and disconnecting auger sections and inserting auger for the tool, handler should position himself away from the auger column while it is rotating.
- When securing the auger to the power coupling, pin should be inserted and tapped into place using a hammer or other similar device.
- Tool hoist should be used to lower second section of auger into place.
- Both operators should be clear of auger as it is being lifted into place.
- Long-handled shovel should be used to move dirt away from auger.

Overall Summary:

Hot Work Permit Form

Hot Work Permit

Permit Valid
For 1 Work Day

Site Name: ________________________ **Project Number**:______________________
H&S Officer:_______________________ **Client**:________________________

Hot Work Description:____
____
____

Workers/Welders Conducting Hot Work:____

Permits Must be Completed in its Entirety Before Hot Work Begins

	Yes	No
Has project supervisor been notified of intended Hot Work?		
Does client representative need to be notified of the intended Hot Work?		
Will Hot Work impact the general public, clients, or operation employees?		
Will the intended Hot Work need to be coordinated with other contractors who may be working on the site to make them aware of any hazards and the scope of work to be performed?		
Have hazardous energy sources been identified, isolated, and locked out – tagged out before the start of the project?		
Will Hot Work be conducted within a confined space?		
All testing equipment (i.e., CGI, oxygen meter, etc.) and firefighting equipment (i.e., extinguisher, etc.) have been checked to ensure proper operation and calibration before the start of this project?		
Has a fire watch been designated and on station?		
Have coatings on metal surfaces been tested for ignitability and flame spread?		
Has the area been cleared of all flammable materials?		
Have all fuel sources been identified and protected?		
Has the area been restricted with proper barriers and signs?		
Has the area been tested to be certain that atmosphere is 0% LEL before starting Hot Work?		
Have flame sensitive areas and equipment (including cylinders and gas delivery lines) exposed to slag and sparks been protected by flame resistant blankets or removed from the area?		
Have all equipment and hoses been protected from falling metal structures and debris?		

Have escape routes been identified before starting work?		
Is ventilation equipment needed? Type needed:		

The Following Protective Equipment Will be Required:

	Yes	No		Yes	No
Welding Goggles/Shield Tint			Supplied Air Respirator		
Safety Boots			Head Protection		
Leather gloves			Safety Harness		
Hearing Protection			Welding Leathers – Top		
APR Cartridge			Welding Leathers - Bottom		

Permit Valid for 1 Work Day

The following procedures will be applicable prior to Hot Work on tanks or other types of enclosed structures. (Check all that apply and fill in appropriate information)

☐ Ventilate to 0% LEL
☐ Confined Space Entry Permit
☐ Mechanical Ventilation Required
☐ Cold Cut Only Method Allowed:____
☐ Hot Cutting Permitted Method Allowed:____________________________________

Inert to <____________________________% Oxygen

Approvals:

____
Date

____
National Grid Representative

____
Site Safety Officer

____
Fire Watch

____
Performed Hot Work Employee

File Permit in Project Work File and Health and Department

Attachment C

Community Air Monitoring Plan

Submitted to:
National Grid
Brooklyn, NY

Submitted by:
AECOM
Manhattan, NY
October 2011

Community Air Monitoring Plan
(Attachment C of the HASP)

Flatbush Station A&B Former Gas Holder Site
Brooklyn, New York
NYSDEC Site No.: 224061
Order on Consent Index #: A2-0552-0606

January 2012

Contents

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1.0 Introduction

This document provides the Community Air Monitoring Plan (CAMP) that will be implemented during any subsurface activities covered under the Site Management Plan [(SMP); AECOM, January 2012] for the Flatbush Station A&B Former Gas Holder Site located in the Flatbush, Brooklyn, New York. Consistent with the SMP, the term “Site” will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue. This CAMP has been prepared by AECOM Environment (AECOM) on behalf of National Grid to present the methods and procedures that will be used to evaluate air quality in the immediate vicinity of subsurface activities and provide protection to potential off-site receptors.

The Site is located in Brooklyn, Kings County, New York and is identified as Block 4827, Lots 24 and 30, portion of Block 4828 Lot 21, Block 4828 Lot 22, and portion of Parkside Avenue and Clarkson Avenue on the New York City (NYC) Tax Map. The Site is an approximately 5-acre area bounded by Winthrop Street to the north, Clarkson Avenue to the south, and commercial properties to the east and to the west (see Figure 1-3). Parkside Avenue dissects the Site into two parcels – a northern parcel consisting of Block 4827 Lots 24 and 30 and a southern parcel consisting of Block 4828 Lots 21 and 22 and portion of Clarkson Avenue. The portion of the Site north of Parkside Avenue consists of a paved parking lot. The portion south of Parkside Avenue includes 760 Parkside Avenue property which consists of a paved parking lot, an unpaved parking lot, and a two story building known as SUNY Downstate Incubator Medical Facility; 329 Clarkson Avenue which includes an open paved parking lot and driveways and an enclosed paved parking lot; and portion of Clarkson Avenue.

The objectives of this CAMP are to:

- Ensure that the airborne concentrations of constituents of concern (COC) are minimized to protect human health and the environment
- Provide an early warning system so that potential emissions can be controlled on-site at the source
- Measure and document the concentrations of airborne COC to confirm compliance with regulatory limits

The community air monitoring will be performed around the local work zone perimeter, and will measure the concentrations of organic vapors and dust during all ground-intrusive activities (soil boring, well installations, excavations, utility work, and test pitting).

This CAMP is Attachment C of the site-specific Health and Safety Plan (HASP). The HASP, which is Appendix D of the SMP, is directed primarily toward protection of on-site workers within the designated work zones.

2.0 Constituents of concern and action levels

The Site areas potentially have residual subsurface contamination, dating from the Site's historical use as a Holder facility, remaining following the Site Characterization conducted in 2011. The constituents of concern are volatile and semi-volatile organic compounds (VOCs and SVOCs). The primary VOCs of concern are benzene, ethylbenzene, toluene, and xylene (BTEX compounds). VOCs are more volatile than SVOCs and are generally of greater concern when monitoring the air quality during subsurface activities.

Airborne dust is also a concern and must be monitored and controlled due to its ability to co-transport adsorbed constituents and because of its nuisance properties.

Odors, though not necessarily indicative of high constituent concentrations, could create a nuisance (especially when working within or in close proximity to existing buildings and building entrances) and will be monitored and controlled to the extent practicable.

State and federal regulatory agencies have provided action levels for many of these constituents. The action levels are the allowable airborne concentrations above which respiratory protection or other health and safety controls are required. For any subsurface work covered under the SMP, the following levels should not be exceeded for more than 15 consecutive minutes at the downwind perimeter of the project site:

• Benzene	1 part per million (ppm)
• Total VOCs	5 ppm
• Dust	100 micrograms per cubic meter (µg/m^3)

The action levels cited here are above (in addition to) the background ambient (upwind) concentration.

3.0 Air monitoring equipment and methods

Air quality monitoring will be performed for total VOCs, benzene, and dust as outlined below.

Two perimeter locations will be established each day and an air monitoring technician will check the instrumentation at each of these locations frequently during the work. Typically there will be monitoring locations at one upwind project site perimeter location and one downwind perimeter location. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions. Field personnel will be prepared to monitor multiple locations in the event that there is little wind or if the wind direction changes frequently.

The monitoring instruments will be calibrated at the start of each workday, and again during the day if the performance of an instrument is in question.

3.1 Volatile organic compounds and benzene monitoring

3.1.1 Ambient air monitoring

VOC monitoring will be performed using three field photoionization detectors (PIDs) (RAE Systems MiniRAE or equivalent). The monitoring instruments will be checked by a technician every 15 minutes, and the real-time measurements recorded. The PIDs will be equipped with an audible alarm to indicate exceedance of the action level.

A 15-minute running average concentrations will be calculated, which can then be compared to the action levels. If real-time measurements of total VOCs indicate that the action level is exceeded, the benzene concentration will also be determined at that location using benzene-specific colorimetric tubes. The data will be downloaded at the end of each day, and monitoring records will be kept at the project site during the work in case there is an inquiry or complaint.

PID measurements will be made at one upwind and one downwind location around the work area. The locations of the instruments may be changed during the day to adapt to changing wind directions.

3.2 Particulate (dust) monitoring

Particulate (dust) monitoring will be performed during intrusive activity (drilling, excavation) at the project site. Two particulate monitors (TSI DustTrak or equivalent) will be used for continuous real-time dust monitoring. The monitoring instruments will be checked by a technician every 15 minutes, and the real-time measurements recorded. A 15-minute average concentration will be determined. The data will be downloaded at the end of each day, and monitoring records will be kept at the project site during the work in case there is an inquiry or complaint.

Measurements will be made at one upwind and one downwind location around the work area. The locations of the instruments may be changed during the day to adapt to changing wind directions. In addition, fugitive dust migration will be visually assessed during all work activities, and the observations recorded.

4.0 Emission control plan

4.1 Ambient air

Odor, vapor, and dust control will be required for this project due to the close proximity of commercial buildings and public roadways and sidewalks. Table 1 provides a response chart for the monitoring and control of vapor emissions. Table 2 provides a list of emergency contacts.

- If the ambient air concentration of total VOC levels at the downwind perimeter of the work area or exclusion zone exceeds 5 ppm (or the benzene level exceeds 1 ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring continued. If the total organic vapor levels readily decreases (per instantaneous readings) below 5 ppm (and the benzene level drops below 1 ppm) over background, work activities can resume with continued monitoring.
- If total VOC levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm (or the benzene level persists over 1 ppm) over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions until the concentrations drop below the action levels, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities will be shutdown.

Project site perimeter particulate concentrations will also be monitored continuously. In addition, dust migration will be visually assessed during all work activities.

- If the downwind particulate level is 100 µg/m^3 greater than the background (upwind perimeter) level for a 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind particulate levels do not exceed 150 µg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind particulate levels are greater than 150 µg/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 particulate concentration to within 150 µg/m^3 of the upwind level and in preventing visible dust migration.

Typical emission control measures may include:

- Apply water for dust suppression;
- Relocate operations, if applicable; and
- Reassess the existing control measures.

Table 1 Vapor Emission Response Chart

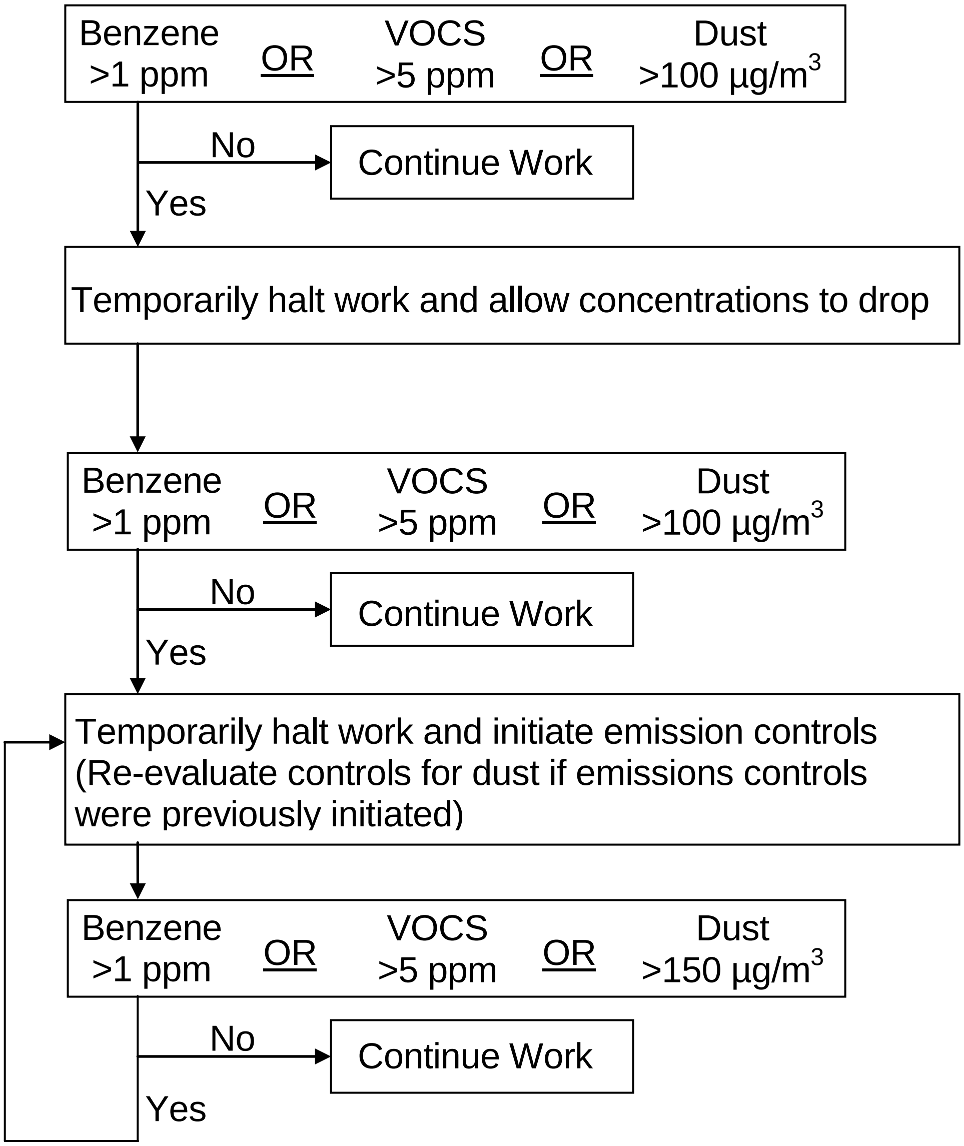

Table 2 Emergency Contacts and Telephone Numbers

Fire:	911	
Police:	911	
Ambulance:	911	
AECOM Environment Contacts	Shail Pandya	(718) 309-5643 cell (212) 798-8513 off
National Grid Contacts	Andrew Prophete	(516) 790-1654 cell (718)963-5412 off

5.0 Odor control procedures

This section outlines the procedures to be used to control odors that may be generated during the subsurface activities. The remainder of this section is intended to provide site managers, representatives of NYSDEC and New York State Department of Health (NYSDOH), and the public with information summarizing typical odor control options, and to provide some guidance for their implementation. A description of potential sources of odors and methods to be used for odor control is presented in the following sections.

5.1 Potential sources of odors

Generally, the residuals encountered at the Site areas are well defined. They are related to residual coal tar-like materials and petroleum, and principally contain VOCs, polynuclear aromatic hydrocarbons (PAHs), and a number of inorganic constituents, including metal-complexed cyanide compounds, and metals. Constituents of residual materials can produce odor emissions during subsurface activities when they are unearthed during excavations and soil borings/well installations. When this occurs, VOCs and light-end SVOCs can volatilize into the ambient air. Some Site residuals can cause distinctive odors that are similar to mothballs, roofing tar, or asphalt driveway sealer. However, the constituent concentrations generally associated with these odors are typically significantly less than levels that might pose a potential health risk. It is important to note that the CAMP will provide for continual monitoring of VOCs and dust during the fieldwork to monitor for any potential release of constituents which may pose a threat to health.

5.2 Odor monitoring

The field personnel will record observations of odors generated during the implementation of the subsurface work. When odors attributable to the uncovering of impacted media are generated in the work area during intrusive activities such as soil borings or excavation, observations will also be made at the down-wind limit of the Site, in order to assess the potential for off-site odors. The down-wind odor monitoring will be performed in conjunction with the vapor and dust monitoring program described in this CAMP.

Upon detection of odors at the project site perimeter, site controls, starting in the work area, will be implemented. The site controls described in the following sections will be used to assist with odor mitigation to minimize, and to prevent where practicable, the off-site migration of odors. Due to the short distances between any work area at the project site and the property line or nearby potential receptors, site controls will be implemented proactively when odors are detected in the breathing zone at any work area.

5.3 General site controls

Several general excavation or drilling procedure site controls that will be implemented include:

- Every effort will be made to minimize the amount of time that impacted material is exposed to ambient air at the project site.
- For excavations, it may be possible to move some amount of soil around within the footprint of the excavation in order to minimize the amount of soil removal and subsequent stockpiling of

impacted soil at the ground surface. The use of in-excavation stockpiling of excavated soil will be evaluated on a case-by-case basis, and will only be performed with the approval of the NYSDEC field representative, and will be completed only if it does not impede the collection of subsurface soils or the full delineation of the subsurface features being investigated.

- Drill cuttings from the soil borings will be containerized as soon as possible during completion of each soil boring.
- Loading of excavated debris or soil that has been found by the Site manager to be unsuitable material to return to excavation may generate odors. Every effort will be made to complete this work as quickly as possible and to keep these materials covered at all times.
- Meteorological conditions are also a factor in the generation and migration of odors. Some project site activities may be limited to times when specific meteorological conditions prevail, such as when winds are blowing away from a specific receptor.

5.4 Secondary site controls

If substantial odors still present an issue following implementation of the above procedures, secondary controls will be enacted. The field representative will work through the applicable list of secondary controls until the perimeter odor issues are resolved. The field representative will work closely with National Grid and NYSDEC during this task, if present. Final selection of controls will be dependent on field conditions encountered. Secondary controls include the following:

- For stockpiled impacted soil, temporary tarps or polyethylene covers will be used to control odors.
- The placement of portable barriers close to small active source areas (excavations) can elevate the discharge point of emissions to facilitate dispersion and minimize the effect on downwind receptors. The barriers can be constructed using materials such as plastic “Jersey barriers”, or fence poles and visual barrier fabric/plastic. The barriers are placed as temporary two or three-sided structures around active excavation or other intrusive areas, oriented such that the barriers are placed on the upwind and downwind sides of the source. If only one side of the source can be accessed, then the barrier should be placed on the downwind side.
- Two agents that can be sprayed over impacted soil have been determined to be effective in controlling emissions. They include odor suppressant solution (BioSolve™), and hydro-mulch. These agents may be used where tarps cannot be effectively deployed over the source material, or where tarps are ineffective in controlling odors:
    - BioSolve™ can provide immediate, localized control of odor emissions. Information regarding the preparation and use of BioSolve™ is provided in Appendix A.
    - Hydromulch - Although it is unlikely that it will be necessary, a modified hydromulch slurry may be used to cover inactive sources for extended periods of time (up to several days). The hydromulch, typically cellulose fibers (HydroSealR) is modified by mixing a tackifier (glue) with the mulch and water to form a slurry. It is applied using a standard hydroseed applicator to a thickness of ¼ inch. The material forms a sticky, cohesive, and somewhat flexible cover. Reapplication may be necessary if the applied layer becomes desiccated or begins to crack.

5.5 Record keeping and communication

Similar to readings recorded during the monitoring specified in the CAMP, all odor monitoring results will be recorded in the field log book or other air monitoring forms, and be available for review by the agencies upon request.

The field representative, in consultation with National Grid, will also provide information on odor monitoring and odor management to residents of the neighborhood should they inquire. In the event that odors persist after these efforts, work will be temporarily discontinued until a mutually agreeable solution with National Grid, NYSDEC, and NYSDOH staff can be worked out which allows the work to be completed while minimizing the off-site transport of nuisance odors.

6.0 Documentation and reporting

Data generated during perimeter air monitoring will be recorded in field logs and summarized daily in spreadsheets. The electronic measurements from the PIDs and dust meters will be downloaded each day, reviewed, and archived. Exceedances of the action levels, if any, and the actions to be taken to mitigate the situations, will be discussed immediately with the on-site representatives. Summaries of all air monitoring data will be provided to NYSDEC and NYSDOH in electronic format, as requested.

Appendix A

Vapor Suppression Information

BIOSOLVE®
Hydrocarbon Mitigation Technology

...Is Making A Difference!

VAPOR SUPPRESSION / ODOR CONTROL

BioSolve® offers a relatively simple and cost effective method of suppressing Odors and VOC release from soils, during excavation, loading, stockpiling, etc. The following guidelines will apply to the most common situations encountered on site.

In most cases a 3% BSW solution (1 part **BioSolve®** concentrate to 33 parts water) will be adequate to keep vapor emissions within acceptable limits and control fugitive odor problems on contact. Although, some sites may only require a 2% solution, up to a 6% solution may be recommended on sites with elevated levels or particularly difficult/ mixed stream contaminants are present.

The **BioSolve®** solution should be applied evenly to the soil surface in sufficient quantity to saturate the surface area. As a general rule, use 1-3 litres of **BioSolve®** solution to 1 square metre of surface area. (1 gallon of **BioSolve®** per solution will cover approximately 4-sq. yd. of soil surface area) **BioSolve®** is a water-based surfactant that will apply like water.

BioSolve®, in its concentrated form, is a viscous liquid material that must be diluted with water. A fluorescent red tracing dye is present in the formula allowing **BioSolve®** to be detected during application. Once diluted, **BioSolve®** can be applied with virtually any equipment that can spray water. **BioSolve®** will not harm equipment or clog pipes. For large sites, applicators such as water truck, portable agricultural sprayers, foam inductors & pressure sprayers can be used. For smaller jobs, garden sprayers, water extinguishers or a garden hose with a fertiliser attachment on the nozzle can be used effectively. This characteristic makes **BioSolve®** very adaptable and much most convenient to use in almost any situation. **BioSolve®** is equally effective when used with all types of water (soft, hard, salt or potable).

On stockpiled soil or other soil that will be left undisturbed, a single application of **BioSolve®** to the exposed surfaces may last up to 10 to 14 days or more (depending on environmental conditions). **BioSolve®,** when applied, will form a "cap" of clean soil. If the soil is not disturbed, via weather, movement, etc. this "cap" will remain functional. During excavation, loading or other movement of the soil, it may be required to spray an additional amount of **BioSolve®** to the freshly exposed surface area to keep emissions at an acceptable level.

In case of an extremely high level of emissions, or if the soil is heavily contaminated, it may be necessary to increase the strength of the **BioSolve®** solution or apply more solution per square metre to reduce emissions adequately. It is important that the site be monitored regularly and that the **BioSolve®** solution be reapplied if and when necessary to insure that VOC emissions and odors remain under control.

BioSolve® is packaged and readily available in 55 gallon (208 liter) drums, 5 gallon (19 liter) pails and in 4X1 gallon (3.8 liter X 4) cases. Contact The Westford Chemical Corporation® Toll Free @ 1-800-225-3909, via e-mail at info@biosolve.com or your Local BioSolve distributor for pricing.

BioSolve® should only be used in accordance with all regulatory rules and regulations.

This material is made available or use by professionals or persons having technical skill to be used at the own discretion and risk. These protocols are guidelines only and may need to be modified to site specific conditions. Nothing included herein is a warrantee or to be taken as a license to use **BioSolve** without the proper permits, approvals, etc. of the appropriate regulatory agencies, nor are the protocols provided as instructions for any specific application of **BioSolve**.

SOIL VAPOR SUPPRESSION UTILIZING BIOSOLVE

BioSolve is being utilized by numerous environmental consultants, response contractors, and fire departments to suppress VOC's & LEL's as well as problem odors. BioSolve encapsulates the source of the vapor rather than temporarily blanketing it like a foam or other physical barrier. Vapor reduction is so fast and effective that BioSolve is used to comply with the tough emission standards regulated by each State.

BioSolve offers a relatively simple and cost effective method of suppressing VOC vapor release from soils during excavation, loading, stockpiling… The following guidelines will apply to the most common situations encountered on site.

In most cases a 3% solution of BioSolve will be adequate to keep vapor emissions within acceptable limits. Dilute BioSolve concentrate with water at a ratio of 1 part BioSolve to 33 parts water to make a 3% solution.

The BioSolve solution should be applied evenly to the soil surface in sufficient quantity to dampen the surface well, (as a general rule, 1 gallon of BioSolve solution will cover approximately 4 sq. yd. of soil surface area). BioSolve is not a foam, it is a surfactant based product that will apply like water. The solution may be applied with a hand sprayer, high pressure power sprayer, water truck, etc., whichever method best suits the site and/or conditions.

NOTE: In the case of extremely high emission levels and/or very porous soil it may be necessary to increase the strength of the BioSolve solution (6%) or apply more per sq. yd. to reduce emissions adequately. On stockpiled soil or other soil that will be undisturbed, a single application of BioSolve to the exposed surfaces may last 10-14 days or more. During excavation, loading, or other movement of soil it may be necessary or required to spray each freshly exposed surface to keep emissions below acceptable levels.It is important that the site be monitored regularly and the BioSolve solution be reapplied if/when necessary to insure that vapor emissions remain at or below acceptable standards.

MATERIAL SAFETY DATA SHEET

THE WESTFORD CHEMICAL CORPORATION®
P.O. Box 798
Westford, Massachusetts 01886 USA

Phone: (978) 392-0689
Phone: (508) 878-5895
Emergency Phone-24 Hours: 1-800-225-3909

Fax: (978) 692-3487
Web Site: http://www.BioSolve.com
E-Mail: info@BioSolve.com

Ref. No.: 2001
Date: 1/1/2002

SECTION I - IDENTITY

Name: **BioSolve®**
CAS #: 138757-63-8
Formula: Proprietary
Chemical Family: Water Based, Biodegradable, Wetting Agents & Surfactants
HMIS Code: Health 1, Fire 0, Reactivity 0
HMIS Key: 4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight, 0 = Insignificant

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SECTION II - HAZARDOUS INGREDIENTS

Massachusetts Right to Know Law or 29 C.F.R. (Code of Federal Regulations) 1910.1000 require listing of hazardous ingredients.

This product does not contain any hazardous ingredients as defined by CERCLA, Massachusetts Right to Know Law and California's Prop. 65.

SECTION III - PHYSICAL - CHEMICAL CHARACTERISTICS

Boiling Point	: 265°F	Specific Gravity	: 1.00 +/-.01
Melting Point	: 32°F	Vapor Pressure mm/Hg	: Not Applicable
Surface Tension- 6% Solution	: 29.1 Dyne/cm at 25°C	Vapor Density Air = 1	: Not Applicable
Reactivity with Water	: No	Viscosity - Concentrate	: 490 Centipoise
Evaporation Rate	: >1 as compared to Water	Viscosity - 6% Solution	: 15 Centipoise
Appearance	: Clear Liquid unless Dyed	Solubility in Water	: Complete
Odor	: Pleasant Fragrance	pH	: 9.1+/-.3
Pounds per Gallon	: 8.38		

SECTION IV - FIRE AND EXPLOSION DATA

Special Fire Fighting Procedures : None
Unusual Fire and Explosion Hazards : None
Solvent for Clean-Up : Water
Flash Point : None

Flammable Limit : None
Auto Ignite Temperature : None
Fire Extinguisher Media : Not Applicable

SECTION V - SPECIAL PRECAUTIONS AND SPILL/LEAK PROCEDURES

Precautions to be taken in Handling and Storage: Use good normal hygiene.
Precautions to be taken in case of Spill or Leak -
Small spills, in an undiluted form, contain. Soak up with absorbent materials.
Large spills, in an undiluted form, dike and contain. Remove with vacuum truck or pump to storage/salvage vessel. Soak up residue with absorbent materials.
Waste Disposal Procedures -
Dispose in an approved disposal area or in a manner which complies with all local, state, and federal regulations.

SECTION VI - HEALTH HAZARDS

Threshold Limit Values: Not applicable
Signs and Symptoms of Over Exposure-
Acute : Moderate eye irritation. Skin: Causes redness, edema, drying of skin.
Chronic: Pre-existing skin and eye disorders may be aggravated by contact with this product.
Medical Conditions Generally Aggravated by Exposure: Unknown
Carcinogen: No
Emergency First Aid Procedures -
Eyes: Flush thoroughly with water for 15 minutes. Get medical attention.
Skin: Remove contaminated clothing. Wash exposed areas with soap and water. Wash clothing before reuse. Get medical attention if irritation develops.
Ingestion: Get medical attention.
Inhalation: None considered necessary.

SECTION VII - SPECIAL PROTECTION INFORMATION

Respiratory Protection	: Not necessary	Local Exhaust Required	: No
Ventilation Required	: Normal	Protective Clothing	: Gloves, safety glasses Wash clothing before reuse.

SECTION VIII - PHYSICAL HAZARDS

Stability	: Stable	Incompatible Substances	: None Known
Polymerization	: No	Hazardous Decomposition Products	: None Known

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SECTION IX - TRANSPORT & STORAGE

DOT Class	: Not Regulated/Non Hazardous		
Freeze Temperature	: 28°F	Storage	: 35°F-120°F
Freeze Harm	: None (thaw & stir)	Shelf Life	: Unlimited Unopened

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SECTION X - REGULATORY INFORMATION

The Information on this Material Safety Data Sheet reflects the latest information and data that we have on hazards, properties, and handling of this product under the recommended conditions of use. Any use of this product or method of application, which is not described on the Product label or in this Material Safety Data Sheet, is the sole responsibility of the user. This Material Safety Data Sheet was prepared to comply with the OSHA Hazardous Communication Regulation and Massachusetts Right to Know Law.

Appendix E

Site-Wide and Annual Inspection Forms

Annual Inspection Checklist and Certification
National Grid Flatbush Station Former A & B Holder Site
Brooklyn, New York

AECOM

Property: ____________________

Type	Inspection Task	Status	Condition	Date Completed	Initials	Remarks
Infrastructure	Building (s)					
	Building Slabs and Floor					
	Pavements					
	Underground Services					
	New Structures					
	Monitoring Wells					
Physical	Site Fences					
	Topography					
	Surface Drainage					
	Depressions					
	Vegetation					
	Ground Cover					
	Surface Soil					
Contamination	Odors					
	Staining					
	Sheens					
Property Owner/ Representative	New					
	Interview					

Inspection and Interview Acknowledgement	Signature/Date: ____________________	____________________
	Name: ____________________	____________________
	National Grid/Representative	Property Owner/Representative

Notes:

Status - Modified/Unchanged

Condition - Unchanged/Deteriorated

Interview - Work completed during the previous year and future plans

Soil Removal - Any soil removal activities will be detailed here and Figures 1-8 and 1-9 of the SMP revised accordingly.

Appendix F

Monitoring Well Boring and Construction Logs

National Grid Index Color 34 (True Color 152, 76, 0)	🟫	TAR SATURATED
True Color 255, 135, 0	🟧	INTERBEDDED LENSES OF SATURATED TAR
National Grid Index Color 40 (True Color 255, 191, 0)	🟨	BLEBS, GLOBS, LENSES, COATINGS
National Grid Index Color 64 (True Color 114, 152, 0)	🟩	TAR SHEEN/ STAINING
National Grid Index Color 131 (True Color 127, 255, 255)	🟦	TAR/ NAPHTHALENE-LIKE ODORS
National Grid Index Color 180 (True Color 63, 0, 255) FILL CH, ANGLE 121	▨	PETROLEUM SHEEN/ STAINING
National Grid Index Color 180 (True Color 63, 0, 255) FILL DOTS	░	PETROLEUM ODORS
National Grid Index Color 123 (True Color 102, 204, 178)	🟩	SOLID TAR
True Color 170, 100, 220	🟪	PURIFIER MATERIAL
True Color 190, 180, 220	🟪	PURIFIER ODORS

NOTES:

1. USE ONLY THE COLOR KEYS FOR THE CONDITIONS THAT ARE ENCOUNTERED AT A GIVEN SITE. IF CONDITIONS DESCRIBED ABOVE DO NOT EXIST, DO NOT USE IN LEGEND.
2. THE COLOR DESCRIPTORS ABOVE ARE TO BE USED IN CONJUNCTION WITH THE "ENVIRONMENTAL TERMINOLOGY FOR SOIL DESCRIPTIONS" BY M. PASTER OF GEI CONSULTANTS, INC.

NATIONAL GRID IMPACT COLORS

COLORS FOR NATIONAL GRID IMPACTS

nationalgrid

February 2011

I:\Project\National Grid\All Sites\KeySpan & National Grid COLORS\ Nat Grid Impact Colors_2010-08-25.dwg \Feb 15, 2011

AECOM

Test Pit Log

TP-1

PROJECT NO:	**60218917**	**TEST PIT DESIGNATION: TP-1**	**SURFACE ELEVATION: NA**
CLIENT:	**National Grid**	**SITE LOCATION OR AREA: Western Portion of 760 Parkside Avenue**	**START DATE: 6/23/2011**
SITE NAME:	**Flatbush Station A&B Former Gas Holder**	**EQUIPMENT USED: Backhoe**	**FINISH DATE: 6/23/2011**
ENGINEER:	**Shail Pandya**	**OPERATOR: Miller Environmental**	**START TIME: 12:30**
DEPTH WATER ENCOUNTERED:	**NA**	**TOTAL DEPTH: 8.0 ft bgs**	**FINISH TIME: 16:10**

DEPTH (FEET)	VISUAL IMPACTS (FEET)	PID HEADSPACE (PPM)	SOIL STRATIG-RAPHY USCS	SOIL CLASS USCS	SOIL DESCRIPTION LOG	STRUCTURES ENCOUNTERED OR COMMENTS
1	🟩	0.0	▨	FILL	Fill material consisting of silty sand, brick and brick fragments, varying size cobbles, debris, and pipes. No Visual impacts or odors detected. Analytical sample collected from top of valve housing	
2	🟩	0.0	▨			
3	🟩	0.0	▨		Fill material was observed within both the valve house enclosures with debris and garbage. No odors, PID hits, or visual impacts were observed within the valve house enclosures.	Two brick enclosures are located approximately 30-inches below grade and 3 ft apart. The northern brick enclosure is approximately 3 ft offcenter from the southern brick enclosure. The brick enclosures were approximately 7 ft in diameter. A cast iron valve enclosure was located to the west of the northern brick enclosure. The cast iron valve enclosure was approximately 2 ft bgs. A 2 ft diameter cast iron pipe was located in an east west direction within the southern brick enclosure at 4 ft bgs.
4	🟩	0.0	▨			
5	🟩	0.0	▨			The northern valve house enclosures was excavated intact. The structures included an approximately 7 ft diamter brick enclosure with a 2.5 ft diameter cast iron valvle enclosure to the west of the enclosure. A 2 ft diameter cast iron pipe exited from the brick enclosure below the cast iron valve enclosure in an east west direction at 4 ft bgs. The brick enclosure was jack hammered to observe the condition within the enclosure. A 3 ft diamter vertical cast pipe was centrally located within the brick enclosure with a 2 ft diamter branch exiting the enclosure along the western side into the valvle.
6	🟩	0.0	▨			
7	🟩	0.0	▨			
8	🟩	0.0	▨		Sample collected from below the cast iron pipe exiting the valve enclosure and from within the brick enclosure	

Test pit terminated at 8.0 ft bgs.

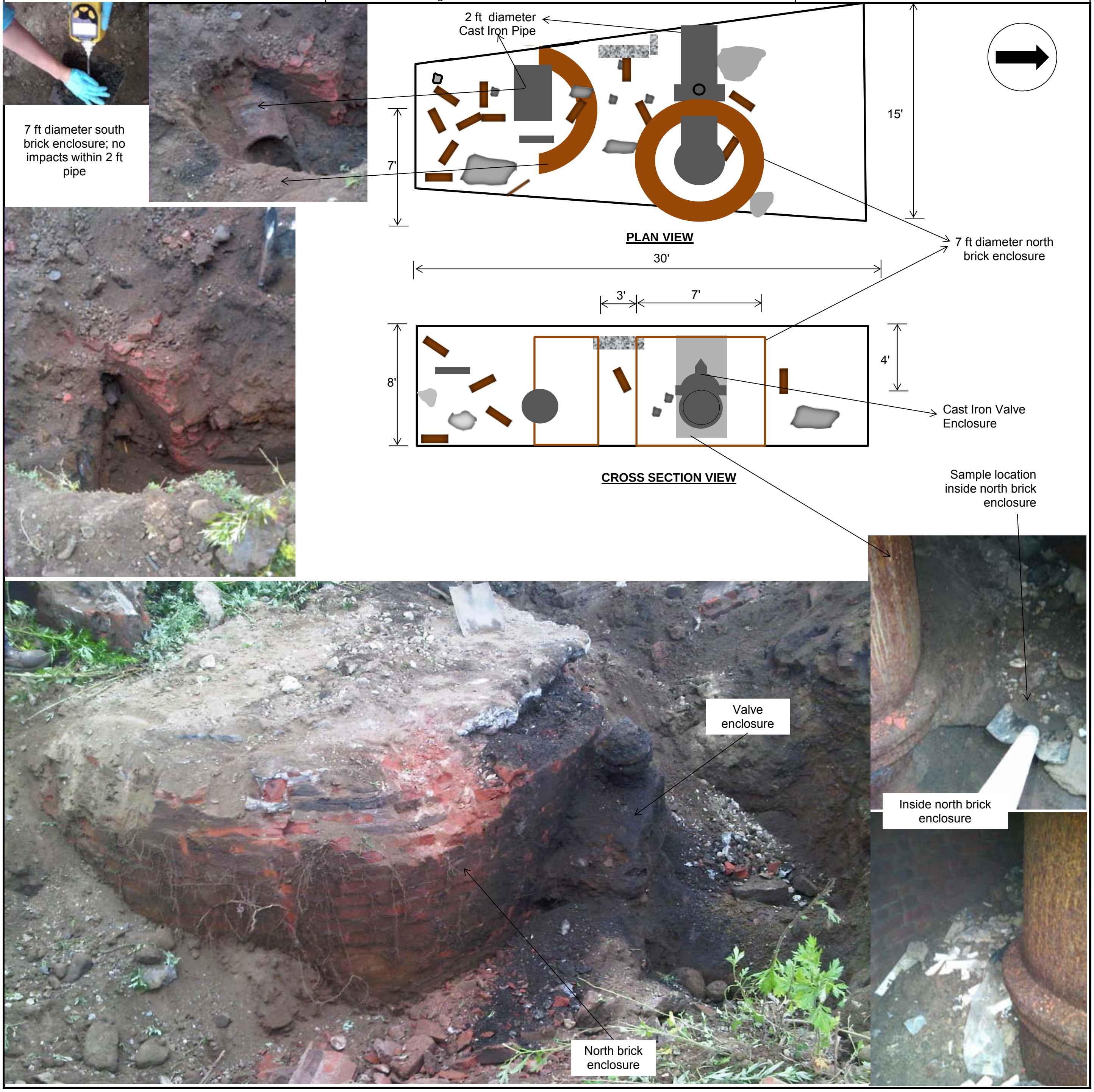
Definitions:

1.) NA - Not Applicable	4.) bgs - below ground surface	7.) NAVD 88 - North American Vertical Datum of 1988
2.) ft - feet	5.) ppm - parts per million	8.) U.S.C.S. - Unified Soil Classification System
3.) SAA - Same As Above	6.) PID - Photo Ionization Meter	

Test Pit Log

TP-1

PROJECT NO: 60218917	**TEST PIT DESIGNATION:** TP-1	**SURFACE ELEVATION:** NA
CLIENT: National Grid	**SITE LOCATION OR AREA:** Western Portion of 760 Parkside Avenue	**START DATE:** 6/23/2011
SITE NAME: Flatbush Station A&B Former Gas Holder	**EQUIPMENT USED:** Backhoe	**FINISH DATE:** 6/23/2011
GEOLOGIST: Shail Pandya	**OPERATOR:** Miller Environmental	**START TIME:** 12:30
DEPTH WATER ENCOUNTERED: NA	**TOTAL DEPTH:** 8.0 ft bgs	**FINISH TIME:** 16:10



Test Pit Log

TP-2

PROJECT NO:	**60218917**	**TEST PIT DESIGNATION: TP-2**	**SURFACE ELEVATION: NA**
CLIENT:	**National Grid**	**SITE LOCATION OR AREA: Northwestern Portion of 760 Parkside Avenue**	**START DATE: 6/23/2011**
SITE NAME:	**Flatbush Station A&B Former Gas Holder**	**EQUIPMENT USED: Backhoe**	**FINISH DATE: 6/23/2011**
ENGINEER:	**Shail Pandya**	**OPERATOR: Miller Environmental**	**START TIME: 09:50**
DEPTH WATER ENCOUNTERED:	**NA**	**TOTAL DEPTH: 7.0 ft bgs**	**FINISH TIME: 11:55**

DEPTH (FEET)	**VISUAL IMPACTS (FEET)**	**PID HEADSPACE (PPM)**	**SOIL STRATIG-RAPHY USCS**	**SOIL CLASS USCS**	**SOIL DESCRIPTION LOG**	**STRUCTURES ENCOUNTERED OR COMMENTS**
1	🟩	0.0	▨	FILL	0 - 6": Asphalt, concrete, and some bricks. 6" - 1': Fill consisting of cobbles and debris and clayey sand.	Concrete pad at surface on eastern portion of test pit. 10-inch thick concrete pad observed at 6" bgs on western portion of test pit
2	🟩	0.0	▨		1 - 2': Fill material consisting of bricks, cobbles, and clayey sand; no odors or visual impacts.	3-inch diameter cast iron pipe entering the test pit in east west direction below the 10-inch concrete pad on the western boundary of the test pit. Bottom of concrete pad observed on eastern portion of the test pit (assumed 2 feet thicj foundation).
3	🟩	0.0	▨		2 - 3': SAA	3-inch diameter cast iron pipe entering the test pit in east west direction below the 2-feet concrete pad on the eastern boundary of the test pit. 10-inch concrete pad extending in east west direction from the western boundary of the test pit to half way of the test pit.
4	🟩	0.0	▨		3': Fill material consisting of cobbles, and silty clay with seavily weathered coal fragments; hydrogen sulfide-like odor, no visual impacts 3 - 7': Fill materials with silty clay and large 8"X2'X2' stones; lots of cobbles and bricks.	
5	🟩	0.0	▨			
6	🟩	0.0	▨			5-inch diameter cast iron pipe observed in east west direction along the entire length of the test pit from the western boundary wall to the eastern boundary wall.
7	🟩	0.0	▨			Collected sample TP-2 (6-7)

Test pit terminated at 7.0 ft bgs.

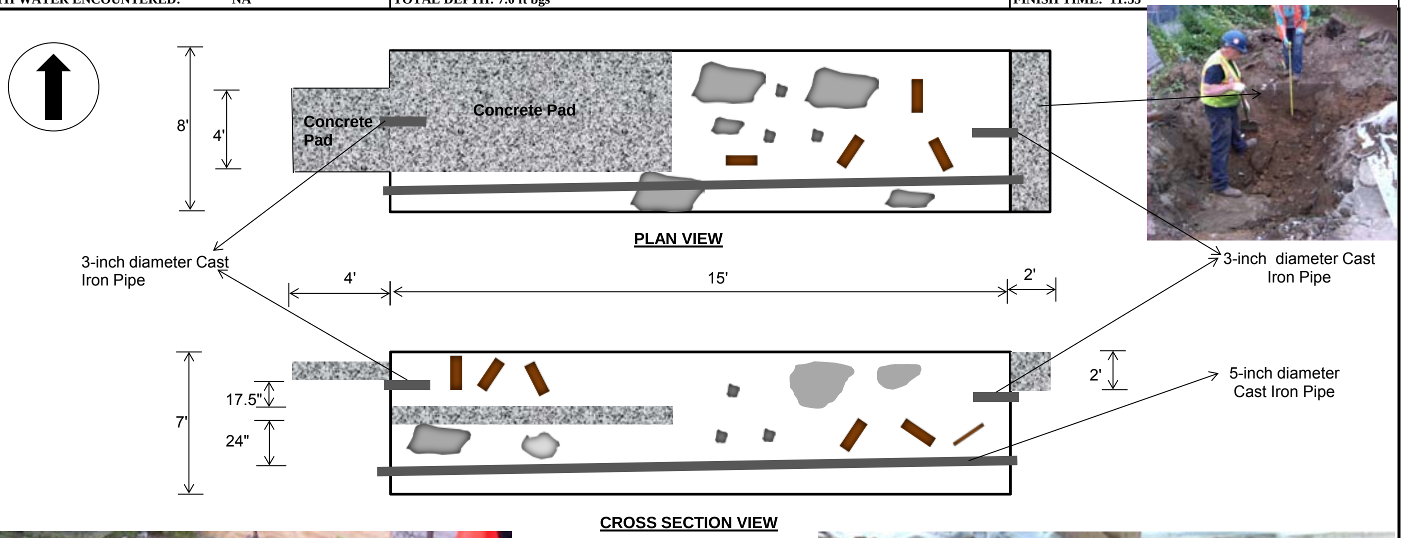
Definitions:

1.) NA - Not Applicable
2.) ft - feet
3.) SAA - Same As Above
4.) bgs - below ground surface
5.) ppm - parts per million
6.) PID - Photo Ionization Meter
7.) NAVD 88 - North American Vertical Datum of 1988
8.) U.S.C.S. - Unified Soil Classification System

Test Pit Log

TP-2

PROJECT NO: 60218917	**TEST PIT DESIGNATION:** TP-2	**SURFACE ELEVATION:** NA
CLIENT: National Grid	**SITE LOCATION OR AREA:** Northwestern Portion of 760 Parkside Avenue	**START DATE:** 6/23/2011
SITE NAME: Flatbush Station A&B Former Gas Holder	**EQUIPMENT USED:** Backhoe	**FINISH DATE:** 6/23/2011
GEOLOGIST: Shail Pandya	**OPERATOR:** Miller Environmental	**START TIME:** 09:50
DEPTH WATER ENCOUNTERED: NA	**TOTAL DEPTH:** 7.0 ft bgs	**FINISH TIME:** 11:55



AECOM

Boring ID: SB-1 / MW-1

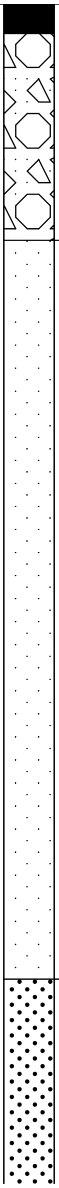
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan 24, 2011
Date Started/Completed: Jan. 24, 2011 / Jan 25, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

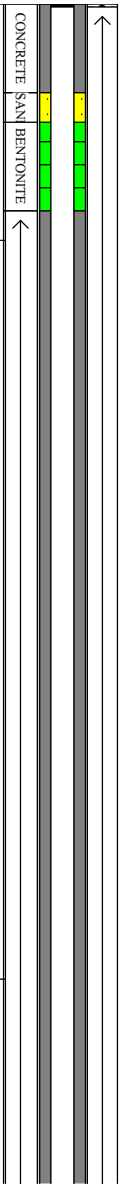
Water Level: 54 ft bgs
Total Depth: 64 ft bgs
Ground Elevation: 57.36'/57.09'
Converted To Well (Y/N): Yes
Well ID: MW-1

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Geologic Description
0	NA	2.0				FILL	0-0.5 ft bgs: ASPHALT
-1		1.4					0.5-1.25 ft bgs: FILL: sandy silt, ~20% angular gravel, moist, brown, no odor.
-2							1.25-4 ft bgs: FILL: silty clay, ~ 10% angular gravel, medium plastic, brown, no odors.
-3							
-4				▨	SB-1 (4.5-5)	SW	4-5 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~30% gravel, dry, brown, no odor.
-5	NA	2.7					5-10 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~25% angular gravel pieces, ~20% silt, dry, brown, no odor.
-6							
-7		5.1					
-8							
-9							
-10	4.0'/ 4.0'	2.6					10-14 ft bgs: WELL GRADED SAND (SW): 50% fine grained sand, 50% large cobbles up to 6 inches in diameter, dry, light brown, no odor.
-11							
-12		2.3					
-13							
-14	5.0'/ 5.0'	2.8					14-16.5 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~20% gravel, slightly moist, light brown, no odor.
-15							
-16		1.5				SP	16.5-19 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~5% gravel, dry, light brown, no odor.
-17							
-18							
-19	2.83'/ 3.0'	0.0					19-22 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~5% fine grained gravel, moist, light brown,
-20							

Lithology



Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

Boring ID: SB-1 / MW-1

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** 54 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 64 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.36'/57.09'
Date Pre-Cleared: Jan 24, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 24, 2011 / Jan 25, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW-1

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-20								no odor.	GROUT PVC RISER
-22	3.0'/ 3.5'	0.2				SM		22-25.5 ft bgs: SILTY SAND (SM):~30% gravel up to 4 inches in diameter, slightly moist, light brown, no odor.	
-25.5	3.16'/ 3.5'	3.9						25.5-29 ft bgs: SAA	
-29	1.42'/ 5.0'	4.4						29-34 ft bgs: SILTY SAND (SM): ~10% fine grained gravel, slighty moist, light brown, no odor.	
-34	3.25'/ 5.0'	8.9				SP		34-39 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~5% fine grained gravel, slightly moist, light brown, no odor.	
-36.5		26.6							
-39	1.25'/ 5.0'	14.2						39-44 ft bgs: SAA	
-40									

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

Boring ID: SB-1 / MW-1

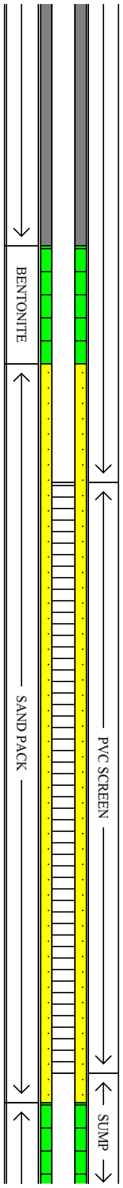
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan 24, 2011
Date Started/Completed: Jan. 24, 2011 / Jan 25, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: 54 ft bgs
Total Depth: 64 ft bgs
Ground Elevation: 57.36'/57.09'
Converted To Well (Y/N): Yes
Well ID: MW-1

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40								
-41								
-42								
-43								
-44	3.42'/ 5.0'	46.5		▨	SB-1 (44-46.5)			44-49 ft bgs: SAA
-45								
-46		1.6						
-47								
-48								
-49	4.83'/ 5.0'	30.7						49-54 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, moist, light brown, no odors.
-50								
-51		5.3						
-52								
-53								
-54	5.0'/ 5.0'	6.0						54-59 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light brown, no odors.
-55								
-56		4.0						
-57								
-58								
-59	5.0'/ 5.0'	35.6		▨	SB-1 (59-61.5)			59-64 ft bgs: SAA
-60								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

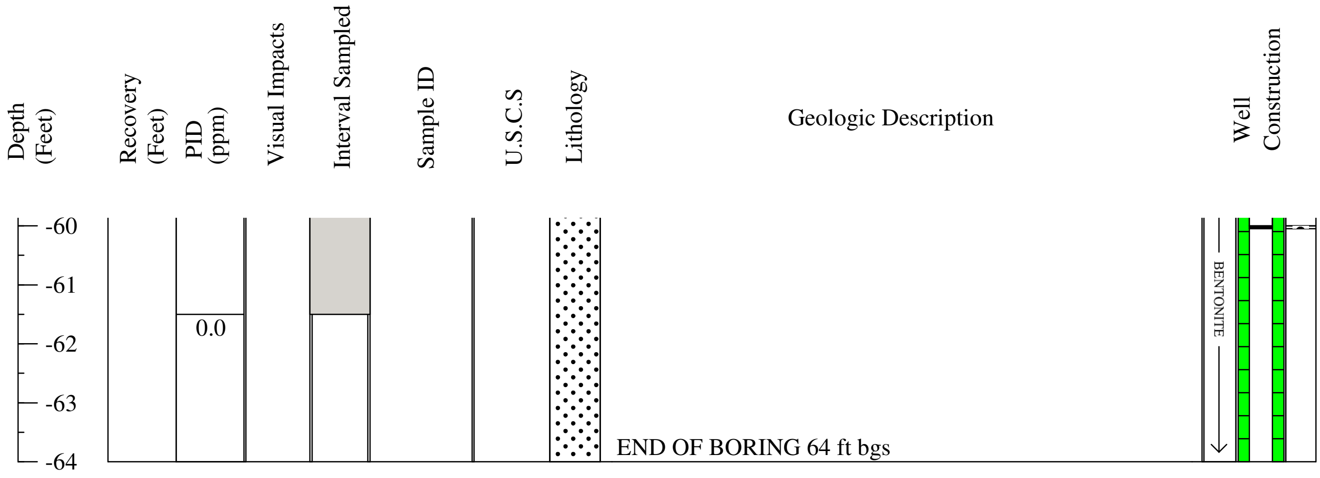
Boring ID: SB-1 / MW-1

Page 4 of 4

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan 24, 2011
Date Started/Completed: Jan. 24, 2011 / Jan 25, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: 54 ft bgs
Total Depth: 64 ft bgs
Ground Elevation: 57.36'/57.09'
Converted To Well (Y/N): Yes
Well ID: MW-1



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

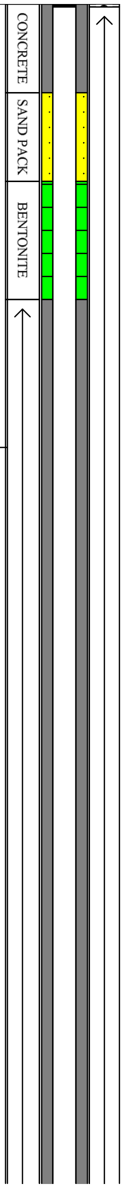
Boring ID: SB - 2 / MW - 2

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** 49 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 59 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 55.41'/55.03'
Date Pre-Cleared: Jan. 25, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 25, 2011 / Jan. 26, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 2

Depth (Feet): 0, -1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -20

Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
NA	0.7		▨	SB-2 (0.30-1)	FILL		0-0.30 ft bgs: ASPHALT 0.30-1.0 ft bgs: FILL: silty sand, ~30% gravel, moist, light brown. 1.0-7.5 ft bgs: FILL: concrete.
	0.6				SW		7.5-9 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~30% cobbles up to 6 inches in diameter, wet from drill water, light brown, no odors.
5.0'/ 5.0'	0.6						9-14 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~40% cobbles up to 6 inches in diameter, dry, no odors.
	0.5						
4.75'/ 5.0'	4.3						14-19 ft bgs: WELL GRADED SAND (SW): silty sand, ~30% cobbles up to 6 inches in diameter, light brown, dry, no odor.
	1.4						
2.0'/ 5.0'	1.9						19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~25% gravel, moist, brown, no

Well Construction



Comments: NA: Not Applicable | ft bgs: feet below grade surface | Sonic drilling started at 1.0 ft bgs due to concrete obstruction.

NR: No Recovery | SAA: Same As Above

ND: Not Documented | Hand cleared from 0 to 1.0 ft bgs

AECOM

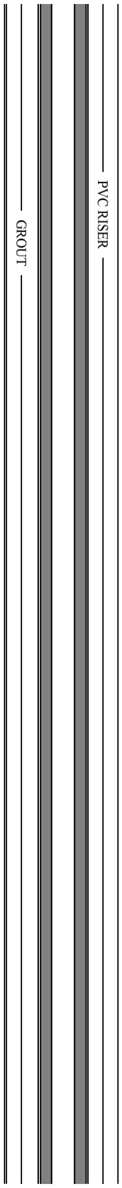
Boring ID: SB - 2 / MW - 2

Page 2 of 3

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** 49 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 59 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 55.41'/55.03'
Date Pre-Cleared: Jan. 25, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 25, 2011 / Jan. 26, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 2

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20								odors.
-21								
-22		1.2						
-23								
-24	3.83'/ 5.0'	1.1						24-29 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~20% gravel, ~5% cobbles, moist, light brown, no odors.
-25								
-26								
-27		0.7						
-28								
-29	2.5'/ 5.0'	3.5						29-34 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel, moist to wet from drill water, light brown, no odors.
-30								
-31								
-32		1.1						
-33								
-34	3.92'/ 5.0'	0.5						34-39 ft bgs: SAA, moist.
-35								
-36								
-37		0.1						
-38								
-39	1.75'/ 5.0'	2.8						39-44 ft bgs: SAA
-40								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same As Above
Hand cleared from 0 to 1.0 ft bgs

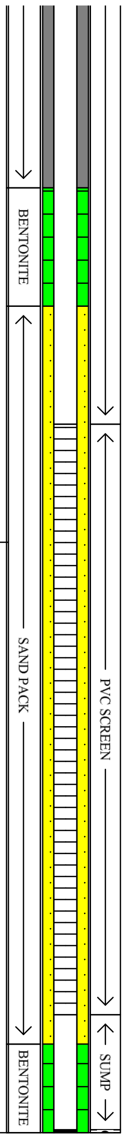
Sonic drilling started at 1.0 ft bgs due to concrete obstruction.

Boring ID: SB - 2 / MW - 2

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** 49 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 59 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 55.41'/55.03'
Date Pre-Cleared: Jan. 25, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 25, 2011 / Jan. 26, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 2

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40								
-41								
		3.9						
-42								
-43								
-44	3.75'/ 5.0'	2.7						44-49 ft bgs: SAA, ~5% gravel pieces
-45								
-46								
		2.4		▨	SB-2 (46.5-49)			
-47								
-48								
-49	3.42'/ 5.0'	0.8				SP		49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, light brown, wet, no odor.
-50								
-51								
		4.5						
-52								
-53								
-54	3.0'/ 5.0'	3.9						54-59 ft bgs: SAA
-55								
-56								
		4.4		▨	SB-2 (56.5-59)			
-57								
-58								
-59								END OF BORING 59 ft bgs

Well Construction

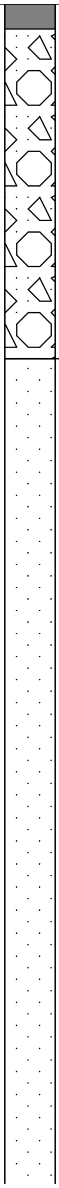


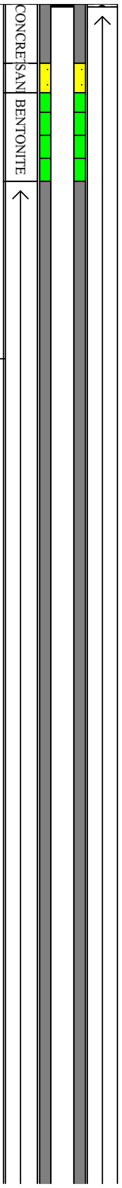
Comments:	NA: Not Applicable	ft bgs: feet below grade surface	Sonic drilling started at 1.0 ft bgs due to concrete obstruction.
	NR: No Recovery	SAA: Same As Above	
	ND: Not Documented	Hand cleared from 0 to 1.0 ft bgs	

Boring ID: SB - 3 / MW - 3

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 59 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.23'/57.83'
Date Pre-Cleared: Feb. 8, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Feb. 8, 2011/ Feb. 9, 2011	**Logged By:** Heather Albert	**Well ID:** MW - 3

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
0 -1	NA	1.2				FILL		0-0.42 ft bgs: CONCRETE 0.42-1.5 ft bgs: FILL: clay, ~5% fine grained sand, cohesive, somewhat plastic, medium stiff, <10% gray mottled, wet, no odor.	
-2	NA	2.0		▨	SB-3 (1.5-3)			1.5-3.0 ft bgs: SAA, unable to hand clear after 3 ft bgs due to cobbles and crushed concrete.	
-3 -4	NA	1.3						3-5 ft bgs: FILL: medium grained sand, brown, cobbles 1-6 inches in diameter, angular to rounded, grey, crushed concrete, wet, no odor.	
-5	ND	2.2						5-6 ft bgs: SAA	
-6 -7	ND	3.2				SW		6-8 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~30% angular gravel up to 1 centimeter in diameter, ~10% cobbles up to 4 inches in diameter, dry, reddish brown, no odors.	
-8 -9	ND	5.3						8-10 ft bgs: SAA	
-10	ND	4.1						10-11 ft bgs: WELL GRADED SAND (SW): ~60% fine to medium grained sand, ~30% cobbles up to 4 inches in diameter, angular to rounded, ~10% silt, non-cohesive, non-plastic, moist, brown, no odors.	
-11 -12 -13	3.5'/ 3.0'	3.3						11-14 ft bgs: SAA	
-14 -15 -16 -17 -18	2.58'/ 5.0'	4.7						14-19 ft bgs: SAA, ~70% fine to coarse grained sand, ~20% cobbles, ~10% silt.	
-19 -20	3.0'/ 5.0'	4.6						19-24 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% gravel, cobbles 1 centimeter to	





Comments: NA: Not Applicable	ft bgs: feet below grade surface	Sonic drilling started at 3 ft bgs
NR: No Recovery	SAA: Same As Above	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared to 3 ft bgs	

Boring ID: SB - 3 / MW - 3

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 8, 2011
Date Started/Completed: Feb. 8, 2011/ Feb. 9, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 59 ft bgs
Ground Elevation: 58.23'/57.83'
Converted To Well (Y/N): Yes
Well ID: MW - 3

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-20								2 inches in diameter, subangular to rounded, moist, multi-colored, no odor.	GROUT PVC RISER
-21									
-22									
-23									
-24	3.5'/ 5.0'	4.0						24-29 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~5% rounded gravel up to 1 centimeter in diameter, slightly moist, brown.	
-25									
-26									
-27									
-28									
-29	3.5'/ 5.0	4.6						29-34 ft bgs: SAA, moist.	
-30									
-31									
-32				▨	SB-3 (31.5-34)				
-33				▨					
-34	2.83'/ 5.0'	3.3						34-36.5: SAA	
-35									
-36									
-37		4.0						36.5-39 ft bgs: WELL GRADED SAND (SW): very fine grained sand and silt, non-cohesive, non-plastic, dry to slightly moist, brown, no odor.	
-38									
-39	3.42'/ 5.0'	3.4						39-44 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, moist, brown, no odors.	
-40									

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same As Above
Hand cleared to 3 ft bgs
Sonic drilling started at 3 ft bgs
Visual impacts also includes olfactory impacts.

Boring ID: SB - 3 / MW - 3

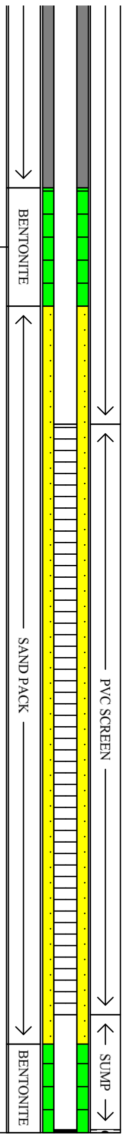
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 8, 2011
Date Started/Completed: Feb. 8, 2011/ Feb. 9, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 59 ft bgs
Ground Elevation: 58.23'/57.83'
Converted To Well (Y/N): Yes
Well ID: MW - 3

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40								
-41								
-42								
-43								
-44	2.66'/ 5.0'	2.9				SP		44-49 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, no odors.
-45								
-46								
		3.1		▨	SB-3 (46.5-49)			
-47								
-48								
-49	3.0'/ 5.0'	2.6						49-54 ft bgs: SAA, wet.
-50								
-51								
		2.7						
-52								
-53								
-54	3.42'/ 5.0'	1.0						54-56.5 ft bgs: SAA
-55								
-56								
		2.3		▨	SB-3 (56.5-59)			56.5-59 ft bgs: SAA, very fine grained sand and silt, wet.
-57								
-58								
-59								END OF BORING 59 ft bgs

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same As Above
Hand cleared to 3 ft bgs
Sonic drilling started at 3 ft bgs
Visual impacts also includes olfactory impacts.

Boring ID: SB - 4 / MW - 4

Page 1 of 4

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 10, 2011
Date Started/Completed: Feb. 10, 2011 / Feb. 15, 2011

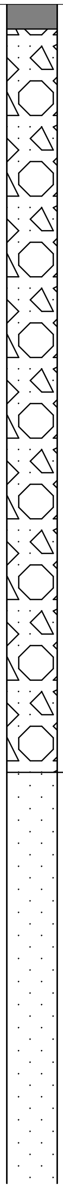
Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 56.58'/56.25'
Converted To Well (Y/N): Yes
Well ID: MW - 4

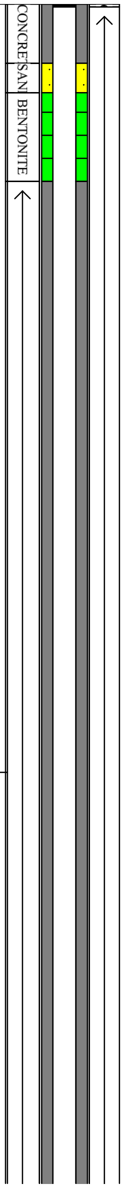
Depth (Feet): 0, -1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -20

Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Geologic Description
NA	0.8				FILL	0-0.42 ft bgs: CONCRETE 0.42-2.5 ft bgs: FILL: fine to coarse grained sand, ~40% cobbles 0.5 centimeters to 6 inches in diameter, subangular to rounded, moist, brown, no odors.
NA	1.0		▨	SB - 4 (2.5-5)		2.5-5 ft bgs: SAA
ND	1.0					5-6 ft bgs: SAA
ND	2.4					6-8 ft bgs: FILL: fine to coarse grained sand, ~20% cobbles up to 4 inches in diameter, rounded, ~20% silt, non-cohesive, non-plastic, soft, moist, brown.
ND	2.6					8-10 ft bgs: SAA
3.0'/ 3.0'	3.6					10-13 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~1% cobbles up to 2 inches in diameter, subrounded, moist, reddish brown, no odor.
3.0'/ 3.0'	2.0				SW	13-16 ft bgs: WELL GRADED SAND (SW): ~50% fine to coarse grained sand, brown, ~50% cobbles, angular to rounded, up to 4 inches in diameter, multi-colored, moist, no odors.
2.5'/ 4.0'	1.8					16-20 ft bgs: SAA, cobbles 1-2 inches in diameter.

Lithology



Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

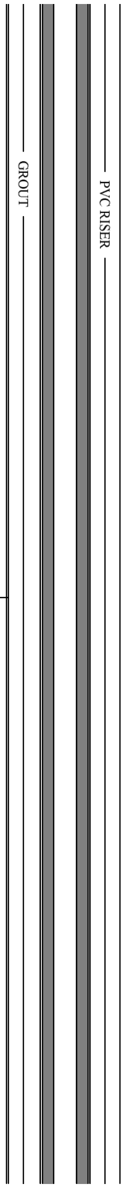
AECOM

Boring ID: SB - 4 / MW - 4

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 70 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 56.58'/56.25'
Date Pre-Cleared: Feb. 10, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Feb. 10, 2011 / Feb. 15, 2011	**Logged By:** Heather Albert	**Well ID:** MW - 4

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	2.5'/ 4.0'	1.2						20-25 ft bgs: SAA, drillers using water to advance.
		1.3						
-25	3.33'/ 5.0'	1.4						25-30 ft bgs: WELL GRADED SAND (SW): fine to coarse sand, brown, ~10% gravel up to 1 centimeter in diameter, rounded, multicolored, moist, no odor.
		1.7						
-30	3.08'/ 5.0'	2.0				SP		30-35 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, no odor.
		1.6						
-35	2.83'/ 5.0'	1.4						35-40 ft bgs: SAA
-40								

Well Construction



Comments: NA: Not Applicable	SAA: Same As Above	Sonic drilling started at 5 ft bgs.
NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0 - 5 ft bgs.	

Boring ID: SB - 4 / MW - 4

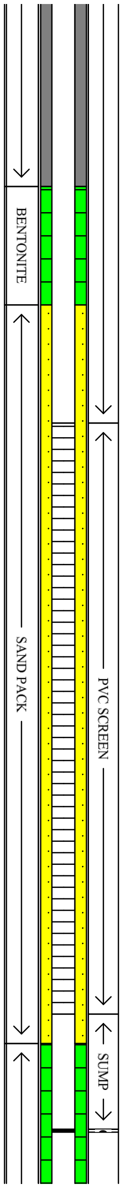
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 10, 2011
Date Started/Completed: Feb. 10, 2011 / Feb. 15, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 56.58'/56.25'
Converted To Well (Y/N): Yes
Well ID: MW - 4

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	3.0'/ 5.0'	1.6						40-45 ft bgs: SAA
-41								
-42								
-43								
-44								
-45	2.0'/ 5.0'	0.9						45-50 ft bgs: SAA, light brown.
-46								
-47		1.2		▨	SB - 4 (47-50)			
-48								
-49								
-50	1.67'/ 5.0'	1.3						50-55 ft bgs: SAA
-51								
-52		1.3						
-53								
-54								
-55	2.67'/ 5.0'	8.0						55-60 ft bgs: SAA, very faint petroleum-like odor at bottom.
-56								
-57		11.3	▨					
-58								
-59								
-60								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 4 / MW - 4

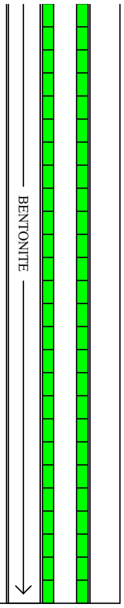
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 10, 2011
Date Started/Completed: Feb. 10, 2011 / Feb. 15, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 56.58'/56.25'
Converted To Well (Y/N): Yes
Well ID: MW - 4

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60	3.33'/ 4.0'	13.7						60-64 ft bgs: SAA, faint petroleum-like odor.
-61								
-62		16.9						
-63								
-64	3.0'/ 3.0'	32.7		▨	SB - 4 (64-67)			64-67 ft bgs: SAA, moderate petroleum-like odor.
-65				▨				
-66				▨				
-67	3.0'/ 3.0'	29.5						67-70 ft bgs: SAA, ~20% silt.
-68								
-69								
-70								END OF BORING 70 ft bgs

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

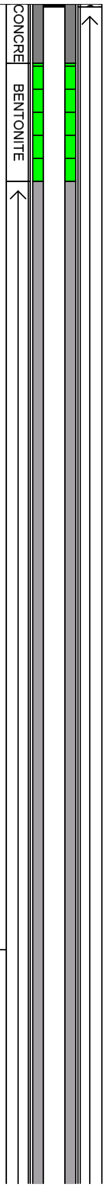
AECOM

Boring ID: SB-5 / MW-5

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Fenley and Nicol	**Water Level:** 51 ft bgs
Project Number: 60144412	**Drilling Method:** HSA	**Total Depth:** 71 ft bgs
Client: National Grid	**Sampling Method:** Split spoon	**Ground Elevation:** 59.58'/59.15'
Date Pre-Cleared: Jan. 4, 2011	**Boring Diameter:** 8 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 19, 2011/Jan. 20, 2011	**Logged By:** Rolando Arco	**Well ID:** MW-5

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	NA	ND				FILL		0-0.5 ft bgs: CONCRETE. 0.5-4 ft bgs: FILL: dark brown, poorly sorted silty sand.
-1		NA							
-2		NA							
-3		NA							
-4		NA			▨	SB-5 (4.5-5)			4- 5 ft bgs: FILL: brown - yellow clay.
-5	1'/ 2'	NA	0.3						5-7 ft bgs: FILL: light brown clay, one large angular pebble in bottom of spoon, moist.
-6									
-7	1.6'/ 2'	22/ 44/ 58/ 70	0.4						7-8.5 ft bgs: No recovery.
-8									8.5-9 ft bgs: FILL: light brown, poorly sorted sand/gravel mixture, moist.
-9	0.75'/ 2'	12/ 58/ 50/2"	0.8						9-11 ft bgs: FILL: brown, poorly sorted sand.
-10									
-11	2'/ 2'	42/ 48/ 51/ 58	1.4						11-15 ft bgs: FILL: brown, gravel/sand (~60% gravel and ~40% sand), dry.
-12									
-13	1'/ 2'	22/ 48/ 50/ 38	ND						
-14									
-15	0.7'/ 2'	12/ 42/ 22/ 16	0.0						15 -16 ft bgs: FILL: brown, fine, sand, dry.
-16							SW		16-17 ft bgs: WELL GRADED SAND (SW): brown, coarse grained, sand (~70%) and fine gravel (~30%).
-17	0.8'/ 2'	23/ 44/ 50/ 23	0.0						17-19 ft bgs: WELL GRADED GRAVEL (GW): coarse angular gravel, ~25% poorly sorted sand and pulverized rock fragments.
-18									
-19	NR	100/ 5"	NA						19-23 ft bgs: NO RECOVERY.
-20									

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
Ground Elevation: (surface)/(rim)
HSA: Hollow Stem Auger
ft bgs: feet below grade surface
ND: Not Documented
Hand cleared from 0-5 ft bgs.
Visual impacts also includes olfactory impacts.
SAA: Same As Above

AECOM

Boring ID: SB-5 / MW-5

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 4, 2011
Date Started/Completed: Jan. 19, 2011/Jan. 20, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: 51 ft bgs
Total Depth: 71 ft bgs
Ground Elevation: 59.58'/59.15'
Converted To Well (Y/N): Yes
Well ID: MW-5

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-20										GROUT PVC RISER
-21 -22	NR	100/ 4"	NA							
-23 -24	0.7'/ 2'	42/ 21/ 14/ 16	0.0						23-25 ft bgs: WELL GRADED SAND (SW): light brown, coarse gravelly sand (~50% gravel, ~50% sand), dry.	
-25 -26	0.5'/ 2'	42/ 20/ 25/ 35	0.0						25-27 ft bgs: SAA, rounded pebbles, pebble observed in shoe of sampler.	
-27 -28	0.7'/ 2'	40/ 18/ 20/ 30	0.0						27-29 ft bgs: WELL GRADED SAND (SW): light brown-yellow, poorly sorted sand, ~ 50% medium to coarse sand, ~10% fine to medium gravel, rounded pebbles, dry.	
-29 -30	0.4'/ 2'	7/ 9/ 10/ 20	0.0						29-31 ft bgs: SAA, finer grained sand from 30.5-31 ft bgs.	
-31 -32	2'/ 2'	16/ 22/ 22/ 25	0.0		▨	SB-5 (31-33)			31-31.7 ft bgs: WELL GRADED SAND (SW): light brown to yellow medium to coarse sand, ~10% gravel, dry. 31.7-33 ft bgs: WELL GRADED SAND (SW): light brown poorly sorted sand, ~40% coarse sand, ~10% fine gravel, dry.	
-33 -34	0.7'/ 2'	8/ 8/ 5/ 25	0.0						33-35 ft bgs: SAA, < 5% silt, dry.	
-35 -36	NR	40/ 70/ 50/3"	NA						35-37 ft bgs: NO RECOVERY.	
-37 -38	0.8'/ 2'	8/ 12/ 17/ 18	0.0						37-39 ft bgs: SAA (33-35 ft bgs).	
-39 -40	NR	38/ 38/	NA						39-41 ft bgs: NO RECOVERY.	

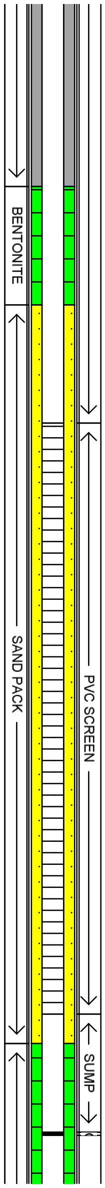
Comments:	NA: Not Applicable	HSA: Hollow Stem Auger	Hand cleared from 0-5 ft bgs.
	NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
	Ground Elevation: (surface)/(rim)	ND: Not Documented	SAA: Same As Above

Boring ID: SB-5 / MW-5

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Fenley and Nicol	**Water Level:** 51 ft bgs
Project Number: 60144412	**Drilling Method:** HSA	**Total Depth:** 71 ft bgs
Client: National Grid	**Sampling Method:** Split spoon	**Ground Elevation:** 59.58'/59.15'
Date Pre-Cleared: Jan. 4, 2011	**Boring Diameter:** 8 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 19, 2011/Jan. 20, 2011	**Logged By:** Rolando Arco	**Well ID:** MW-5

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40		38/ 45							
-41	2'/ 2'	11/ 17/ 25/ 30	0.0						41-43 ft bgs: SAA (37-39 ft bgs).
-43	2'/ 2'	14/ 22/ 22/ 26	0.0						43-45 ft bgs: WELL GRADED SAND (SW): light brown, well sorted fine sand, ~5% silt, ~5% gravel.
-45	2'/ 2'	20/ 30/ 26/ 30	0.0						45-47 ft bgs: WELL GRADED SAND (SW): light brown, poorly sorted sand, dry.
-47	2'/ 2'	14/ 20/ 20/ 28	0.0		▨	SB-5 (47-49)			47-49 ft bgs: SAA.
-49	1.6'/ 2'	10/ 20/ 20/ 19	0.0						49-50.2 ft bgs: SAA. 50.2-51 ft bgs: WELL GRADED SAND (SW): brown fine sand, moist to wet.
-51	2'/ 2'	10/ 10/ 14/ 20	0.0						51-53 ft bgs: WELL GRADED SAND (SW): brown poorly sorted sand, ~65% medium to coarse sand, ~25% medium to fine sand, ~10% fine gravel (multiple colored, rounded, pebbles), wet.
-53	2'/ 2'	5/ 6/ 4/ 18	0.0						53- 55 ft bgs: SAA.
-55	2'/ 2'	10/ 25/ 30/ 35	0.0						55-57 ft bgs: SAA.
-57	1.3/ 2'	28/ 18/ 12/ 18	0.0						57-59 ft bgs: SAA.
-59	1'/ 2'	4/ 1/	0.0						59-61 ft bgs: SAA, run water in augers.
-60									

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
Ground Elevation: (surface)/(rim)
HSA: Hollow Stem Auger
ft bgs: feet below grade surface
ND: Not Documented
Hand cleared from 0-5 ft bgs.
Visual impacts also includes olfactory impacts.
SAA: Same As Above

Boring ID: SB-5 / MW-5

Project Name: Flatbush Station A&B Former Gas Holder

Project Number: 60144412

Client: National Grid

Date Pre-Cleared: Jan. 4, 2011

Date Started/Completed: Jan. 19, 2011/Jan. 20, 2011

Drilling Company: Fenley and Nicol

Drilling Method: HSA

Sampling Method: Split spoon

Boring Diameter: 8 inches

Logged By: Rolando Arco

Water Level: 51 ft bgs

Total Depth: 71 ft bgs

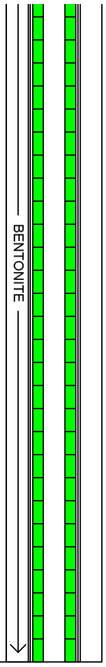
Ground Elevation: 59.58'/59.15'

Converted To Well (Y/N): Yes

Well ID: MW-5

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60		3/ 10							
-61 -62	1.5'/ 2'	9/ 14/ 26/ 27	0.0						61-63 ft bgs: SAA.
-63 -64	1.5/ 2'	16/ 14/ 8/ 24	0.0						63-65 ft bgs: SAA.
-65 -66	0.6'/ 2'	22/ 13/ 10/ 20	0.0						65-67 ft bgs: SAA.
-67 -68	0.4'/ 2'	10/ 12/ 4/ 14	0.0						67-69 ft bgs: SAA.
-69 -70 -71	0.7'/ 2'	10/ 12/ 18/ 30	0.0		▨	SB-5 (69-71)			69-71 ft bgs: SAA. END OF BORING 71 ft bgs

Well Construction



Comments: NA: Not Applicable

NR: No Recovery

Ground Elevation: (surface)/(rim)

HSA: Hollow Stem Auger

ft bgs: feet below grade surface

ND: Not Documented

Hand cleared from 0-5 ft bgs.

Visual impacts also includes olfactory impacts.

SAA: Same As Above

AECOM

Boring ID: SB - 6 / MW - 6

Page 1 of 4

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 74 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.82'/57.49'
Date Pre-Cleared: Jan. 17, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 17, 2011 / Jan. 18, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 6

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
0	NA	ND		▨ (4.5-5.0)	SB-6 (4.5-5.0)	FILL		0-0.42 ft bgs: ASPHALT 0.42-2 ft bgs: FILL: asphalt, cement pieces, brick pieces, wood fragments, fine grained sand, moist, brown, no odor. 2-4 ft bgs: FILL: concrete. 4-5 ft bgs: FILL: silty clay, ~5% gravel pieces, low plastic, light brown, no odor.	CONCRETE SAND PACK BENTONITE
-5	6.0'/ 4.0'	0.8				SW		5-9 ft bgs: WELL GRADED SAND (SW) fine grained sand, ~30% cobbles, subangular to rounded, up to 5 inches in diameter, dry, light brown, no odor.	
-9	4.92'/ 5.0'	0.9						9-14 ft bgs: SAA, large cobbles pieces up to 8 inches in diameter.	
-14	1.0'/ 5.0'	1.1						14-19 ft bgs: SAA: large 6 inches in diameter cobble in barrell.	
-19	7.25'/ 10.0'	1.7				ML		19-24 ft bgs: GRAVELLY SILT (ML): silt, ~10% gravel pieces, subangular, dry, light brown, no odor.	
-20									

Comments: NA: Not Applicable

NR: No Recovery

ND: Not Documented

SAA: Same As Above

ft bgs: feet below grade surface

Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.

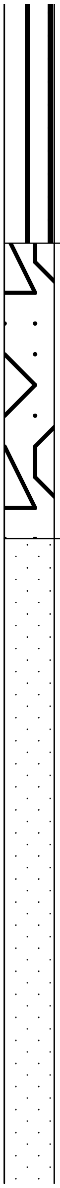
Visual impacts also includes olfactory impacts.

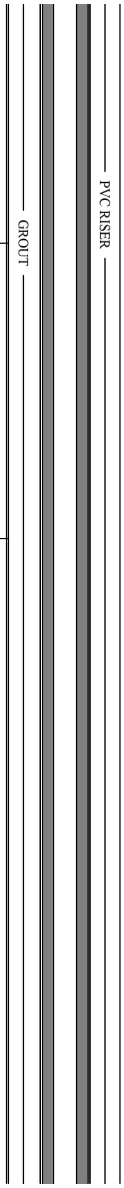
Boring ID: SB - 6 / MW - 6

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 17, 2011
Date Started/Completed: Jan. 17, 2011 / Jan. 18, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 74 ft bgs
Ground Elevation: 57.82'/57.49'
Converted To Well (Y/N): Yes
Well ID: MW - 6





Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Geologic Description
-20							
-21							
-22							
-23							
-24						GW	24-29 ft bgs: WELL GRADED GRAVEL (GW): rounded gravel, ~40% fine grained sand, dry, light brown, no odor.
-25							
-26							
-27							
-28							
-29	3.0'/ 5.0'	0.3				SW	29-34 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, ~10% rounded gravel, dry, light brown, no odors.
-30							
-31							
-32							
-33							
-34	3.16'/ 5.0'	0.1					34-39 ft bgs: SAA, dry to moist.
-35							
-36							
-37							
-38							
-39	4.0'/ 5.0'	3.1					39-40 ft bgs: WELL GRADED SAND (SW): fine grained sand, silt, ~5% gravel, dry to moist, light brown, no odor.
-40							

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

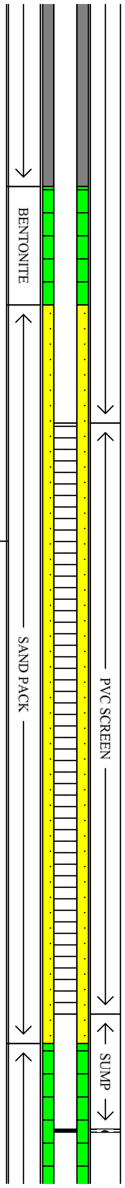
AECOM

Boring ID: SB - 6 / MW - 6

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 74 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.82'/57.49'
Date Pre-Cleared: Jan. 17, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 17, 2011 / Jan. 18, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 6

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40								40-44 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~5% gravel, dry to moist, light brown, no odor.
-44	2.67'/ 5.0'	13.7						44-49 ft bgs: SAA, moist, faint gasoline-like odor.
-49	5.0'/ 5.0'	1350				SP		49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, strong gasoline-like odor, gray petroleum staining from 50-52 ft bgs.
-50			▨	■	SB-6 (50-52)			
-54	5.17'/ 5.0'	328						54-59 ft bgs: SAA, brown.
-59	5.0'/ 5.0'	84.9						59-64 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, moderate gasoline-like
-60								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

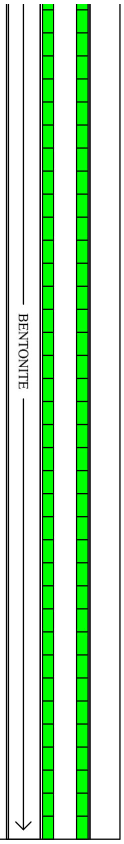
AECOM

Boring ID: SB - 6 / MW - 6

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 74 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.82'/57.49'
Date Pre-Cleared: Jan. 17, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 17, 2011 / Jan. 18, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 6

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60								odor.
-61		42.3						
-62								
-63								
-64	5.0'/ 5.0'	14.5						64-69 ft bgs: SAA, faint gasoline-like odor.
-65								
-66		6.0		▨	SB-6 (66.5-69)			
-67								
-68								
-69	5.0'/ 5.0'	3.8						69-71.5 ft bgs: SAA, no odor.
-70								
-71		17.1						
-72								71.5-74 ft bgs: SAA, faint tar-like odor.
-73								
-74								END OF BORING 74 ft bgs

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

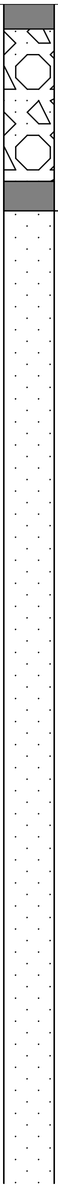
Boring ID: SB - 7 / MW - 7

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 20, 2011
Date Started/Completed: Jan. 20, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

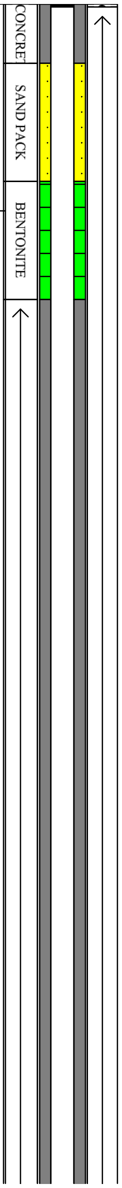
Water Level: ~50 ft bgs
Total Depth: 69 ft bgs
Ground Elevation: 58.23'/57.86'
Converted To Well (Y/N): Yes
Well ID: MW - 7

Lithology



Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Geologic Description
0	NA	0.4				FILL	0-0.42 ft bgs: CONCRETE 0.42-3 ft bgs: FILL: cement pieces, fine to coarse grained sand, ~10% gravel, slightly moist, light brown, no odor.
-1							
-2							
-3							3-3.5 ft bgs: FILL: concrete.
-4				▨		SW	3.5-5 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% gravel, slightly moist, light brown, no odor.
-5	2.0'/ 2.0'	0.2			SB-7 (4.5-5)		5-6 ft bgs: WELL GRADED SAND (SW): silty sand, wet, light brown, no odor.
-6		0.2					6-7 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% subangular gravel, slightly moist, brown, no odor.
-7	3.0'/ 2.0'	0.4					7-9 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~25% gravel, angular, up to 4 inches in diameter, dry, brown, no odor.
-8							
-9	4.42'/ 5.0'	1.0					9-10 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~10% gravel, wet, light brown, no odor.
-10							10-14 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~40% gravel up to 4 inches in diameter, moist, brown, no odor.
-11		0.7					
-12							
-13							
-14	5.42'/ 5.0'	0.4					14-19 ft bgs: SAA, fine to medium grained sand.
-15							
-16		0.7					
-17							
-18							
-19	5.0'/ 5.0'	1.1					19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~40% gravel, moist, brown, no
-20							

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 3 ft bgs.
Sonic driling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

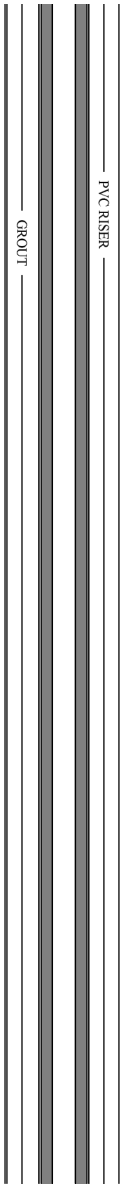
AECOM

Boring ID: SB - 7 / MW - 7

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 69 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.23'/57.86'
Date Pre-Cleared: Jan. 20, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 20, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 7

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20								odor.
-21		1.4						
-22								
-23								
-24	5.0'/ 5.0'	1.0						24-29 ft bgs: SAA, ~30% gravel.
-25								
-26		3.1						
-27								
-28								
-29	2.0'/ 5.0'	0.7						29-34 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel, moist, brown, no odor.
-30								
-31								
-32								
-33								
-34	2.75'/ 5.0'	1.3						34-39 ft bgs: SAA
-35								
-36		2.4						
-37								
-38								
-39	2.0'/ 5.0'	0.5						39-49 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% fine gravel, moist, brown, no
-40								

Well Construction



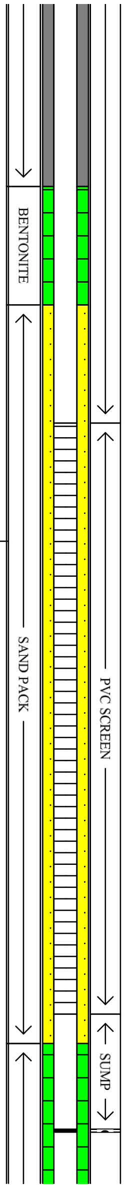
Comments: NA: Not Applicable	SAA: Same As Above	Sonic driling started at 3 ft bgs due to concrete obstruction.
NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0 - 3 ft bgs.	

Boring ID: SB - 7 / MW - 7

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 69 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.23'/57.86'
Date Pre-Cleared: Jan. 20, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Jan. 20, 2011	**Logged By:** Jessica Ehlen	**Well ID:** MW - 7

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40								odor.
-41								
-42								
-43								
-44								
-45								
-46								
-47								
-48								
-49	4.83'/ 5.0'	0.3				SP		49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, no odors.
-50								
-51		0.3		▨	SB-7 (51.5-54)			
-52								
-53								
-54	5.0'/ 5.0'	0.7						54-59 ft bgs: SAA
-55								
-56		0.4						
-57								
-58								
-59	4.83'/ 5.0'	0.6						59-64 ft bgs: SAA
-60								

Well Construction



Comments: NA: Not Applicable

NR: No Recovery

ND: Not Documented

SAA: Same As Above

ft bgs: feet below grade surface

Hand cleared from 0 - 3 ft bgs.

Sonic driling started at 3 ft bgs due to concrete obstruction.

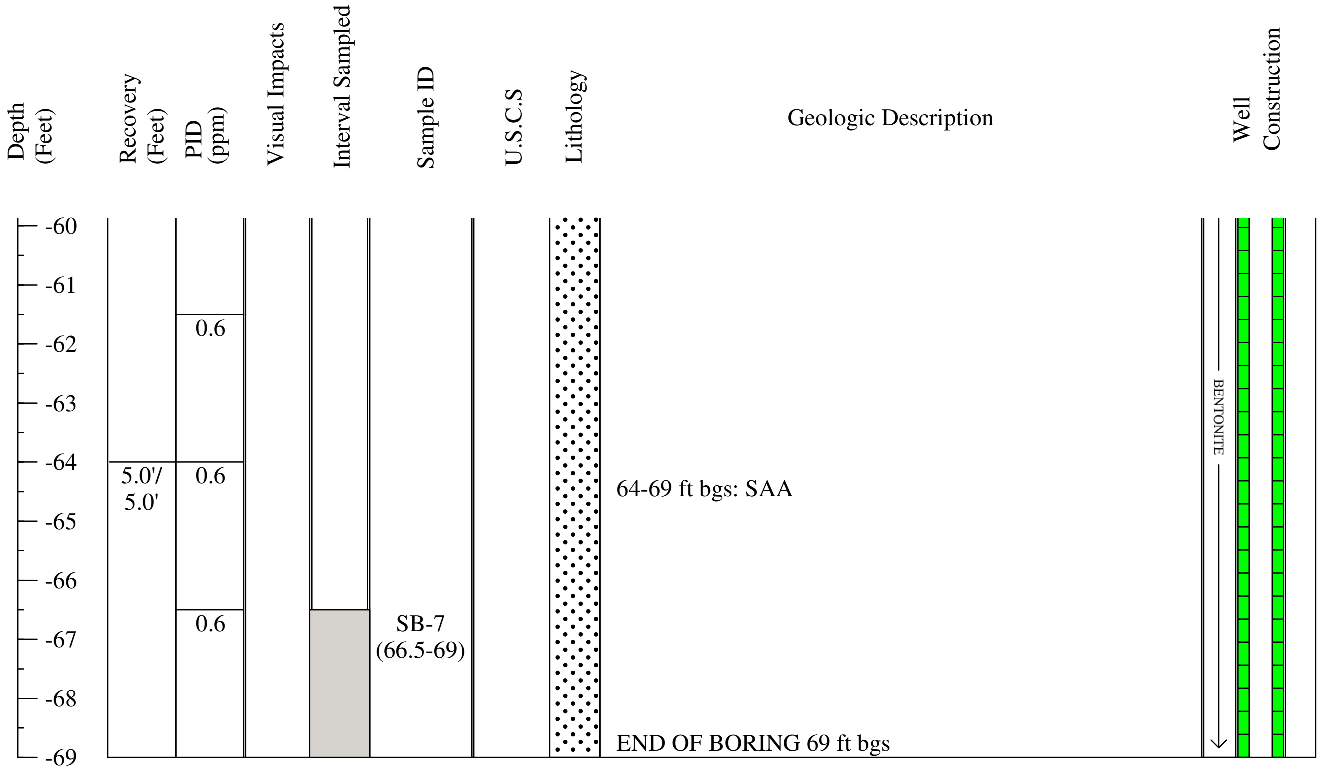
Visual impacts also includes olfactory impacts.

Boring ID: SB - 7 / MW - 7

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 20, 2011
Date Started/Completed: Jan. 20, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 69 ft bgs
Ground Elevation: 58.23'/57.86'
Converted To Well (Y/N): Yes
Well ID: MW - 7



64-69 ft bgs: SAA

END OF BORING 69 ft bgs

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 3 ft bgs.

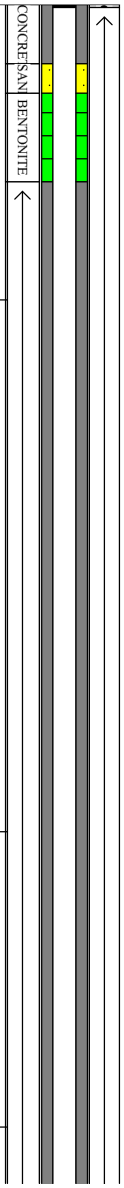
Sonic driling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 8 / MW - 8

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 64 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.62'/57.30'
Date Pre-Cleared: Jan. 21, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Feb. 16, 2011 / Feb. 16, 2011	**Logged By:** Hallie Garrett	**Well ID:** MW - 8

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
0 -1 -2	NA	0.4				FILL		0-0.42 ft bgs: CONCRETE 0.42-3 ft bgs: FILL: fine to coarse grained sand, angular gravel and sand, dry, gray.	
-3 -4	2.0'/ 2.0'	0.8		▨	SB-8 (3-5)			3-3.33 ft bgs: FILL: concrete and cobbles. 3.33-5 ft bgs: FILL: sand, silt, ~20% gravel, angular, wet, medium brown, loose.	
-5 -6	2.0'/ 2.0'	0.8				SW		5-7 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~10% gravel and cobbles up to 8 inches in diameter, moist, medium dense, medium brown.	
-7 -8	2.0'/ 2.0'	0.2						7-9 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~30% gravel and cobbles up to 6 inches in diameter, subrounded to subangular, moist, medium brown.	
-9 -10 -11	4.58'/ 5.0'	0.4						9-14 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel and cobbles up to 4 inches in diameter, subrounded to subangular, moist, medium brown.	
-12 -13		0.7							
-14 -15 -16	5.0'/ 5.0'	0.5				SP		14-19 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~5% coarse grained sand, <5% cobble and gravel, subangular to subrounded, moist, medium brown.	
-17 -18		0.4							
-19 -20	5.0'/ 5.0'	0.1				SW		19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~10% gravel up to 2 inches in	



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 8 / MW - 8

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 64 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.62'/57.30'
Date Pre-Cleared: Jan. 21, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Feb. 16, 2011 / Feb. 16, 2011	**Logged By:** Hallie Garrett	**Well ID:** MW - 8

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-20								diameter, cobbles up to 8 inches in diameter, subrounded, dry, medium brown.	GROUT PVC RISER
-21		0.9							
-22									
-23									
-24	5.0'/ 5.0'	2.4						24-29 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~20% gravel up to 2 inches in diameter, subrounded, ~10% silt, dry, medium dense, medium brown.	
-25									
-26		1.8							
-27									
-28									
-29	2.5'/ 5.0'	3.1				SP		29-34 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% coarse grained sand, <5% gravel, subrounded, medium dense, moist, medium brown.	
-30									
-31		2.0							
-32									
-33									
-34	2.5'/ 5.0'	0.9						34-39 ft bgs: SAA	
-35									
-36		0.9							
-37									
-38									
-39	3.33'/ 5.0'	1.6						39-44 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, ~5% coarse grained sand,	
-40									

Comments: NA: Not Applicable	SAA: Same As Above	Sonic drilling started at 5 ft bgs.
NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0 - 5 ft bgs.	

AECOM

Boring ID: SB - 8 / MW - 8

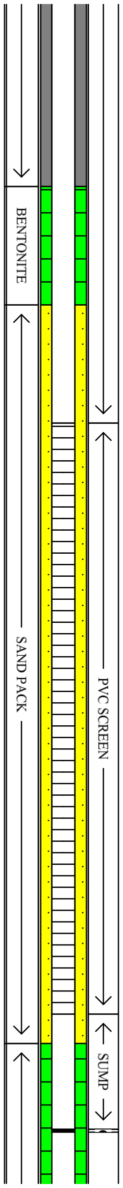
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 21, 2011
Date Started/Completed: Feb. 16, 2011 / Feb. 16, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Hallie Garrett

Water Level: ~50 ft bgs
Total Depth: 64 ft bgs
Ground Elevation: 57.62'/57.30'
Converted To Well (Y/N): Yes
Well ID: MW - 8

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40								subrounded, moist, medium brown.
-41		1.9						
-42								
-43		0.9			SB-8 (43-46)			
-44	3.0'/ 5.0'							44-49 ft bgs: SAA
-45								
-46		0.9						
-47								
-48								
-49	3.0'/ 5.0'	0.9						49-54 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, wet at ~50 ft bgs, subrounded, gray/brown.
-50								
-51								
-52								
-53		1.3						
-54	4.0'/ 5.0'							54-59 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% coarse grained sand, wet, subrounded, faint tar-like odor from 55 ft bgs.
-55								
-56		2.5			SB-8 (56-59)			
-57								
-58								
-59	5.0'/ 5.0'	1.5						59-64 ft bgs: SAA, faint tar-like odor.
-60								

Well Construction

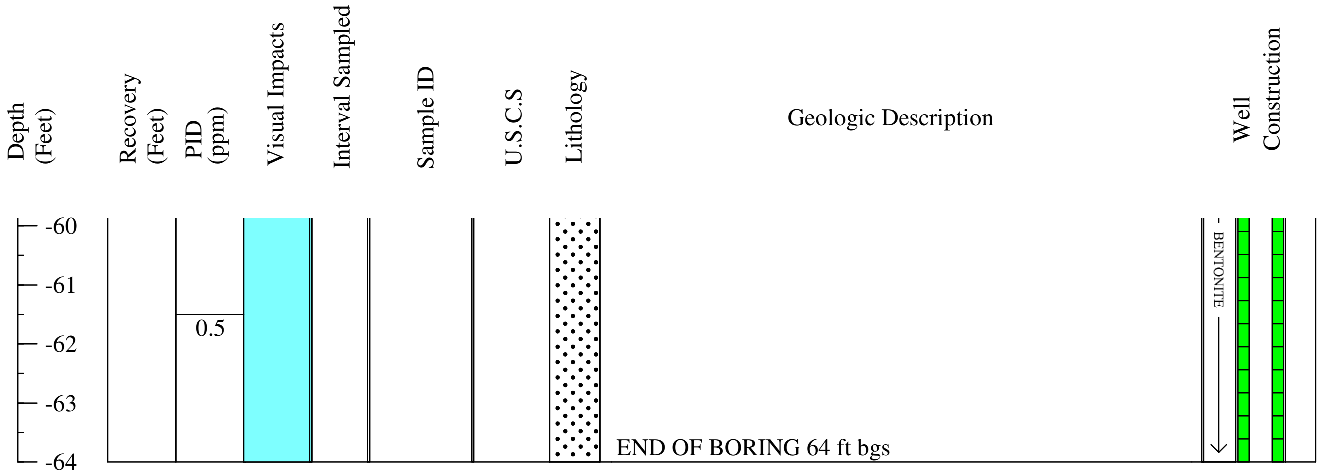


Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 8 / MW - 8

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 64 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.62'/57.30'
Date Pre-Cleared: Jan. 21, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: Feb. 16, 2011 / Feb. 16, 2011	**Logged By:** Hallie Garrett	**Well ID:** MW - 8



Comments: NA: Not Applicable	SAA: Same As Above	Sonic drilling started at 5 ft bgs.
NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0 - 5 ft bgs.	

AECOM

Boring ID: SB - 9

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 28, 2011
Date Started/Completed: Jan. 28, 2011 / Jan. 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: 49 ft bgs
Total Depth: 59 ft bgs
Ground Elevation: 59.22'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	4.0	🟦			FILL		0-0.29 ft bgs: ASPHALT 0.29-2 ft bgs: FILL: fine grained sand, ~30% silt, ~25% gravel and brick pieces, moist, brown, faint tar-like odor.
-2		19.3	🟦	▨	SB-9 (2-3)			2-3 ft bgs: SAA
-3		6.3	🟦					3-6 ft bgs: SAA, concrete pieces, brick pieces, wood and metal fragments.
-6	NA	8.1	🟩	▨	SB-9 (6-7)			6-7 ft bgs: FILL: ~80% gravel pieces, ~5% brick fragments, ~15% fine grained sand, moist, stained black, faint tar-like odor.
-7		4.8						7-7.5 ft bgs: FILL: concrete and brick fragments.
			🟦					7.5-8 ft bgs: FILL: fine grained sand, ~25% rounded gravel, dry, light brown, faint tar-like odor.
-8		2.7	🟦	▨	SB-9 (8-10)			8-10 ft bgs: FILL: fine grained sand, ~25% gravel, dry, light brown, faint tar-like odor.
-10	4.83'/ 5.0'	1.8						10-12.5 ft bgs: FILL: large brick piece top 6 inches, ~60% gravel, angular, ~40% fine grained sand, dry, light brown, no odor.
								12.5-15 ft bgs: SAA
-15	3.0'/ 5.0'	1.9				SW		15-19 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~30% gravel, ~5% cobbles up to 4 inches in diameter, dry, light brown, no odor.
-19	3.83'/ 5.0'	4.4						19-24 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~20% gravel, ~5% cobbles up to 3 inches in diameter, moist,
-20								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-6 ft bgs.
Sonic drilling started at 6 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 9

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 28, 2011
Date Started/Completed: Jan. 28, 2011 / Jan. 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: 49 ft bgs
Total Depth: 59 ft bgs
Ground Elevation: 59.22'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20								brown, no odor.
-21		3.7						
-22								
-23								
-24	3.5'/ 5.0'	4.5						24-29 ft bgs: SAA, no cobbles.
-25								
-26		6.2						
-27								
-28								
-29	3.42'/ 5.0'	3.5				SP		29-34 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% fine grained gravel, moist, light brown, no odors.
-30								
-31								
-32								
-33								
-34	2.16'/ 5.0'	1.9						34-39 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~5% fine grained gravel, moist, light brown, no odors.
-35								
-36								
-37								
-38								
-39	1.75'/ 5.0'	7.7						39-44 ft bgs: SAA
-40								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-6 ft bgs.
Sonic drilling started at 6 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 9

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 28, 2011
Date Started/Completed: Jan. 28, 2011 / Jan. 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: 49 ft bgs
Total Depth: 59 ft bgs
Ground Elevation: 59.22'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40							⁙	
-41							⁙	
-42							⁙	
-43							⁙	
-44	3.0'/ 5.0'	2.0					⁙	44-49 ft bgs: SAA
-45							⁙	
-46							⁙	
-47		3.2					⁙	
-48							⁙	
-49	5.0'/ 5.0'	2.1					⁙	49-54 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light brown, no odors.
-50							⁙	
-51							⁙	
-52		1.6					⁙	
-53							⁙	
-54	5.0'/ 5.0'	1.2					⁙	54-59 ft bgs: SAA
-55							⁙	
-56							⁙	
-57		1.9					⁙	
-58							⁙	
-59							⁙	END OF BORING 59 ft bgs

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-6 ft bgs.

Sonic drilling started at 6 ft bgs.
Visual impacts also includes olfactory impacts.

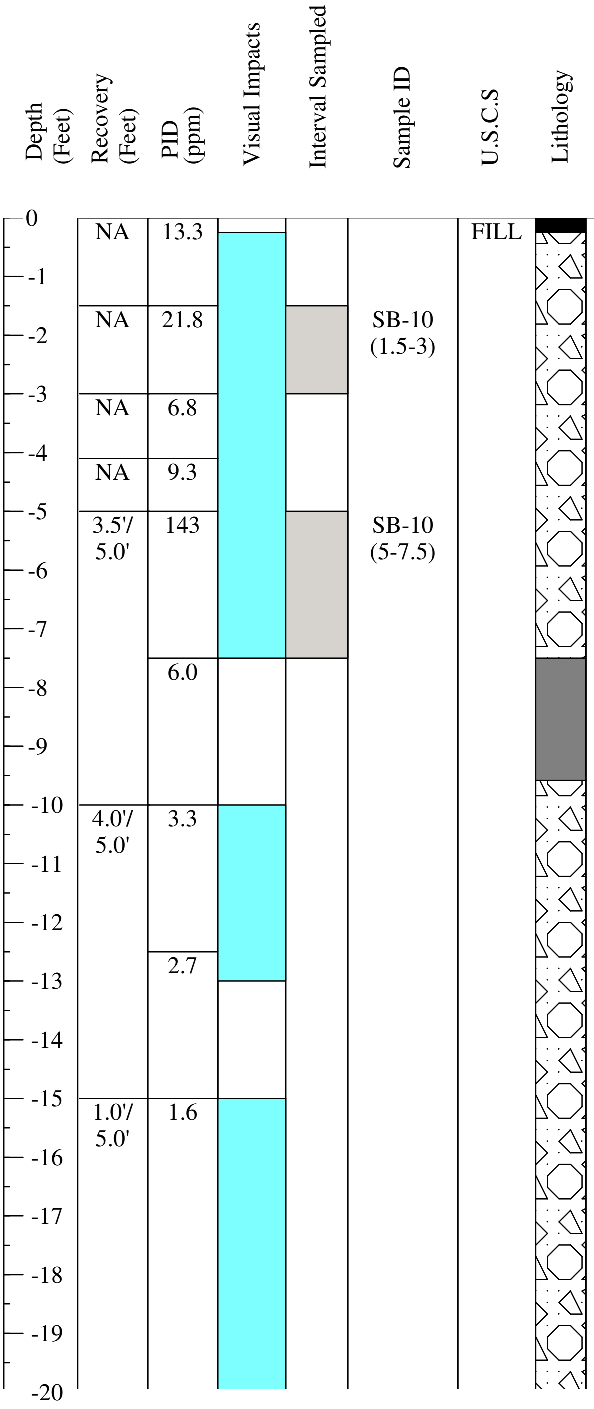
AECOM

Boring ID: SB - 10

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011 / Feb. 2, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.46'
Converted To Well (Y/N): No
Well ID: NA



Geologic Description

0-0.25 ft bgs: ASPHALT
0.25-1.5 ft bgs: FILL: fine grained sand, ~10% gravel, angular, ~5% brick debris, moist, dark brown, faint tar-like odor.

1.5-3.0 ft bgs: FILL: fine grained sand, ~35% brick debris, ~10% silt, <5% wood framents, 2-2 inch cast iron pipes, copper wires, rebarb, dry, brown, moderate tar-like odor.

3.0-4.1 ft bgs: SAA, faint tar-like odor.

4.1-5 ft bgs: FILL: 4 inches in diameter granite cobble on top, fine grained sand, ~10% gravel and brick debris up to 1 inch in diameter, angular, dry, brown, faint tar-like odor.

5-7.5 ft bgs: FILL: subangular gravel pieces, ~30% silt, ~20% fine grained sand, wet to moist, non-plastic, gray, strong tar-like odor.

7.5-9.58 ft bgs: FILL: concrete pad.

9.58-10 ft bgs: FILL: 50% fine grained sand, 50% gravel, subangular, dry, brown, no odor.

10-13 ft bgs: FILL: gravel up to 4 inches in diameter, ~25% fine grained sand, dry, light brown, faint tar-like odor.

13-15 ft bgs: FILL: gravel, ~40% silty sand, non-plastic, brown, dry, no odor.

15-20 ft bgs: FILL: fine grained sand, ~40% cobbles up tp 3 inches in diameter, subangular, dry, brown, faint tar-like odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011 / Feb. 2, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.46'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20 -21 -22 -23 -24	1.83'/ 5.0'	3.6	🟦					20-25 ft bgs: FILL: fine grained sand, ~40% cobbles up to 5 inches in diameter, wet, brown, faint tar-like odor.
-25 -26 -27 -28 -29	NR	NA						25-30 ft bgs: No Recovery, 4 inch in diameter piece of gneiss in core barrel.
-30 -31 -32 -33 -34	NR	NA						30-35 ft bgs: No Recovery
-35 -36 -37 -38 -39 -40	5.0'/ 5.0'	1.9						35-36 ft bgs: FILL: cobbles up to 5 inches in diameter, dry, no odor. 36-38 ft bgs: FILL: broken up cement pieces, brick pieces, dry, no odor. 38-40 ft bgs: FILL: fine grained sand, ~35% subangular gravel, ~5% brick debris, dry, brown, no odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 10

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011 / Feb. 2, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.46'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	5.16'/ 5.0'	4.8						40-43 ft bgs: FILL: fine grained sand, ~20% cobbles up to 4 inches in diameter, 10-15% fine grained gravel, <5% brick debris, dry, brown, no odor.
-42		2.2						
-43						SP		43-45 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% fine grained gravel, moist to dry, light brown, no odor.
-45	4.0'/ 5.0'	2.8						45-49.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% fine grained gravel, moist, light brown, no odor.
-49								49.5-50 ft bgs: SAA, wet.
-50	4.33'/ 5.0'	3.7						50-55 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% fine grained gravel, wet, brown, no odor.
-52		2.7						
-55	4.5'/ 5.0'	11.9	🟦					55-60 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% fine grained gravel, wet, brown, moderate tar-like odor.
-57		28.2	🟦					
-60								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 10

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011 / Feb. 2, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.46'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60	5.16'/ 5.0'	277	🟩	▨	SB-10 (60-62.5)		░	60-62.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light gray staining, strong tar-like odor.
-61			🟩	▨			░	
-62			🟩	▨			░	
-63		174	🟦				░	62.5-65 ft bgs: SAA, light brown, no staining.
-64			🟦				░	
-65	4.25'/ 5.0'	131	🟦				░	65-70 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, light brown, moderate tar-like odor.
-66			🟦				░	
-67			🟦				░	
-68		227	🟦				░	
-69			🟦				░	
-70	5.33'/ 5.0'	248	🟦				░	70-75 ft bgs: SAA, strong tar-like odor.
-71			🟦				░	
-72			🟦				░	
-73		247	🟦				░	
-74			🟦				░	
-75	3.67'/ 5.0'	51.2	🟦				░	75-80 ft bgs: POORLY GRADED SAND (SP): fine to coarse grained sand, wet, brown, moderate tar-like odor.
-76			🟦				░	
-77			🟦				░	
-78		35.4	🟦				░	
-79			🟦				░	

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 10

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011 / Feb. 2, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen

Water Level: ~50 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.46'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80			🟦				⁙	
-81	5.0'/ 5.0'	3.8	🟩	▨	SB-10 (80-82.5)		⁙	80-84 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~30% silt, 5-10% patches of gray staining from 1 centimeter to 1 inch throughout, wet, brown, faint tar-like odor.
-82			🟩	▨			⁙	
-83		3.3	🟩				⁙	
-84			🟦				⁙	84-85 ft bgs: POORLY GRADED SAND (SP): fine grained sand, wet, brown, faint tar-like odor. END OF BORING 85 ft bgs
-85								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 11

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Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** 50 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 55.6 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 57.67'
Date Pre-Cleared: Jan. 31, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: Jan. 31, 2011	**Logged By:** Heather Albert	**Well ID:** NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	0.6				FILL	■	0-1 ft bgs: ASPHALT and asphalt sub-base, dark brown and black.
-1	NA	6.2		▨	SB-11 (1-2)			1-2 ft bgs: FILL: silty sand, fine grained sand, ~30% silt, ~5% fine to medium grained gravel, angular, 5-10% wood chips, moist, brown, no odor.
-2	NA	5.2						2-3 ft bgs: SAA, <5% cobbles.
-3	NA	3.6						3-4 ft bgs: SAA, ~25% large cobbles, 3 to 6 inches in diameter, angular to rounded, ~5-10% brick fragments.
-4 -5	1.5'/ 2.0'	2.9						4-6 ft bgs: FILL: silty clay, ~5-10% medium grained sand, ~5-10% small round gravel, ~5-10% brick fragments, cohesive, non-plastic, moist, dark grayish brown, no odor.
-6 -7 -8	1.5'/ 1.5'	5.2						6-8.5 ft bgs: FILL: fine to medium grained sand, ~30% cobbles 1 to 5 inches in diameter, ~10% gravel, angular to rounded, moist, brown, no odor, a few inches of dry, gray sand at ~ 8 ft bgs.
-9 -10	2.0'/ 2.0'	4.8						8.5-10.6 ft bgs: SAA, brown and grayish brown.
-11 -12 -13	5.0'/ 5.0'	7.9						10.6-13.1: SAA
-14 -15		7.7						13.1-15.6: FILL: large reddish brown brick fragments throughout, <1% wood fragments, cobbles up to 6 inches in diameter.
-16 -17 -18 -19 -20	4.1'/ 5.0'	5.5				SW		15.6-20.6 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% gravel, ~10% cobbles 1 centimeter to 3 inches in diameter, angular to rounded, <5% silt at ~19 ft bgs, moist, brown, silt is reddish brown, no odor.

Comments: NA: Not Applicable	SAA: Same As Above	Sonic drilling started at 7 ft bgs.
NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0 - 7 ft bgs.	

AECOM

Boring ID: SB - 11

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: 50 ft bgs
Total Depth: 55.6 ft bgs
Ground Elevation: 57.67'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20								
-21	4.3'/ 5.0'	6.2						20.6-21 ft bgs: SAA
-22								21-22 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, <5% small gravel, rounded, moist, grayish brown.
-23								22-25.6 ft bgs: SAA (20.6-21 ft bgs interval).
-24								
-25								
-26	4.0'/ 5.0'	11.9				SP		25.6-28 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% small gravel, rounded, moist, grayish brown.
-27								
-28		11.1						28-30.6 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, well sorted, moist, tan to brown, faint tar-like odor at 30 ft bgs.
-29								
-30			▨					
-31	3.8'/ 5.0'	16.2	▨					30.6-35.6 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~5% gravel up to 1 centimeter in diameter, rounded, moist 30.6-34.6 ft bgs, dry 34.6-35.6 ft bgs, brown, faint tar-like odor.
-32			▨					
-33			▨					
-34			▨					
-35			▨					
-36	4.4'/ 5.0'	17.1	▨	▨	SB-11 (35.6-40)			35.6-40.6 ft bgs: SAA, ~39-39.25 ft bgs crushed rock, gray, powdery, dry to slightly moist, faint tar-like odor.
-37			▨	▨				
-38			▨	▨				
-39			▨	▨				
-40								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 7 ft bgs.

Sonic drilling started at 7 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 11

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Jan. 31, 2011
Date Started/Completed: Jan. 31, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: 50 ft bgs
Total Depth: 55.6 ft bgs
Ground Elevation: 57.67'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40			▨				∴	
-41	3.8'/ 5.0'	7.4	▨	▒	SB-11 (40.6-43)		∴	40.6-45.6: SAA, less gravel.
-42			▨	▒			∴	
-43		8.5	▨				∴	
-44			▨				∴	
-45			▨				∴	
-46	3.6'/ 5.0'	6.3	▨				∴	45.6-50 ft bgs: SAA, 1% gravel, dry to moist.
-47			▨				∴	
-48		7.2	▨				∴	
-49			▨				∴	
-50							∴	50-50.6 ft bgs: POORLY GRADED SAND (SP): fine grained sand, wet, well sorted, brown, no odor.
-51	3.5'/ 5.0'	4.8					∴	
-52							∴	50.6-53 ft bgs: SAA
-53		4.1					∴	53-55.6 ft bgs: SAA
-54							∴	
-55							∴	END OF BORING AT 55.6 ft bgs

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 7 ft bgs.

Sonic drilling started at 7 ft bgs.
Visual impacts also includes olfactory impacts.

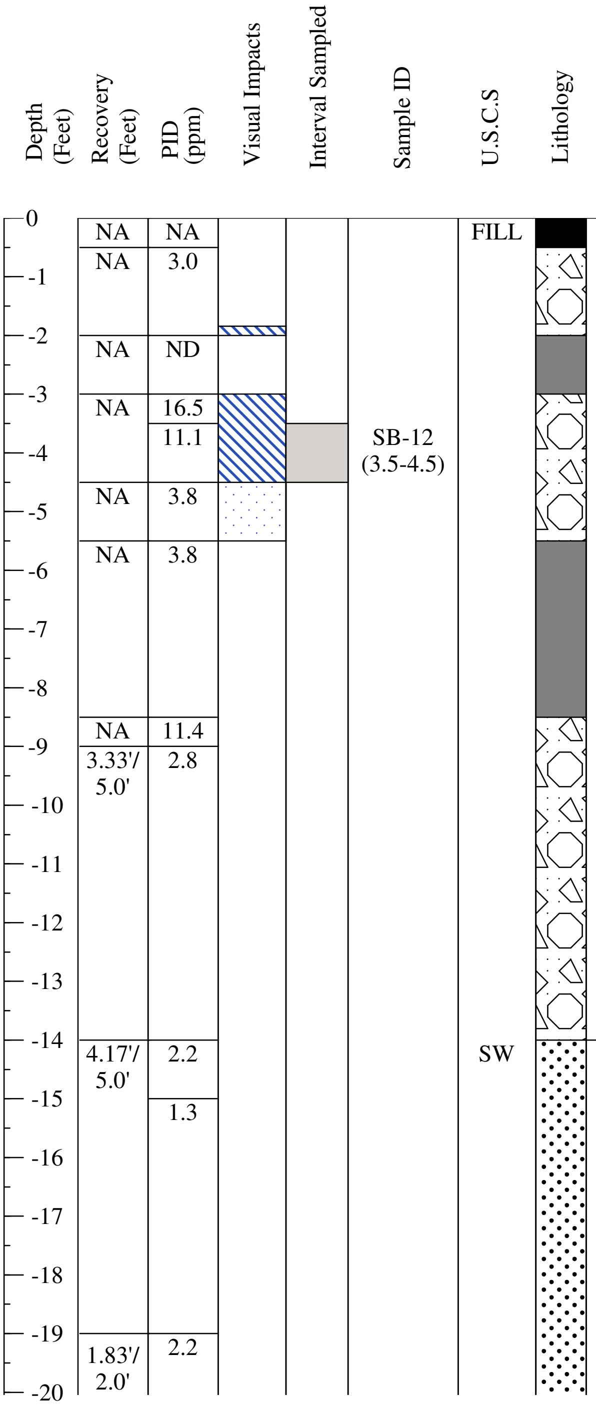
Boring ID: SB - 12

Page 1 of 4

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Feb. 3, 2011
Date Started/Completed: Feb. 3, 2011 / Feb. 4, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 57.84'
Converted To Well (Y/N): No
Well ID: NA



Geologic Description

0-0.5 ft bgs: ASPHALT

0.5-2.0 FILL: fine grained sand, ~20% silt, ~10% gravel, 1 centimeter to 2 inches in diameter, large angular pieces, smaller rounded pieces, ~10% cobbles, brick fragments and chuncks, dry to moist, brown, bottom 2 inches gray petroleum staining, no odor.

2-3 ft bgs: FILL: concrete chunks, wet.

3-3.5 ft bgs: FILL: crushed/ brick chunks, ~20% wood, ~20% reddish brown fine to medium grained sand, moist to wet, gray petroleum staining, faint petroleum-like odor.

3.5-4.5 ft bgs: FILL: concrete and fine to medium grained sand, wet, gray petroleum stained, faint petroleum-like odor.

4.5-5.5 ft bgs: FILL: gravel and cobbles, angular to rounded, up to 2 inches in diameter, gray coated, <10% medium grained sand, <1% wood chunks, wet, brown and gray, petroleum-like odor.

5.5-8.5 ft bgs: FILL: crushed/broken concrete, dry, no staining, no odor.

8.5-9 ft bgs: FILL: cobbles up to 4 inches in diameter, fine to medium grained sand, ~20% angular gravel up to 1 centimeter in diameter, moist to wet, gray, faint unknown sweet-like odor.

9-9.5 ft bgs: SAA, wet.

9.5-14 ft bgs: SAA, dry.

14-15 ft bgs: WELL GRADED SAND (SW): coarse grained sand, ~10% angular gravel, wet, multi-colored, no odor.

15-19 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~10% rounded cobbles up to 4 inches in diameter, slightly moist, cobbles are light gray and white.

19-21 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, grayish brown, ~20% silt, non-cohesive, ~5% gravel and cobbles,

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 12

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Feb. 3, 2011
Date Started/Completed: Feb. 3, 2011 / Feb. 4, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 57.84'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20								angular to rounded, 1 centimeter to 2 inches in diameter, multi-colored, wet, no odor.
-21	3.33'/ 4.0'	3.5				GW		21-25 ft bgs: WELL GRADED GRAVEL (GW): gravel 5 millimeters to 1 centimeter in diameter, rounded to angular, cobbles 1 to 3 inches in diameter, subrounded, ~30% brown fine to coarse grained sand, gray gravel and cobbles, dry, no odor.
-22								
-23								
-24								
-25	3.25'/ 4.0'	3.2						25-29 ft bgs: SAA
-26								
-27								
-28								
-29	3.42'/ 4.0'	1.9						29-34 ft bgs: SAA, ~5% gravel, ~5% cobbles.
-30								
-31								
-32								
-33								
-34	3.17'/ 5.0'	5.1				SP		34-39 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% gravel up to 1 centimeter in diameter, dry, brown, no odor.
-35								
-36								
-37								
-38								
-39	4.0'/ 5.0'	5.7						39-43 ft bgs: SAA
-40								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.
Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 12

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Feb. 3, 2011
Date Started/Completed: Feb. 3, 2011 / Feb. 4, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 57.84'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40							░	
-41							░	
-42							░	
-43		14.3					░	43-44 ft bgs: POORLY GRADED SAND (SP): silt, ~30% fine grained sand, slightly cohesive, slightly moist to dry, grayish brown.
-44	3.0'/ 5.0'	5.4					░	44-49 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, <5% gravel up to 1 centimeter in diameter, dry, brown, no odor.
-45							░	
-46							░	
-47							░	
-48							░	
-49	4.0'/ 5.0'	7.9					░	49-54 ft bgs: SAA
-50							░	
-51							░	
-52							░	
-53							░	
-54	3.67'/ 5.0'	5.8					░	54-56.5 ft bgs: SAA
-55							░	
-56							░	
		76	▨				░	56.5-59 ft bgs: POORLY GRADED SAND (SP): sandy silt, very fine grained, non-cohesive, non-plastic, wet, grayish brown, very faint petroleum-like odor.
-57			▨				░	
-58			▨				░	
-59	3.5'/ 3.5'	76.2	▨				░	59-62.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, wet, brown, faint petroluem-like odor.
-60			▨				░	

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.

Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 12

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: Feb. 3, 2011
Date Started/Completed: Feb. 3, 2011 / Feb. 4, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 57.84'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60			░				⁘	
-61			░				⁘	
-62			░				⁘	
-63	3.5'/ 3.5'	1.5	░				⁘	62.5-66 ft bgs: SAA, moderate petroleum-like odor.
-64			░				⁘	
-65			░				⁘	
-66	3.0'/ 3.5'	258	░				⁘	66-69 ft bgs: SAA, increasing fines with depth, ~10% silt, moderate petroleum-like odor.
-67			░				⁘	
-68			░				⁘	
-69	3.0'/ 3.0'	679	░	▨	SB-12 (69-72)	SM	⊞	69-72 ft bgs: SILTY SAND (SM): very fine to medium grained sand, ~30% silt, non-cohesive, non-plastic, moist to wet, brown, moderate petroleum-like odor.
-70			░	▨			⊞	
-71			░	▨			⊞	
-72	3.0'/ 3.0'	148	░				⊞	72-75 ft bgs: SAA
-73			░				⊞	
-74			░				⊞	
-75	3.5'/ 3.0'	55.9	░	▨	SB-12 (75-77)		⊞	75-79 ft bgs: SAA
-76			░	▨			⊞	
-77			░				⊞	
-78		22.5	░				⊞	
-79			░				⊞	END OF BORING 79 ft bgs

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0 - 2 ft bgs.
Sonic drilling started at 2 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 13

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 4, 2011
Date Started/Completed: Feb. 4, 2011 / Feb. 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen / Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 58.38'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	9.0		▨	SB-13 (0-1.5)	FILL	■	0-0.25 ft bgs: ASPHALT
								0.25-1.5 ft bgs: FILL: fine grained sand, ~25% brick debris and cement pieces, dry, brown, no odors.
	NA	2.2						1.5-3 ft bgs: SAA, some black debris, no odor.
-3	NA	7.9						3-5 ft bgs: FILL: ~50% medium grained sand, ~40% brick, cobbles, concrete, gray cobbles 0.5 to 4 inches in diameter, ~10% silt, non-cohesive, non-plastic, moist, brown, no odor.
-5	NA	6.2					▨	5-6 ft bgs: FILL: crushed concrete.
-6								6-8 ft bgs: ~50% medium grained sand, ~40% brick, cobbles, crushed concrete, gray cobbles 0.5-4 inches in diameter, ~10% silt, non-cohesive, non-plastic, ~5-10% wood fragments, moist, brown, no odor.
-8	NA	5.3						8-9 ft bgs: SAA, moisture decreasing with depth.
-9	NA	4.4						9-10 ft bgs: FILL: fine to medium grained sand, ~30% cobbles 0.5 centimeters to 5 inches in diameter, angular to rounded, ~20% gravel, ~5-10% brick chunks, moist to wet, brown and reddish brown, no odor.
-10	2.0'/ 2.0'	5.1				SW		10-12 ft bgs: WELL GRADED SAND (SW): coarse grained sand, ~30% gravel, ~10% cobbles 0.5 centimeters to 1 inch in diameter, angular to rounded, wet (residual water from top of borehole) to dry, multi-colored, no odor.
-12	2.0'/ 2.0'	3.5						12-14 ft bgs: SAA, cobbles up to 2.5 inches in diameter, brown and grayish brown.
-14	2.0'/ 2.5	3.6						14-16.5 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, ~25% gravel 2 millimeters to 1 centimeter in diameter, ~25% cobbles 0.5 to 2 inches in diameter, angular to rounded, dry, sand is
-15								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 13

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 4, 2011
Date Started/Completed: Feb. 4, 2011 / Feb. 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen / Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 58.38'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-16								brown, gravel and cobbles are multi-colored, no odor.
-17 -18	2.5'/ 2.5'	3.4						16.5-19 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~15% gravel up to 1 cenitmeter in diameter, angular to rounded, dry, tan to brown, no odor.
-19 -20 -21 -22 -23	3.0'/ 5.0'	3.4						19-24 ft bgs: WELL GRADED SAND (SW): ~50% fine to medium grained sand, ~50% cobbles 0.5 to 4 inches in diameter, angular to rounded, dry, sand is brown, cobbles are gray, no odor.
-24 -25 -26 -27 -28	3.33'/ 5.0'	4.0						24-29 ft bgs: SAA
-29 -30	1.67'/ 5.0'	4.5				SP		29-34 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% rounded gravel up to 1 centimeter in diameter, moist, sand is tan to brown, gravel is multi-colored, no odor.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 13

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 4, 2011
Date Started/Completed: Feb. 4, 2011 / Feb. 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen / Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 58.38'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-31								
-32								
-33								
-34	1.67'/ 5.0'	3.4						34-39 ft bgs: SAA
-35								
-36								
-37								
-38								
-39	2.5'/ 5.0'	3.7						39-44 ft bgs: SAA
-40								
-41								
-42								
-43								
-44	3.0'/ 5.0	2.9						44-49 ft bgs: POORLY GRADED SAND (SP) fine grained sand, dry to moist, brown, no odor.
-45								

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 13

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Feb. 4, 2011
Date Started/Completed: Feb. 4, 2011 / Feb. 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jessica Ehlen / Heather Albert

Water Level: ~50 ft bgs
Total Depth: 79 ft bgs
Ground Elevation: 58.38'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-46							░	
-47							░	
-48							░	
-49	3.25'/ 5.0'	3.2					░	49-53 ft bgs: SAA
-50							░	
-51							░	
-52							░	
-53		5.5	▨				░	53-54 ft bgs: SAA, fine to coarse grained sand, very faint petroleum-like odor, very slight gray petroleum staining.
-54	2.67'/ 5.0'	9.9	▨				░	54-59 ft bgs: POORLY GRADED SAND (SP) fine grained sand, dry to moist, moderate petroluem-like odor, slight gray petroleum staining.
-55			▨				░	
-56			▨				░	
		53.1	▨				░	
-57			▨				░	
-58			▨				░	
-59	4.17'/ 5.0'	162	░				░	59-64 ft bgs: SAA, brown, moderate petroleum-like odor.
-60			░				░	
-61								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.

Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 13

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60144412	**Drilling Method:** Sonic	**Total Depth:** 79 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.38'
Date Pre-Cleared: Feb. 4, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: Feb. 4, 2011 / Feb. 7, 2011	**Logged By:** Jessica Ehlen / Heather Albert	**Well ID:** NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-61								
-62		188						
-63								
-64	5.0'/ 5.0	1480			SB-13 (64-66.5)			64-66.5 ft bgs: SAA
-65								
-66								
-67		529						66.5-69 ft bgs: POORLY GRADED SAND (SP) fine grained sand, ~20% silt, moist, non-cohesive, non-plastic, grayish brown, moderate petroleum-like odor.
-68								
-69	3.0'/ 3.0'	498						69-72 ft bgs: SAA
-70								
-71								
-72	2.67'/ 3.0'	85.4						72-75 ft bgs: SAA, no silt, faint petroleum-like odor.
-73								
-74								
-75	3.5'/ 4.0'	84.5						75-79 ft bgs: SAA, very faint petroleum-like odor.
-76								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-3 ft bgs.
Sonic drilling started at 3 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 13

Project Name: Flatbush Station A&B Former Gas Holder

Project Number: 60144412

Client: National Grid

Date Pre-Cleared: Feb. 4, 2011

Date Started/Completed: Feb. 4, 2011 / Feb. 7, 2011

Drilling Company: Boart Longyear

Drilling Method: Sonic

Sampling Method: Disposable plastic liner

Boring Diameter: 6 inches

Logged By: Jessica Ehlen / Heather Albert

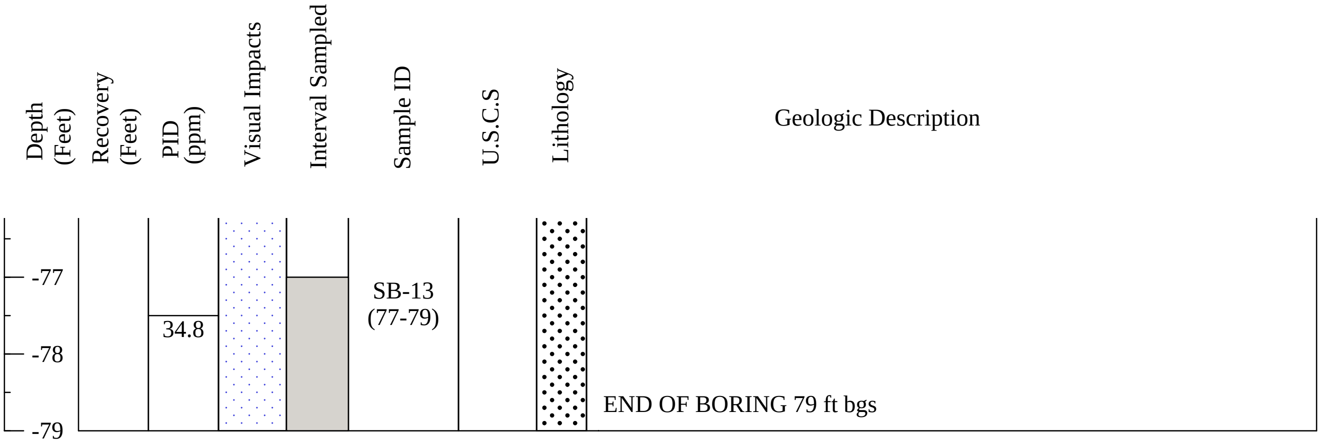
Water Level: ~50 ft bgs

Total Depth: 79 ft bgs

Ground Elevation: 58.38'

Converted To Well (Y/N): No

Well ID: NA



END OF BORING 79 ft bgs

Comments:	NA: Not Applicable	SAA: Same As Above	Sonic drilling started at 3 ft bgs due to concrete obstruction.
	NR: No Recovery	ft bgs: feet below grade surface	Visual impacts also includes olfactory impacts.
	ND: Not Documented	Hand cleared from 0-3 ft bgs.	

Boring ID: SB-14

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 3, 2011 / Jan. 4, 2011
Date Started/Completed: Jan 5, 2011 / Jan 6, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: ~50 ft bgs
Total Depth: 58 ft bgs.
Ground Elevation: 57.11'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0 -1 -2 -3 -4 -5	5.5'/ 5.5'	NA	ND		▨	SB-14 (5-5.5)	FILL		0-0.4 ft bgs: ASPHALT 0.4-5.5 ft bgs: FILL: sand, brick fragments, gravel ranging from small gravel to small cobbles, brown to dark brown.
-6 -7 -8 -9 -10 -11	NR	NA	NA						5.5-12 ft bgs: NO RECOVERY: use air rotary drilling method due to obstructions (cobbles).
-12 -13	1.6'/ 2'	165/ 24"	0.8				SW		12-13.7 ft bgs: WELL GRADED SAND (SW): ~75% fine sand, ~20% gravel, ~5% silt, loose, dry, light brown, no odor. 13.7-14 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, 1-1 inch in diameter gravel piece, loose, dry, light brown, no odor.
-14 -15	1.6'/ 2'	120/ 24"	0.6						14-16 ft bgs: WELL GRADED SAND (SW): ~85% medium to fine grained sand, 1 inch cobble at 15.7-15.8 ft bgs, moist, loose, brown.
-16 -17	1.3'/ 2'	45/ 23/ 37/ 50	0.7						16-18 ft bgs: SAA.
-18 -19 -20	1.2'/ 2'	11/ 10/ 24/ 24	0.6						18-20 ft bgs: SAA.

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
HSA: Hollow Stem Auger
ft bgs: feet below grade surface
SAA: Same as above
Hand clearance from 0-5 ft bgs.
Air Rotary completed between 5-12 ft bgs.
Hollow Stem Augering started from 12 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-14

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 3, 2011 / Jan. 4, 2011
Date Started/Completed: Jan 5, 2011 / Jan 6, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: ~50 ft bgs
Total Depth: 58 ft bgs.
Ground Elevation: 57.11'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20 -21	1.2'/ 2'	9/ 11/ 16/ 35	0.7						20-22 ft bgs: WELL GRADED SAND (SW): coarse to medium grained sand, ~20% gravel, dry, brown.
-22 -23	1.7'/ 2'	18/ 10/ 12/ 28	0.5						22-24 ft bgs: SAA, dry, less sorting.
-24 -25	ND	8/ 10/ 15/ 20	ND						24-26 ft bgs: WELL GRADED SAND (SW): medium grained sand, well sorted, ~20% gravel, moist, brown to light. brown.
-26 -27	1.5'/ 2'	44/ 30/ 22/ 20	0.4						26-28 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% gravel (small gravel), moist, light brown.
-28 -29	1.5'/ 2'	6/ 15/ 16/ 12	0.5						28-30 ft bgs: SAA.
-30 -31	1.7'/ 2'	14/ 16/ 23/ 30	0.4						30-32 ft bgs: SAA, <5-10% gravel, moist to dry.
-32 -33	1.5'/ 2'	18/ 18/ 18/ 25	0.5						32-34 ft bgs: SAA, moist to dry.
-34 -35	2.0'/ 2'	16/ 22/ 24/ 25	0.5						34-36 ft bgs: SAA, 1 inch thick lens of fine sand, moist to dry.
-36 -37	1.7'/ 2'	12/ 12/ 25/ 30	0.5						36-38 ft bgs: SAA, moist to dry.
-38 -39	2'/ 2'	17/ 16/ 25/ 35	0.5						38-40 ft bgs: SAA, moist to dry.
-40									

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
HSA: Hollow Stem Auger
ft bgs: feet below grade surface
SAA: Same as above
Hand clearance from 0-5 ft bgs.
Air Rotary completed between 5-12 ft bgs.
Hollow Stem Augering started from 12 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-14

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 3, 2011 / Jan. 4, 2011
Date Started/Completed: Jan 5, 2011 / Jan 6, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: ~50 ft bgs
Total Depth: 58 ft bgs.
Ground Elevation: 57.11'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40 -41	2'/ 2'	17/ 19/ 23/ 34	0.5						40-42 ft bgs: SAA, moist to dry.
-42 -43	1.6'/ 2'	14/ 16/ 22/ 35	0.5						42-44 ft bgs: SAA, moist to dry.
-44 -45	1.8'/ 2'	15/ 22/ 23/ 36	0.5						44-46 ft bgs: SAA, moist to dry.
-46 -47	2'/ 2'	24/ 33/ 33/ 32	0.6						46-48 ft bgs: SAA, moist.
-48 -49	2'/ 2'	22/ 16/ 17/ 18	0.5		▨	SB-14 (48-50)			48-48.6 ft bgs: SAA, moist, no gravel. 48.6-50 ft bgs: SAA, moist to wet.
-50 -51	2'/ 2'	6/ 50/ 25/ 33	2.4	🟦					50-52 ft bgs: SAA, wet, brown, faint napthalene-like odor.
-52 -53	2'/ 2'	16/ 23/ 33/ 43	1.4	🟦			SP		52-54 ft bgs: POORLY GRADED SAND (SP): medium grained sand, well sorted, < 5% gravel, wet, faint napthalene-like odor.
-54 -55	1.2'/ 2'	6/ 10/ 15/ 20	2.8	🟦					54-56 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, well sorted, wet, faint napthalene-like odor.
-56 -57 -58	1'/ 2'	6/ 7/ 15/ 25	2.1	🟦	▨	SB-14 (56-58)			56-58 ft bgs: POORLY GRADED SAND (SP): medium to coarse grained sand, wet, faint napthalene-like odor. END OF BORING 58 ft bgs

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
HSA: Hollow Stem Auger

ft bgs: feet below grade surface
SAA: Same as above
Hand clearance from 0-5 ft bgs.
Air Rotary completed between 5-12 ft bgs.

Hollow Stem Augering started from 12 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-15

Page 1 of 5

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Fenley and Nicol	**Water Level:** ~ 50 ft bgs
Project Number: 60144412	**Drilling Method:** HSA	**Total Depth:** 84 ft bgs
Client: National Grid	**Sampling Method:** Split spoon	**Ground Elevation:** 58.6'
Date Pre-Cleared: Jan. 3, 2011	**Boring Diameter:** 8 inches	**Converted To Well (Y/N):** No
Date Started/Completed: Jan. 7, 2011/Jan. 11, 2011	**Logged By:** Rolando Arco	**Well ID:** N/A

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	NA	NR			SB-15 (5.0)	FILL		0-5 ft bgs: FILL: brown to dark brown, poorly sorted sand, with gravel, cobbles, and brick debris. 5-6 ft bgs: NOT DOCUMENTED.
-6	0.7'/ 2'	20/ 32/ 100/6"	0.2						6-6.5 ft bgs: FILL: brown, poorly sorted sand, ~20% gravel. 6.5-8 ft bgs: FILL: brick fragments.
-8	NA	NA	NA						8-10 ft bgs: NO RECOVERY, air rotary drilling method used due to boulder obstruction.
-10	0.7'/ 2'	NR	0.3				SW		10-12 ft bgs: WELL GRADED SAND (SW): brown, poorly sorted gravelly sand, dry.
-12	NA	NA	NA						12-14 ft bgs: NO RECOVERY. Air Rotary method used, due to boulder obstruction.
-14	NR	13/ 5/ 5/ 8	NA						14-16 ft bgs: NO RECOVERY.
-16	0.6'/ 2'	7/ 9/ 23/ 33	0.1				GW		16-18 ft bgs: WELL GRADED GRAVEL (GW): brown, poorly sorted, ~80% cobble pieces, ~20% medium to fine grained sand.
-18	1.2'/ 2'	28/ 46/ 50/ 50	0.1						18-19.5 ft bgs: WELL GRADED GRAVEL (GW): brown, ~50% cobble pieces, ~50% medium to fine grained sand, moist. 19.5-20 ft bgs: WELL GRADED GRAVEL (GW): dark brown, poorly sorted, cobble pieces.
-20									

Comments:

NA: Not Applicable	ND: Not Documented	Hollow stem started at 5 ft bgs.
NR: Not Recorded	SAA: Same As Above	Visual impacts also includes olfactory impacts.
ft bgs - feet below grade surface	HSA: Hollow Stem Auger	
	Hand clearing from 0-5 ft bgs.	

Boring ID: SB-15

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Fenley and Nicol	**Water Level:** ~ 50 ft bgs
Project Number: 60144412	**Drilling Method:** HSA	**Total Depth:** 84 ft bgs
Client: National Grid	**Sampling Method:** Split spoon	**Ground Elevation:** 58.6'
Date Pre-Cleared: Jan. 3, 2011	**Boring Diameter:** 8 inches	**Converted To Well (Y/N):** No
Date Started/Completed: Jan. 7, 2011/Jan. 11, 2011	**Logged By:** Rolando Arco	**Well ID:** N/A

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20 -21	NR	25/ 50/1"	NA						20-22 ft bgs: NO RECOVERY. Brick fragment in spoon (possible slough).
-22 -23	0.6'/ 2'	9/ 30/ 50/ 50/3"	0.2				SW		22-24 ft bgs: WELL GRADED SAND (SW): brown, poorly sorted gravelly sand, dry.
-24 -25	NR	NR	NA						24-26 ft bgs: NO RECOVERY.
-26 -27	1.3'/ 2'	11/ 22/ 25/ 25	0.5				SW		26-28 ft bgs: WELL GRADED SAND (SW): brown, medium to coarse grained sand, ~10% fine subrounded gravel, moist.
-28 -29	1.3'/ 2'	30/ 26/ 22/ 30	0.0						28-30 ft bgs: SAA, with a 3 inch lens of fine sand at 29 ft bgs.
-30 -31	1.2'/ 2'	32/ 21/ 32/ 40	0.8						30-32 ft bgs: SAA, fine grained sand towards the bottom of the sample, dry.
-32 -33	2'/ 2'	12/ 18/ 46/ 30	0.1						32-34 ft bgs: SAA.
-34 -35	1.6'/ 2'	14/ 25/ 30/ 35	0.0						34-35.2 ft bgs: WELL GRADED SAND (SW): dark brown, fine, sand, ~10% gravel. Gravel consists of small, rounded, pebbles. 35.32-36 ft bgs: WELL GRADED SAND (SW): light brown to yellow, medium to coarse grained sand, ~15% gravel, dry to moist.
-36 -37	1.4'/ 2'	14/ 19/ 20/ 30	0.4						36-38 ft bgs: WELL GRADED SAND (SW): varves (0.5 inch max) of light brown medium to coarse grained sand and dark brown fine sand; both have ~5-10% of fine rounded gravel, moist.
-38 -39	1.5/ 2'	40/ 18/ 30/ 30	0.0						38-40 ft bgs: WELL GRADED SAND (SW): light brown
-40									

Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-15

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Fenley and Nicol	**Water Level:** ~ 50 ft bgs
Project Number: 60144412	**Drilling Method:** HSA	**Total Depth:** 84 ft bgs
Client: National Grid	**Sampling Method:** Split spoon	**Ground Elevation:** 58.6'
Date Pre-Cleared: Jan. 3, 2011	**Boring Diameter:** 8 inches	**Converted To Well (Y/N):** No
Date Started/Completed: Jan. 7, 2011/Jan. 11, 2011	**Logged By:** Rolando Arco	**Well ID:** N/A

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40 -41	1.5'/ 2'	8/ 20/ 20/ 15	0.0					░	medium to coarse grained sand at top and bottom of sample. Dark brown fine sand; less then ~5% fine rounded gravel, moist. 40-42 ft bgs: WELL GRADED SAND (SW): SAA, dry.
-42 -43	NR	100/ 6"	NA						42-44 ft bgs: NO RECOVERY, spoon bouncing on a piece of rock.
-44 -45	1.5'/ 2'	13/ 18/ 32/ 40	1.3	🟦			SW	░	44-46 ft bgs: WELL GRADED SAND (SW): brown, poorly sorted sand, mica grains, moist, very faint napthalene-like odor.
-46 -47	NR	100/ 2"	NA						46-48 ft bgs: NO RECOVERY.
-48 -49	2'/ 2'	18/ 23/ 28/ 38	0.5	🟩			SP	▒	48-49.6 ft bgs: POORLY GRADED SAND (SP): dark brown fine sand, dry. 49.6-50 ft bgs: POORLY GRADED SAND (SP): dark brown, medium, sand, slight sheen, moist, very slight napthalene-like odor.
-50 -51	1.6'/ 2'	19/ 20/ 19/ 20	7.5	🟩				▒	50-52 ft bgs: POORLY GRADED SAND (SP): dark brown, fine grained sand. From 50.6-52 ft bgs sheen and napthalene-like odor, moist.
-52 -53	1.5'/ 2'	21/ 8/ 10/ 18	57.4	🟧				▒	52-54 ft bgs: SAA, few tar-coated grains, napthalene-like odor, wet.
-54 -55	2'/ 2'	11/ 16/ 26/ 44	95	🟧				▒	54-56 ft bgs: SAA, black stained, some tar-coated grains, napthalene-like odor, wet.
-56 -57	1.5'/ 2'	12/ 13/ 34/ 45	61	🟧				▒	56-58 ft bgs: SAA.
-58 -59	1.5'/ 2'	NA/ 27/ 20/ 15	68	🟧				▒	58-60 ft bgs: SAA.
-60									

Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 3, 2011
Date Started/Completed: Jan. 7, 2011/Jan. 11, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: ~ 50 ft bgs
Total Depth: 84 ft bgs
Ground Elevation: 58.6'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60 -61	1.3'/ 2'	12/ 30/ 40/ 40	87.2	🟧					60-62 ft bgs: SAA, fine to medium grained sand.
-62 -63	2'/ 2'	8/ 11/ 20/ 45	33.6	🟧					62-64 ft bgs: SAA.
-64 -65	2'/ 2'	20/ 30/ 40/ 50	76.4	🟧			SM		64-66 ft bgs:SILTY SAND (SM): black stained, fine sand, ~35% silt, some tar-coated grains.
-66 -67	1.9'/ 2'	26/ 40/ 55/ 90	40/ 262	🟧	▒	SB-15 (66-68)	SP SM		66-66.8 ft bgs: POORLY GRADED SAND (SP): black, varved light to dark medium to coarse grained sand, some tar-coated grains. 66.8-68 ft bgs: SILTY SAND (SM): black, very fine grained sand and silt (~50%/50%), some tar-coated grains, moist to wet.
-68 -69	2'/ 2'	18/ 30/ 38/ 60	24	🟧 🟩					68-69 ft bgs: SAA, varved light colored sand. 69-70 ft bgs: SILT SAND (SM): black stained, fine grained sand, ~30% silt.
-70 -71	2'/ 2'	6/ 3/ 9/ 26	27.2	🟧			SP		70-72 ft bgs: POORLY GRADED SAND (SP): black, well sorted fine grained sand, wet, sheen, some tar-coated grains.
-72 -73	NR	7/ 5/ 6/ 32	NA						72-74 ft bgs: NO RECOVERY.
-74 -75	2'/ 2'	7/ 26/ 25/ 23	31/ 21	🟦			SW		74-75.5 ft bgs: WELL GRADED SAND (SW): black, lenses of coarse to fine grained sand. 75.5-76 ft bgs: WELL GRADED SAND (SW): brown, gray, fine to medium grained sand, wet, faint napthalene-like odor.
-76 -77	1.3'/ 2'	8/ 20/ 40/ 56	57.2/ 15.6	🟩 🟦					76-77.7 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, sheen, napthalene-like odor, saturated with water.
-78 -79	1.7'/ 2'	10/ 14/ 16/ 35	25.8/ 9.8	🟦	▒	SB-15 (78-80)			77.7-80 ft bgs: WELL GRADED SAND (SW): brown-grey, fine to medium grained sand, slight napthalene-like odor, wet.
-80									

Comments:
NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-15

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 3, 2011
Date Started/Completed: Jan. 7, 2011/Jan. 11, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: ~ 50 ft bgs
Total Depth: 84 ft bgs
Ground Elevation: 58.6'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80 -81	1.7'/ 2'	12/ 15/ 22/ 20	11.7/ 1.1	🟦					80-82 ft bgs: SAA.
-82 -83	1.7'/ 2'	12/ 15/ 32/ 70	NR	🟦					82-84 ft bgs: SAA. END OF BORING 84 ft bgs
-84									

Comments: NA: Not Applicable
NR: Not Recorded
ft bgs - feet below grade surface
ND: Not Documented
SAA: Same As Above
HSA: Hollow Stem Auger
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 16

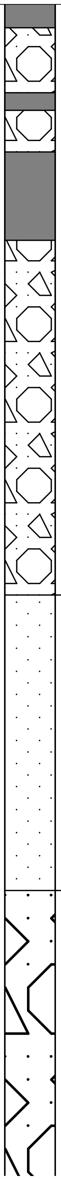
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 21, 2011
Date Started/Completed: Jan. 21, 2011 / Jan. 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jennifer Pfeiffer

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 58.13'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Geologic Description
0	NA	NA				FILL	0-0.4 ft bgs: CONCRETE
	NA	ND					0.4-1 ft bgs: FILL: gravel, medium grained sand, brown.
-1	NA	ND					1-1.5 ft bgs: FILL: brick, mortor, rounded brick pieces 4 inches in diameter, subangular and rounded gravel, medium grained sand, dry, dark brown.
	NA	NA					1.5-1.8 ft bgs: FILL: concrete pad.
-2	0.1	0.1					1.8-2.5 ft bgs: FILL: fine grained sand, dry, brown.
	NA	NA					2.5-4.0: FILL: concrete.
-4	NA	0.1		▒	SB-16 (4-5)		4-5 ft bgs: FILL: medium grained sand, gravel 1 millimeter to 4 inches in diameter, subangular to rounded, loose, dry, brown, no odor.
-5	3.0'/ 3.0'	0.8					5-8 ft bgs: SAA, more cobbles 2 to 4 inches in diameter.
-8	2.0'/ 2.0'	0.1					8-10 ft bgs: FILL: medium grained sand, <10 mm gravel throughout, angular, large cobbles throughout, cobbles have mica, loose, dry, tan to brown, no odors.
-10	3.0'/ 5.0'	1.0				SW	10-15 ft bgs: WELL GRADED SAND (SW): medium grained sand, loose, brown, ~25% gravel 1 millimeter to 3 inches in diameter, various colors (red to gray), angular to rounded, moist (top wet from water in casing), no odor.
-15	3.0'/ 5.0'	1.6				GW	15-18 ft bgs: WELL GRADED GRAVEL (GW): gravel throughout, 4 inches in diameter cobble at 17 ft bgs, cobbles throughout, ~25% fine to medium grained sand, loose, dry, brown, no odor.
-17		34					
-18							18-20 ft bgs: WELL GRADED GRAVEL (GW): ~85% gravel ~10 millimeters in diameter, angular, <5% mica throughout, dry, no odor.
-20							

Lithology



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-1.5 ft bgs.

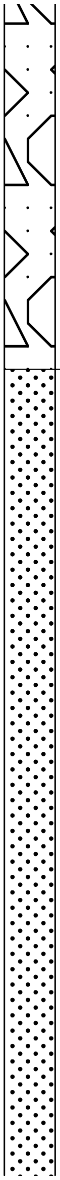
Sonic drilling started at 1.5 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

Boring ID: SB - 16

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 21, 2011
Date Started/Completed: Jan. 21, 2011 / Jan. 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jennifer Pfeiffer

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 58.13'
Converted To Well (Y/N): No
Well ID: NA



Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	4.0'/ 5.0'	1.0						20-22.5 ft bgs: WELL GRADED GRAVEL (GW) gravel, ~25% fine to medium grained sand, dry (top wet due to drill water), no odor.
-21								
-22								
-23		0.5						22.5-25 ft bgs: SAA, ~25% cobbles, sand loose.
-24								
-25	4.0'/ 5.0'	0.4						25-26 ft bgs: WELL GRADED GRAVEL (GW): gravel ~10 millimeters in diameter, subrounded, ~5% fine to medium grained sand, loose, dry, brown, no odor.
-26		1.6				SP		26-30 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, ~10% gravel, loose, dry, brown, no odors.
-27								
-28								
-29								
-30	4.0'/ 5.0'	2.4						30-35 ft bgs: POORLY GRADED SAND (SP): fine grained sand, ~10% gravel ~5 millimeters in diameter throughout, loose, moist, brown, no odor.
-31								
-32								
-33		0.9						
-34								
-35	4.0'/ 5.0'	0.5						35-37.5 ft bgs: POORLY GRADED SAND (SP): fine to medium grained sand, loose, moist, brown.
-36								
-37								
-38		0.2						37.5-40 ft bgs: POORLY GRADED SAND (SP): fine grained sand, <10% gravel 5 millimeters in diameter throughout, loose, moist to dry, brown.
-39								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-1.5 ft bgs.
Sonic drilling started at 1.5 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 16

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 21, 2011
Date Started/Completed: Jan. 21, 2011 / Jan. 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jennifer Pfeiffer

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 58.13'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	NR	ND						40-45: NO RECOVERY.
-41								
-42								
-43								
-44								
-45	3.5'/ 5.0'	0.8						45-47 ft bgs: POORLY GRADED SAND (SP): fine grained sand, <5% gravel 10 millimeters in diameter, random, loose, moist to dry, brown, no odor.
-46								
-47		0.4		▨	SB-16 (47-50)			47-50 ft bgs: SAA, light tan, >5% gravel throughout 1 millimeter to 10 millimeters in diameter.
-48				▨				
-49				▨				
-50	2.5'/ 5.0'	4.3						50-52 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, wet, brown.
-51								
-52		1.5						52-55 ft bgs: SAA, moist.
-53								
-54								
-55	4.0'/ 5.0'	1.2						55-57.5 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, no odor.
-56								
-57								
-58		0.5						57.5-60 ft bgs: SAA, faint to moderate hydrogen sulfide-like odor.
-59								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-1.5 ft bgs.

Sonic drilling started at 1.5 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB - 16

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 21, 2011
Date Started/Completed: Jan. 21, 2011 / Jan. 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Jennifer Pfeiffer

Water Level: ~50 ft bgs
Total Depth: 70 ft bgs
Ground Elevation: 58.13'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60 -61 -62	4.0'/ 5.0'	2.6					∴	60-65 ft bgs: SAA, hydrogen sulfide-like and organic-like odor.
-63 -64		2.2					∴	
-65 -66 -67	4.0'/ 5.0'	2.8					∴	65-68 ft bgs: SAA, hydrogen sulfide-like and organic-like odor.
		4.6					∴	
-68 -69 -70				▒	SB-16 (68-70)	ML	▦	68-70 ft bgs: SANDY SILT (ML): moist, hydrogen sulfide-like and organic-like odor. END OF BORING 70 ft bgs

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

SAA: Same As Above
ft bgs: feet below grade surface
Hand cleared from 0-1.5 ft bgs.

Sonic drilling started at 1.5 ft bgs due to concrete obstruction.
Visual impacts also includes olfactory impacts.

Boring ID: SB-17

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 4, 2011
Date Started/Completed: Jan. 13, 2011/Jan. 17, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: 52 ft bgs
Total Depth: 71 ft bgs
Ground Elevation: 59.18'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	5'/ 5'	NA	NR				FILL		0-0.5 ft bgs: CONCRETE 0.5-5 ft bgs: FILL: dark brown, poorly sorted sand, with cobbles, brick, and concrete fragments.
-4					▨	SB-17 (4.5-5)			
-5	1'/ 2'	NA	0.1						5-6.5 ft bgs: FILL: dark brown, poorly sorted sand, ~20% cobbles, moist. 6.5-7 ft bgs: FILL: brick fragments.
-7	1.7'/ 2'	NA	0.0						7-9 ft bgs: FILL: dark brown and black, ~15% cobbles, brick, moist.
-9	0.3/ 2'	20/ 60/2"	0.0						9-11 ft bgs: FILL: SAA.
-11	0.3'/ 2'	10/ 70/2"	0.0						11-13 ft bgs: FILL: dark brown fine to medium grained sand, ~50% gravel (from 12-13 ft bgs), moist.
-13	0.2'/ 2'	50/ 80/4"	0.0						13-15 ft bgs: SAA.
-15	NR	NR	0.0						15-17 ft bgs: NO RECOVERY, rock fragment in spoon.
-17	0.5'/ 2'	NR	0.8	🟩					17-19 ft bgs: FILL: silty sand, ~35% silt, ~5% gravel, dry to moist, stained black.
-19	0.4'/ 2'	NR	0.6	🟩					19-21 ft bgs: SAA, large rock fragment in spoon, stained black.
-20									

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger
ND: Not Documented
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-17

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 4, 2011
Date Started/Completed: Jan. 13, 2011/Jan. 17, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: 52 ft bgs
Total Depth: 71 ft bgs
Ground Elevation: 59.18'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20				🟩					
-21	1.3'/ 2'	12/ 16/ 32	1.9	🟩					21-23 ft bgs: SAA, stained black.
-23	NR	100/3"	NR				SW		23-25 ft bgs: NO RECOVERY, rock fragment in shoe of spoon.
-25	1.1'/ 2'	16/ 90/ 32/ 35	0.2	🟨					25-27 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~15% fine gravel, moist, black, tar-coated grains, no odor.
-27	1.4'/ 2'	32/ 62/ 60/ 70	0.5	🟨					27-29 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, ~10% fine gravel, moist, black, less tar-coating than previous sample, no odor.
-29	NR	80/ 1"	NR						29-31 ft bgs: NO RECOVERY, spoon bouncing on something hard.
-31	1.3'/ 2'	40/ 50/ 54/2"	13.6	🟨	▨	SB-17 (31-33)			31-33 ft bgs: WELL GRADED SAND (SW): black stained, fine to medium grained sand, ~5% fine gravel, moist, grains slightly tar-coated, faint tar-like odor.
-33	1.4'/ 2'	22/ 62/ 35/ 35	3.6	🟩					33-34.7 ft bgs: WELL GRADED SAND (SW): black stained, fine to medium grained sand, ~5% fine angular gravel (quartz), ash fragments, naphthalene-like odor. 34.7-35 ft bgs: WELL GRADED SAND (SW): light brown fine to medium grained sand.
-35	1.4'/ 2'	40/ 52/ 56/ 40	46.1 3.4	🟦					35-36.2 ft bgs: WELL GRADED SAND (SW): fine gravel in an asphalt-like matrix of moderate viscosity, mica flakes, dry to moist, strong tar-like odor. 36.2-37 ft bgs: WELL GRADED SAND (SW): light brown medium to coarse grained sand, dry to moist.
-37	1.6'/ 2'	17/ 14/ 16/ 46	0.5						37-39 ft bgs: WELL GRADED SAND (SW): light brown, medium to coarse grained sand, ~10% fine rounded gravel, dry.
-39	1.3'/ 2'	62/ 36/ 22/	4.4						
-40									

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger

ND: Not Documented
Hand clearing from 0-5 ft bgs.

Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-17

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 4, 2011
Date Started/Completed: Jan. 13, 2011/Jan. 17, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: 52 ft bgs
Total Depth: 71 ft bgs
Ground Elevation: 59.18'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40		35							39-41 ft bgs: SAA.
-41 -42	1.2'/ 2'	31/ 15/ 15/ 30	1.4						41-43 ft bgs: WELL GRADED SAND (SW): light brown, poorly sorted sand, dry.
-43 -44	1.5'/ 2'	19/ 21/ 32/ 35	0.3						43-45 ft bgs: SAA, coarse sand ~25%.
-45 -46	0.2'/ 2'	70/6"	0.0						45-47 ft bgs: WELL GRADED SAND (SW): dark brown, fine-grained sand.
-47 -48	1.6'/ 2'	50/ 20/ 28/ 35	2.0						47-49 ft bgs: WELL GRADED SAND (SW): light brown, poorly sorted sand, dry, ~5% fine subangular to subrounded gravel.
-49 -50	1.3'/ 2'	22/ 70/ 42/ 33	5.2		▨	SB-17 (49-51)			49-51 ft bgs: SAA,bottom 2" moist to wet, ~5% silt.
-51 -52	1.6'/ 2'	ND	4.6						51-53 ft bgs: SAA, wet at 52 ft bgs.
-53 -54	2'/ 2'	22/ 10/ 18/ 35	2.4	🟦					53-55 ft bgs: SAA, wet, faint tar-like odor.
-55 -56	1.8'/ 2'	10/ 11/ 16/ 30	1.5	🟦					55-57 ft bgs: SAA, wet, faint tar-like odor.
-57 -58	2'/ 2'	11/ 8/ 5/ 15	1.4	🟦					57-59 ft bgs: SAA, wet, faint tar-like odor.
-59 -60	1.4'/ 2'	7/ 9/ 18/	5.4	🟦					59-61 ft bgs: SAA, wet, faint tar-like odor.

Comments: NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger
ND: Not Documented
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-17

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60144412
Client: National Grid
Date Pre-Cleared: Jan. 4, 2011
Date Started/Completed: Jan. 13, 2011/Jan. 17, 2011

Drilling Company: Fenley and Nicol
Drilling Method: HSA
Sampling Method: Split spoon
Boring Diameter: 8 inches
Logged By: Rolando Arco

Water Level: 52 ft bgs
Total Depth: 71 ft bgs
Ground Elevation: 59.18'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	Blow Counts	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
		24		🟦					
-61 -62	1.7'/ 2'	11/ 27/ 27/ 40	6.3	🟦					61- 63 ft bgs: SAA, wet, faint tar-like odor.
-63 -64	2'/ 2'	9/ 24/ 40/ 42	5.7	🟦					63- 65 ft bgs: SAA, wet, faint tar-like odor.
-65 -66	1.3'/ 2'	10/ 12/ 37/ 45	7.8	🟦					65-67 ft bgs: SAA, wet, faint tar-like odor.
-67 -68	1.4'/ 2'	24/ 6/ 7/ 24	8.5	🟦	▨	SB-17 (67-69)			67-69 ft bgs: SAA, wet, faint tar-like odor.
-69 -70 -71	1.6'/ 2'	5/ 7/ 20/ 45	3.1	🟦					69-71 ft bgs: SAA, wet, faint tar-like odor. END OF BORING 71 ft bgs

Comments:
NA - Not Applicable
NR - No Recovery
HSA - Hollow Stem Auger
ND: Not Documented
Hand clearing from 0-5 ft bgs.
Hollow stem started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-18

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 27, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 feet
Ground Elevation: 59.35'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	0.4				FILL		0-0.5 ft bgs: CONCRETE. 0.5-2 ft bgs: FILL: medium to coarse grained sand and gravel (~50%), brick pieces, cobbles, dry.
-1		0.5						
-2		0.5						2-3 ft bgs: FILL: sandy silty clay, moist, red-tan.
-3		0.7						3-4 ft bgs: FILL: medium to coarse grained sand and gravel (~50%), cobbles, moist, reddish tan.
-4		0.3		▨	SB-18 (4-5)			4-5 ft bgs: FILL: medium to coarse grained sand, ~30% gravel, slag piece, moist, reddish brown.
-5	4.3'/ 5.0'	0.1				SW		5-10 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and gravel (50/50), cobbles throughout, dry, brown.
-6								
-7								
		0.1						
-8								
-9								
-10	3.3'/ 5.0'	1.0						10-15 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and gravel (50/50), cobbles throughout, moist.
-11								
-12								
		0.4						
-13								
-14								
-15	4.8'/ 5.0'	1.5						15-20 ft bgs: SAA.
-16								
-17								
		1.5						
-18								
-19								
-20								

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-18

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~52 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 85 feet
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 59.35'
Date Pre-Cleared: June 23, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: June 27, 2011	**Logged By:** Rita Papagian	**Well ID:** N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20 -21 -22	4.9'/ 5.0'	0.0						20-25 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand,~10% fine angular gravel, ~5% cobbles, moist, brown.
-23 -24		0.3						
-25 -26 -27	3.4'/ 5.0'	1.9						25-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and gravel (50/50), moist, brown.
-28 -29		2.0		▨	SB-18 (27.5-30)			
-30 -31 -32	4.3'/ 5.0'	2.7						30-35 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~25% gravel, loose, moist, brown.
-33 -34		2.7						
-35 -36 -37	2.0'/ 5.0'	1.4						35-40 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% fine to medium sized angular gravel, moist, brown.
-38 -39 -40		2.0						

Comments: NA: Not Applicable	ft bgs: feet below grade surface	Sonic drilling started at 5 ft bgs.
NR: No Recovery	SAA: Same as above	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0-5 ft bgs.	

Boring ID: SB-18

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 27, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 feet
Ground Elevation: 59.35'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	4.8'/ 5.0'	4.1						40-44 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~25% fine to medium sized angular gravel, moist, brown.
-41								
-42		17.3		▨	SB-18 (42.5-45)			
-43				▨				
-44				▨				44-45 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, loose, dry, light brown.
-45	NR	NR						45-50 ft bgs: No Recovery, sample lost in borehole.
-46								
-47								
-48								
-49								
-50	4.3'/ 5.0'	5.3						50-55 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, wet at 52 ft bgs, brown.
-51								
-52		1.2						
-53								
-54								
-55	4.6'/ 5.0'	0.9						55-60 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown.
-56								
-57		0.7						
-58								
-59								
-60								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-18

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 27, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 feet
Ground Elevation: 59.35'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60	4.8'/ 5.0'	1.2						60-65 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, loose, moist, brown.
-61								
-62								
		1.9						
-63								
-64								
-65	2.7'/ 5.0'	1.5						65-70 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, loose, moist, brown.
-66								
-67								
		2.9						
-68								
-69								
-70	4.9'/ 5.0'	2.9	🟦	▨	SB-18 (70-72.5)			70-75 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, loose, moist, brown, very faint napthalene-like odor.
-71			🟦	▨				
-72			🟦	▨				
		1.9	🟦					
-73			🟦					
-74			🟦					
-75	4.3'/ 5.0'	0.9						75-80 ft bgs: SAA, no odors.
-76								
-77								
		0.3						
-78								
-79								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-18

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 27, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 feet
Ground Elevation: 59.35'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80	4.9'/ 5.0'	0.9					∴	80-85 ft bgs: WELL GRADED SAND (SW): fine to coarse grained sand, loose, moist, brown.
-81								
-82								
-83		1.0						
-84								END OF BORING at 85 ft bgs
-85								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-19

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.80'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	NA				FILL		0-1 ft bgs: CONCRETE
-1	1.0'/ 1.0'	0.8						1-5 ft bgs: FILL: medium grained sand and angular to rounded gravel (50/50), <5% brick bits, dry.
-2	1.0'/ 1.0'	0.5						
-3	1.0'/ 1.0'	0.4						
-4	1.0'/ 1.0'	0.5		▨	SB-19 (4-5)			
-5	3.4'/ 5.0'	0.2						5-7 ft bgs: FILL: medium to coarse grained sand, ~50% large gravel, moist, brown.
-6								
-7		0.3						7-7.4 bgs: FILL: fine to medium sized gravel, mostly angular, grey.
-8								7.4-10 ft bgs: FILL: medium to coarse grained sand, ~5% cobbles, dry, brown.
-9								
-10	4.4'/ 5.0'	0.4						10-10.9 ft bgs: FILL: medium grained sand, ~5% cobbles, moist, reddish-brown.
-11								
-12		0.8						10.9-15.0 ft bgs: FILL: medium to coarse grained sand, ~25% angular gravel, ~5% cobbles, dry, brown.
-13								
-14								
-15	2.7'/ 5.0'	ND						15-17 ft bgs: FILL: medium to coarse sized gravel and cobbles, mostly angular, moist.
-16								
-17		0.7				SW		17-20 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~50% angular gravel, moist, brown.
-18								
-19								
-20								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-19

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.80'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	4.8'/ 5.0'	0.8						20-25 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~35% angular gravel, dry, brown.
-21								
-22								
-23		0.7						
-24								
-25	4.9'/ 5.0'	0.9						25 - 27 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~35% angular gravel, moist, brown.
-26								
-27								27-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~10% gravel, moist, brown.
-28		0.3						
-29								
-30	4.5'/ 5.0'	5.3						30-32.2 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~20% fine angular gravel, dry, brown.
-31								
-32								
-33		0.2						32.2-35 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, dry, brown.
-34								
-35	1.3'/ 5.0'	10.7				SP		35-37 ft bgs: POORLY GRADED SAND (SP): medium grained sand, ~20% fine gravel, dry, brown.
-36								
-37								37-40 ft bgs: No Recovery, sample lost in borehole.
-38		ND						
-39								
-40								

Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-19

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.80'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	3.6'/ 5.0'	3.9						40-45 ft bgs: POORLY GRADED SAND (SP): medium grained sand, ~20% fine gravel, dry, brown.
-41								
-42								
-43		1.7						
-44								
-45	4.2'/ 5.0'	1.2				SW		45-50 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, brown.
-46								
-47								
-48		0.8						
-49								
-50	3.2'/ 5.0'	1.9						50-55 ft bgs: SAA, wet at 52 feet.
-51								
-52								
-53		1.2						
-54								
-55	4.8'/ 5.0'	2.2						55-60 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, brown.
-56								
-57								
-58		1.7						
-59								
-60								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-19

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.80'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60	4.9'/ 5.0'	1.1				SP	⁙	60-65 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown.
-61							⁙	
-62							⁙	
		1.3					⁙	
-63							⁙	
-64							⁙	
-65	3.4'/ 5.0'	4.9	🟦				⁙	65-70 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, faint naphthalene-like odor.
-66			🟦				⁙	
-67			🟦				⁙	
		14.0	🟦				⁙	
-68			🟦				⁙	
-69			🟦				⁙	
-70	4.4'/ 5.0'	9.2	🟦				⁙	70-71 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, strong naphthalene-like odor.
-71			🟦				⁙	71-75 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, strong naphthalene-like odor.
-72			🟦				⁙	
		56.4	🟦	▨	SB-19 (72.5-75)		⁙	
-73			🟦	▨			⁙	
-74			🟦	▨			⁙	
-75	4.3'/ 5.0'	0.2		▨	SB-19 (75-77.5)		⁙	75-80 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown.
-76				▨			⁙	
-77				▨			⁙	
		0.6					⁙	
-78							⁙	
-79							⁙	

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-19

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 24, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 85 ft bgs
Ground Elevation: 58.80'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80	3.1'/ 5.0'	0.8					⁙	80-85 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown.
-81							⁙	
-82							⁙	
-83		1.0					⁙	
-84							⁙	End of Boring 85 ft bgs
-85								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-20

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 90 ft bgs
Ground Elevation: 58.36'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	1.0'/ 1.0'	0.8				FILL		0-1 ft bgs: FILL: medium grained sand and rounded to angular gravel, brick fragments, cobbles.
-1	1.0'/ 1.0'	0.8						1-2 ft bgs: SAA, no brick fragments.
-2	1.0'/ 1.0'	0.2						2-3 ft bgs: FILL: silty clay of low plasticity, some cobbles, moist, light brown to tan.
-3	1.0'/ 1.0'	0.4						3-4 ft bgs: SAA, tan.
-4	1.0'/ 1.0'	0.5		▒	SB-20 (4.5)			4-5 ft bgs: FILL: silty sand and gravel, ~25% cobbles, moist, light brown to tan.
-5	4.9'/ 5.0'	3.1						5-6 ft bgs: FILL: fine to medium grained sand, ~50% silt, dry, brown, <10% grey silt.
-6								6-10 ft bgs: FILL: medium to coarse grained sand, ~50% gravel, ~10% cobbles, dry, brown.
-7		3.9						
-8								
-9								
-10	4.8'/ 5.0'	0.8	▨					10-11 ft bgs: FILL: medium to coarse grained sand, ~30% medium to coarse sized angular gravel, dry, brown, some black staining throughout, faint petroleum-like odor.
-11			▨	▒	SB-20 (11-15) fingerprint only			11-15 ft bgs: FILL: medium to coarse grained sand, ~30% gravel, dry, brown, some black staining to trace coating of sand, faint petroleum-like odor.
-12		2.5	▨	▒				
-13			▨	▒				
-14			▨	▒				
-15	4.9'/ 5.0'	43.6	🟧	▒	SB-20 (15-17.7) fingerprint			15-17 ft bgs: FILL: sand, ~50% large angular gravel, moist, black, tar coated sand and gravel throughout, moderate naphthalene-like odor, sheen.
-16			🟧	▒				
-17		10.5	🟧	▒		SW		17-20 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, black, tar coated sand and gravel throughout, naphthalene-like odor, sheen.
-18			🟧					
-19			🟧					
-20								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-20

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~52 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 90 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.36'
Date Pre-Cleared: June 23, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: June 28, 2011	**Logged By:** Rita Papagian	**Well ID:** N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	4.3'/ 5.0'	7.7	🟧					20-20.5 ft bgs: SAA.
-21			🟧					20.5-23 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% coarse angular gravel, moist, dark brown, some black tar coated sand and gravel, naphthalene-like odor.
-22		5.4	🟧					
-23			🟩					23-25 ft bgs: WELL GRADED SAND (SW): medium grained sand, ~20% coarse gravel, some black staining, faint naphthalene-like odor.
-24			🟩					
-25	2.0'/ 5.0'	21.1	🟧					25-29 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~50% fine to medium sized gravel, moist, brown, some black tar coated sand, moderate to strong naphthalene-like odor.
-26			🟧					
-27		14.5	🟧					
-28			🟧					
-29			🟧					29-30 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, some tar coated sand, moderate to strong naphthalene-like odor.
-30	4.7'/ 5.0'	11.8	🟧					30-31.5 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, some tar coated sand, moderate to strong naphthalene-like odor.
-31			🟧					31.5-32.5 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, black, black tar coated sand throuhgout, moderate to strong naphthalene-like odor and sheen.
-32		30.8	🟧					
-33			🟧					32.5-35 ft bgs: WELL GRADED SAND (SW): sand, medium to coarse gravel, moist, brown, some tar coated sand, moderate to strong naphthalene-like odor.
-34			🟧					
-35	2.6'/ 5.0'	7.0	🟧					35-40 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, dark brown, black tar coated sand throughout, moderate to strong naphthalene-like odor and sheen.
-36			🟧					
-37		4.6	🟧					
-38			🟧					
-39			🟧					

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-20

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 90 ft bgs
Ground Elevation: 58.36'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	3.9'/ 5.0'	3.1	🟧					40-42 ft bgs: SAA, faint naphthalene-like odor.
-41			🟧					
-42			🟧			SP		42-45 ft bgs: POORLY GRADED SAND (SP):medium grained sand, ~30% gravel, moist, brown, some black tar coated sand, moderate to strong naphthalene-like odor.
-43		5.0	🟧					
-44			🟧					
-45	3.8'/ 5.0'	2.0	🟧					45-46 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, some tar coated sand, faint naphthalene-like odor.
-46			🟧					
-47			🟧					46-50 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, little to trace tar coated sand, faint naphthalene-like odor, slight sheen.
-48		3.2	🟧					
-49			🟧					
-50	4.5'/ 5.0'	14.0	🟧					50-51 ft bgs: SAA.
-51			🟧					51-53 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, dark brown, some tar coated sand, strong naphthalene-like odor and sheen.
-52			🟧					
-53		197.6	🟧			SW		53-55 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, black, tar coated sand throughout, strong naphthalene-like odor and heavy sheen.
-54			🟧					
-55	2.2'/ 5.0'	75.8	🟧					55-60 ft bgs: WELL GRADED SAND (SW): medium to coarsed grained sand, wet, black, tar coated sand throughout, strong naphthalene-like odor, heavy sheen.
-56			🟧					
-57			🟧					
-58		53.4	🟧					
-59			🟧					

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

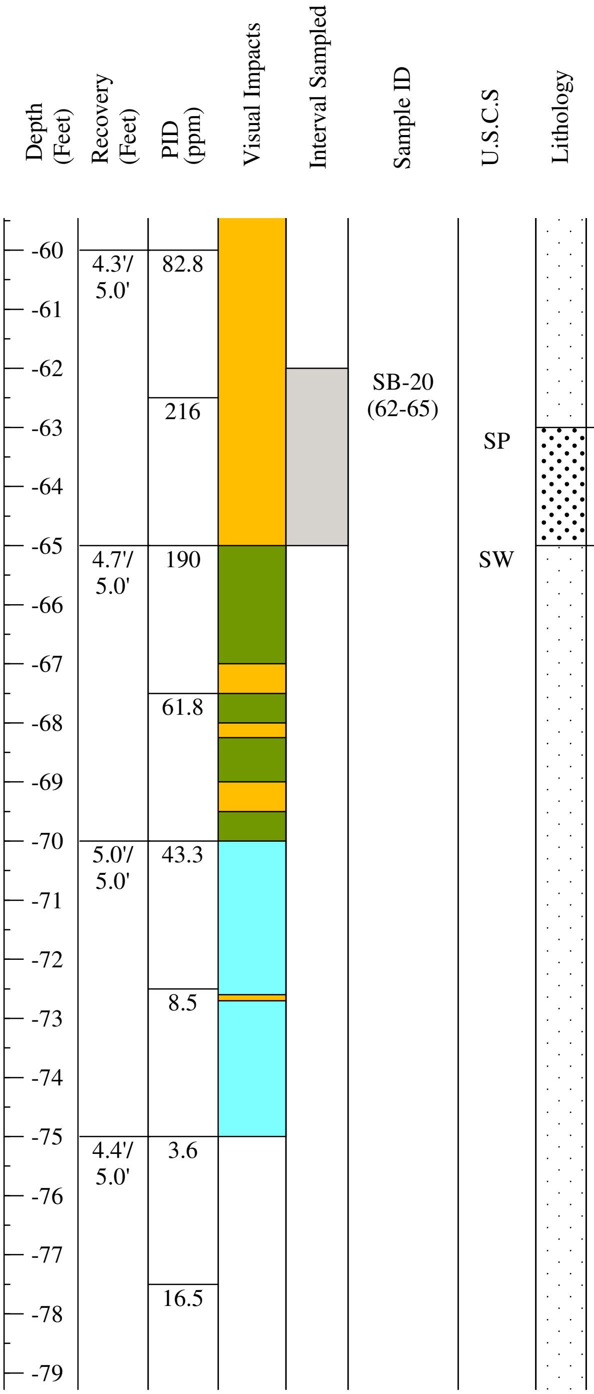
Boring ID: SB-20

Page 4 of 5

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 90 ft bgs
Ground Elevation: 58.36'
Converted To Well (Y/N): No
Well ID: N/A



Geologic Description

60-63 ft bgs: SAA.

63-65 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, some black/grey tar coated sand throughout, moderate to strong naphthalene-like odor, sheen.

65-67.5 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, brown, some sheen, strong naphthalene-like odor, tar coated sand lense from 67-67.5 ft bgs.

67.5-70 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, ~5% silt, moist, brown, ~50% tar coated lenses at 68 ft bgs (3" thick) and 69 ft bgs (5" thick), sheen.

70-75 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, naphthalene-like odor, tar coated lense from 72.6-72.7 ft bgs.

75-80 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown.

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-20

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 28, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~52 ft bgs
Total Depth: 90 ft bgs
Ground Elevation: 58.36'
Converted To Well (Y/N): No
Well ID: N/A

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80	4.9'/ 5.0'	2.9						80-85 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, very faint naphthalene-like odor from 82.5 to 85 ft bgs.
-81								
-82								
-83		13.7	🟦					
-84			🟦					
-85	4.9'/ 5.0'	25.6	🟦					85-90 ft bgs: SAA, faint naphthalene-like odor from 85-87 ft bgs, very faint naphthalene-like odor from 87-90 ft bgs.
-86			🟦					
-87			🟦	▨	SB-20 (87-90)			
-88		12.1	🟦	▨				
-89			🟦	▨				End of Boring 90 ft bgs
-90								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-21

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 29, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.41'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	0.3				FILL		0-0.25 ft bgs: ASPHALT 0.25-1 ft bgs: FILL: medium to coarse grained sand and gravel ~1 millimeter in diameter, <25% cobbles, <25% brick bits, dry, brown. 1-2 ft bgs: SAA, more cobbles, moist. 2-3 ft bgs: SAA, with ~25% silt, moist. 3-3.5 ft bgs: FILL: sandy silty clay and cobbles, plastic, moist, brown/tan. 3.5-4.5 ft bgs: FILL: silty clay and cobbles, plastic, moist, tan. 4.5-5 ft bgs: FILL: gravelly sand and cobbles, moist.
-1		0.2						
-2		0.4						
-3		0.3 0.2						
-4		0.3		▨	SB-21 (4.5-5)			
-5	4.6'/ 5.0'	0.4						5-6 ft bgs: FILL: medium to coarse grained gravel, ~30% medium to coarse grained sand, dry.
-6								6-8 ft bgs: FILL: medium to coarse grained sand, loose, dry, brown.
-7		0.4						
-8						GW		8-10 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse grained angular gravel, ~30% medium to coarse grained sand, ~10% cobbles, dry.
-9								
-10	2.8'/ 5.0'	0.8						10-12.5 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse grained angular gravel, ~30% medium to coarse grained sand, dry, brown.
-11								
-12		0.4						12.5-15 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse grained angular gravel, ~50% medium to coarse grained sand, loose, dry, gravel color is varied.
-13								
-14								
-15	5.0'/ 5.0'	0.9						15-20 ft bgs: SAA.
-16								
-17		0.8						
-18								
-19								
-20								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-21

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 29, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.41'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	2.1'/ 5.0'	0.7						20-25 ft bgs: WELL GRADED GRAVEL (GW): gravel, ~30% medium to coarse grained sand, 5 large cobbles ~4-5 inches in diameter, moist.
-21								
-22								
-23		1.2						
-24								
-25	4.0'/ 5.0'	0.6				SW		25-30 ft bgs: WELL GRADED SAND (SW): medium grained sand, ~30% medium sized angular gravel, slightly moist, loose, brown.
-26								
-27								
-28		0.9						
-29								
-30	3.4'/ 5.0'	0.8						30-35 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% medium to fine grained angular gravel, moist.
-31								
-32								
-33		0.9						
-34								
-35	3.0'/ 5.0'	0.0						35-40 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown.
-36								
-37								
-38		0.2						
-39								
-40								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-21

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 29, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.41'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	4.0'/ 5.0'	0.4						40-45 ft bgs: SAA.
-41								
-42								
-43		0.2						
-44								
-45	2.8'/ 5.0'	0.4						45-50 ft bgs: SAA.
-46								
-47								
-48		0.4						
-49								
-50	2.5'/ 5.0'	8.0						50-55 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown.
-51								
-52								
-53		1.8						
-54								
-55	2.8'/ 5.0'	2.5						55-57.5 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, moist, brown.
-56								
-57								
-58		9.4	🟦					57.5-60 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, moist, brown, faint naphthalene-like odor.
-59			🟦					
-60								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-21

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 23, 2011
Date Started/Completed: June 29, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.41'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60	NR	NR						60-65 ft bgs: No Recovery.
-61								
-62								
-63								
-64								
-65	2.2'/ 5.0'	0.5	🟦					65-67.5 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, moderate naphthalene-like odor.
-66			🟦					
-67		25.0	🟦					67.5-70 ft bgs: medium to coarse grained sand, loose, moist, brown, moderate naphthalene-like odor.
-68			🟦					
-69			🟦					
-70	4.5'/ 5.0'	61.0	🟦					70-75 ft bgs: medium to fine grained sand, loose, moist, brown, moderate naphthalene-like odor.
-71			🟦					
-72		85.2	🟦	▨	SB-21 (72.5-75)			
-73			🟦	▨				
-74			🟦	▨				
-75	4.6'/ 5.0'	6.8	🟦			SP		75-79 ft bgs: POORLY GRADED SAND (SP): medium grained sand, loose, moist, brown, very faint naphthalene-like odor.
-76			🟦					
-77		10.3	🟦					
-78			🟦					
-79			🟦			SW		79-80 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, very faint naphthalene-like odor, ~50% dark

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-21

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 95 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.41'
Date Pre-Cleared: June 23, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: June 29, 2011	**Logged By:** Rita Papagian	**Well ID:** NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80	4.8'/ 5.0'	7.1	🟦					grey to black coloring.
-81								80-83 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, dark grey to black, faint naphthalene-like odor, some black coloring.
-82								
-83		8.9						83-85 ft bgs: SAA, lighter grey.
-84								
-85	2.5'/ 5.0'	5.7				SM		85-86 ft bgs: SILTY SAND (SM): fine grained sand, ~30% silt, moist, grey, faint naphthalene-like odor, some black coloring.
-86						SP		86-90 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, grey, faint naphthalene-like odor, some black coloring.
-87								
-88		8.9						
-89								
-90	2.5'/ 5.0'	4.0						90-95 ft bgs: SAA, moderate naphthalene-like odor.
-91								
-92								
-93		10.6		▨	SB-21 (92.5-95)			
-94								End of Boring 95 ft bgs
-95								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

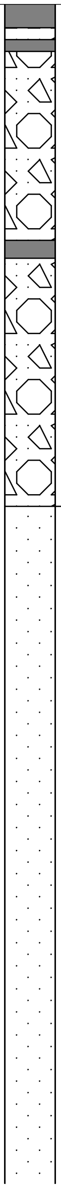
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-22 / MW-9

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 95 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.30'
Date Pre-Cleared: July 6, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: July 6/July 7, 2011	**Logged By:** Rita Papagian	**Well ID:** MW-9

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S
0	NA	2.9				FILL
-1		0.7		▨	SB-22 (1-2)	
-2		0.3				
-3		0.8				
-4		0.3				
-5	4.4'/ 5.0'	0.4				
-6						
-7		0.4				
-8						SW
-9						
-10	4.6'/ 5.0'	1.0				
-11						
-12		0.7				
-13						
-14						
-15	3.4'/ 5.0'	1.8				
-16						
-17		1.7				
-18						
-19						
-20						

Lithology



Geologic Description

0-0.4 ft bgs: CONCRETE
0.4-0.6 ft bgs: FILL: medium to coarse grained sand, ~40% medium to coarse gravel, <10% brick and asphalt, dry.
0.6-0.8 ft bgs: CONCRETE
0.8-1 ft bgs: SAA (0.4-0.6).
1-1.5 ft bgs: FILL: medium to coarse grained sand, ~40% gravel, <10% brick fragments, brown.
1.5-1.8 ft bgs: CONCRETE
1.8-2.: FILL: ~50% fine grained sand, ~50% silt, brown.
2-4 ft bgs: SAA.
4-4.3 ft bgs: CONCRETE
4.3-5 ft bgs: SAA (1.8-2.0), with <10% asphalt.

5-6.5 ft bgs: FILL: medium to coarse grained sand and medium to coarse angular gravel, dry, brown.

6.5-8.5 ft bgs: FILL: medium grained sand, brown, 1 large 5 inch in diameter cobbles at 6.75 ft bgs, dry.

8.5-10 ft bgs: WELL GRADED SAND (SW): medium grained sand and medium to fine gravel, dry, brown.

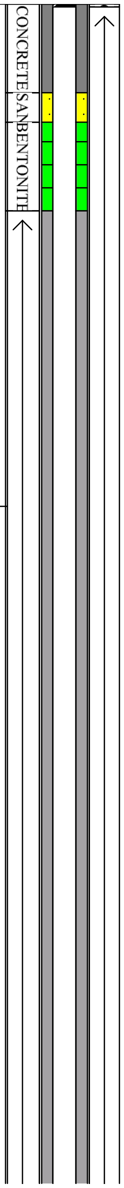
10-12 ft bgs: WELL GRADED SAND (SW): medium grained sand, <5% mica, loose, dry, brown.

12-14.5 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~35% coarse angular gravel, loose, dry, brown.

14.5-15 ft bgs: WELL GRADED SAND (SW): medium grained sand and medium to fine angular gravel, dry, brown.

15-20 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and medium to coarse angular gravel, loose, dry, brown.

Well Construction



Comments:

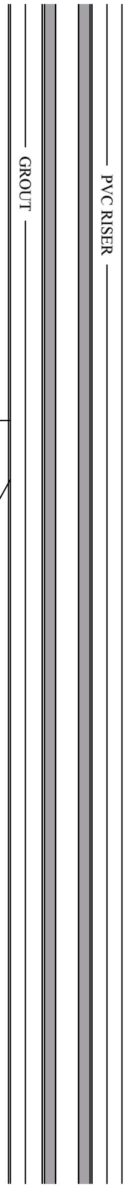
NA: Not Applicable	ft bgs: feet below grade surface	Sonic drilling started at 5 ft bgs.
NR: No Recovery	SAA: Same as above	Visual impacts also include olfactory impacts.
ND: Not Documented	Hand cleared from 0-5 ft bgs.	

Boring ID: SB-22 / MW-9

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 95 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 58.30'
Date Pre-Cleared: July 6, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** Yes
Date Started/Completed: July 6/July 7, 2011	**Logged By:** Rita Papagian	**Well ID:** MW-9

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	4.0'/ 5.0'	1.4						20-25 ft bgs: SAA, ~30% cobbles throughout, ~30% gravel, loose from 24-25 ft bgs, dry.
		1.2						
-25	2.5'/ 5.0'	2.2						25-27 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% fine gravel, moist, brown.
-27						GW		27-28 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse angular gravel, moist.
		2.5						
-28						SW		28-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and fine gravel, moist, brown.
-30	3.8'/ 5.0'	1.2						30-35 ft bgs: WELL GRADED SAND (SW): medium grained sand, <30% medium to fine gravel, loose, dry, brown.
		1.2						
-35	4.6'/ 5.0'	1.2						35-39.5 ft bgs: SAA.
		3.2						
-39.5								39.5-40 ft bgs: WELL GRADED SAND (SW): medium to
-40								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

Boring ID: SB-22 / MW-9

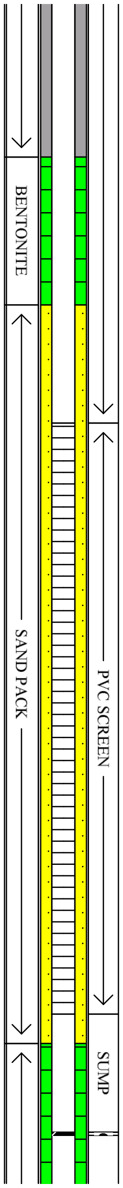
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 6, 2011
Date Started/Completed: July 6/July 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.30'
Converted To Well (Y/N): Yes
Well ID: MW-9

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40 -41 -42	2.5'/ 5.0'	2.8						fine grained sand, <10% silt, dry, brown. 40-45 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, dry, brown.
-43 -44		1.7						
-45 -46 -47	2.5'/ 5.0'	1.8						45-50 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, dry, brown.
-48 -49		7.1						
-50 -51 -52 -53 -54	NR	NR						50-55 ft bgs: No Recovery
-55 -56 -57 -58 -59 -60	NR	NR						55-60 ft bgs: No Recovery

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

Boring ID: SB-22 / MW-9

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 6, 2011
Date Started/Completed: July 6/July 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.30'
Converted To Well (Y/N): Yes
Well ID: MW-9

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-60	4.0'/ 5.0'	1.3						60-62.5 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown.	
		5.3	🟦					62.5-65 ft bgs: SAA, faint tar-like odor.	
-65	2.5'/ 5.0'	3.2	🟦					65-70 ft bgs: SAA, moderate tar-like odor.	
		6.2	🟦						
-70	2.8'/ 5.0'	7.5	🟦					70-72 ft bgs: SAA.	
			🟦					72-73 ft bgs: WELL GRADED SAND (SW): medium to coarse sand, moist, brown.	
		114.8	🟦					73-75 ft bgs: SAA, strong tar-like odor.	
-75	3.9'/ 5.0'	19.8	🟦					75-80 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, moist, brown, faint tar-like odor.	BENTONITE
		21.4	🟦						
-80									

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

Boring ID: SB-22 / MW-9

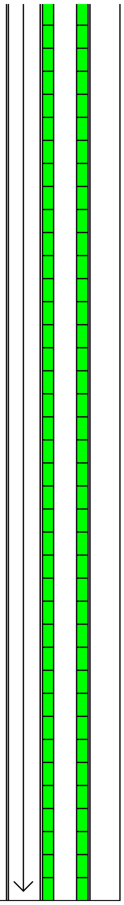
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 6, 2011
Date Started/Completed: July 6/July 7, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.30'
Converted To Well (Y/N): Yes
Well ID: MW-9

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80	4.5'/ 5.0'	149.6	🟦					80-85 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, moist, brown, moderate tar-like odor.
-82.5		20.4	🟦	▨	SB-22 (82.5-85)			
-85	1.0'/ 5.0'	1.1	🟦					85-90 ft bgs: SAA, faint tar-like odor.
-87.5		1.0	🟦					
-90	3.5'/ 5.0'	2.1	🟦					90-95 ft bgs: SAA
-92.5		0.9	🟦	▨	SB-22 (92.5-95)			End of Boring 95 ft bgs
-95								

Well Construction



Comments:
NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

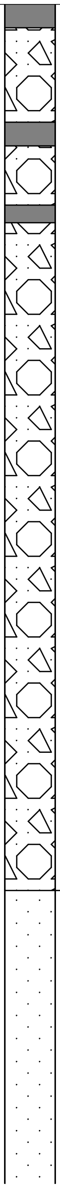
Boring ID: SB-23 / MW-10

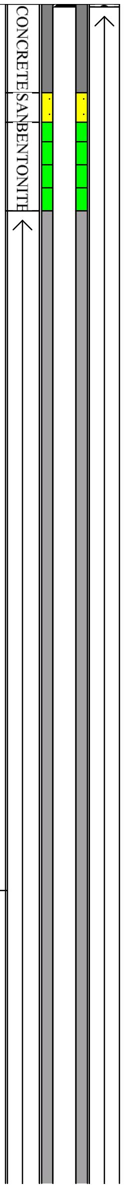
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 11, 2011
Date Started/Completed: July 11/July 13, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.02'
Converted To Well (Y/N): Yes
Well ID: MW-10

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Geologic Description
0	NA	0.2				FILL	0-0.4 ft bgs: CONCRETE 0.4-1 ft bgs: FILL: medium to coarse grained sand, ~40% medium to coarse gravel, <10% brick, <30% root matter, dry, brown.
-1		0.1					1-2 ft bgs: FILL: fine grained sand and silt, <10% clay, dry, brown.
-2		0.1					2-2.4 ft bgs: CONCRETE 2.4-2.8 ft bgs: FILL: gravel and medium to coarse grained sand, dry, brown. 2.8-3 ft bgs: FILL: clay structure.
-3		0.2					3-4 ft bgs: SAA (2.4-2.8 ft bgs), CONCRETE from 3.4-3.7 ft bgs.
-4		1.1					4-5 ft bgs: FILL: gravel and medium to coarse grained sand, dry, brown.
-5	3.9'/ 5.0'	1.2					5-10 ft bgs: FILL: medium to coarse angular gravel and medium to coarse grained sand, 3 large 4 inch in diameter cobbles throughout.
-7.5		1.0					
-10	4.1'/ 5.0'	2.8					10-15 ft bgs: SAA, coarse to fine angular gravel.
-12.5		1.5					
-15	3.9'/ 5.0'	5.1				SW	15-20 ft bgs: WELL GRADED SAND (SW): medium grained sand, <10% medium to fine angular gravel, <10% brick fragments, dry, brown.
-17.5		2.1					
-20							





Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

Boring ID: SB-23 / MW-10

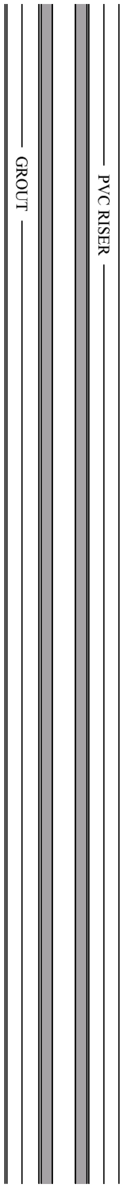
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 11, 2011
Date Started/Completed: July 11/July 13, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.02'
Converted To Well (Y/N): Yes
Well ID: MW-10

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	4.2'/ 5.0'	1.4						20-25 ft bgs: WELL GRADED SAND (SW): medium grained sand and medium angular and rounded gravel, dry, brown.
-21								
-22								
-23		1.8						
-24								
-25	4.9'/ 5.0'	1.6						25-26 ft bgs: SAA.
-26								26-30 ft bgs: WELL GRADED SAND (SW): medium grained sand, ~10% medium to fine angular gravel, dry, brown.
-27								
-28		1.5						
-29								
-30	4.2'/ 5.0'	5.8						30-35 ft bgs: SAA.
-31								
-32								
-33		1.5						
-34								
-35	4.8'/ 5.0'	5.5						35-40 ft bgs: SAA, medium to fine grained sand, loose.
-36								
-37								
-38		1.3						
-39								
-40								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

AECOM

Boring ID: SB-23 / MW-10

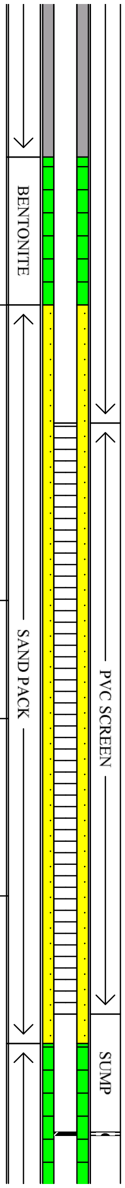
Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 11, 2011
Date Started/Completed: July 11/July 13, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.02'
Converted To Well (Y/N): Yes
Well ID: MW-10

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	4.3'/ 5.0'	1.7						40-45 ft bgs: SAA.
-41								
-42								
		2.0						
-43								
-44								
-45	2.5'/ 5.0'	0.9				SP		45-50 ft bgs POORLY GRADED SAND (SP): fine grained sand, loose, dry, brown.
-46								
-47								
		0.7						
-48								
-49								
-50	3.0'/ 5.0'	1.1				SW		50-52 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, <10% fine gravel, moist, brown.
-51								
-52						SP		52-55 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown.
		1.3						
-53								
-54								
-55	2.0'/ 5.0'	0.2				SW		55-60 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, faint tar-like odor from 58-60 ft bgs.
-56								
-57								
		1.9						
-58			🟦					
-59			🟦					
-60								

Well Construction



Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

Boring ID: SB-23 / MW-10

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 11, 2011
Date Started/Completed: July 11/July 13, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.02'
Converted To Well (Y/N): Yes
Well ID: MW-10

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-60	3.5'/ 5.0'	2.8	🟦			SP		60-65 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown, faint tar-like odor.	
-62.5		6.2	🟦						
-65	2.0'/ 5.0'	1.9						65-68 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown.	
-67.5		2.0							
-68			🟦					68-70 ft bgs: SAA, faint tar-like odor.	
-70	3.4'/ 5.0'	0.9	🟦			SW		70-73 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, very loose, moist, brown, faint tar-like odor.	
-72.5		15.9	🟦						
-73								73-75 ft bgs: SAA, no odor.	
-75	3.2'/ 5.0'	63.2	🟦			SP		75-80 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown, moderate tar-like odor.	BENTONITE
-77.5		76.8	🟦	▨	SB-23 (77.5-80)				
-80									

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

Boring ID: SB-23 / MW-10

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 11, 2011
Date Started/Completed: July 11/July 13, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 58.02'
Converted To Well (Y/N): Yes
Well ID: MW-10

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description	Well Construction
-80	4.3'/ 5.0'	45.7						80-85 ft bgs: SAA, faint tar-like odor.	
-81									
-82									
-83		51.3							
-84									
-85	4.1' 5.0'	60.1						85-90 ft bgs: SAA	
-86									
-87									
-88		38.1							
-89									
-90	3.1'/ 5.0'	41.2				SW		90-95 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, loose, moist, brown, faint tar-like odor.	
-91									
-92									
-93		14.6			SB-23 (92.5-95)				
-94								End of Boring 95 ft bgs	
-95									

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also include olfactory impacts.

Boring ID: SB-24

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** NA
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 35 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 59.20'
Date Pre-Cleared: June 30, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: June 30, 2011	**Logged By:** Rita Papagian	**Well ID:** NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	1.4				FILL		0-0.3 ft bgs: CONCRETE 0.3-1 ft bgs: FILL: medium to coarse grained sand, medium to coarse angular gravel, cobbles 4-6 inches in diameter cobbles, dry.
-1		1.6						1-1.2 ft bgs: SAA. 1.2-1.5 ft bgs: CONCRETE 1.5-2 ft bgs: FILL: medium to coarse grained sand, medium to coarse angular gravel, dry, brown.
-2		0.9						2-3 ft bgs: FILL: medium to coarse grained sand, medium to coarse angular gravel, ~5% cobbles 3-5 inches in diameter .
-3		0.9						3-4 ft bgs: FILL: medium grained sand and silt, ~10% angular gravel.
-4		1.2		▨	SB-24 (4-5)			4-5 ft bgs: SAA.
-5	3.0'/ 5.0'	1.3						5-7 ft bgs: FILL: fine grained sand and silt, ~30% large rounded gravel.
-6								
-7		3.0						7-9 ft bgs: FILL: medium to coarse grained sand, moist, brown, pieces of black asphalt, brick, metal, and glass.
-8								
-9								9-10 ft bgs: FILL: silt, ~25% clay, ~10% medium to fine rounded gravel, firm, moist, brown.
-10	4.8'/ 5.0'	1.4						10-12 ft bgs: SAA, brown-tan, moderate sulfur-like odor.
-11								
-12		3.2						12-15 ft bgs: FILL: medium to coarse grained sand and coarse to fine angular gravel, loose, dry, brown.
-13								
-14								
-15	ND	0.1						15-17 ft bgs: FILL: medium to coarse grained sand and coarse angular gravel, loose, brown.
-16								
-17		0.0				SW		17-20 ft bgs: WELL GRADED SAND (SW): fine grained sand, ~20% medium to fine angular gravel, small ribbon of yellow medium to coarse sand at 17 ft bgs, mica pieces from 19.5-20 ft bgs.
-18								
-19								
-20								

Comments: NA: Not Applicable

NR: No Recovery

ND: Not Documented

ft bgs: feet below grade surface

SAA: Same as above

Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.

Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-24

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: June 30, 2011
Date Started/Completed: June 30, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: NA
Total Depth: 35 ft bgs
Ground Elevation: 59.20'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	2.5'/ 5.0'	0.0				GW		20-21 ft bgs: WELL GRADED GRAVEL (GW): medium to coarse subangular gravel, ~30% coarse sand, loose, moist, brown.
-21						SW		21-25 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% medium to coarse subangular gravel, loose, moist, brown.
-22								
		0.3						
-23								
-24								
-25	5.0'/ 5.0'	0.2						25-30 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, ~30% medium to coarse subangular gravel, loose, dry, brown.
-26								
-27								
		0.2						
-28								
-29								
-30	2.0'/ 5.0'	1.0						30-34 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and medium to fine gravel, loose, moist, brown.
-31								
-32								
		0.2		▨	SB-24 (32.5-35)			
-33				▨				
-34				▨		SP		34-35 ft bgs: POORLY GRADED SAND (SP): fine grained sand, loose, moist, brown. End of Boring 35 ft bgs
-35								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

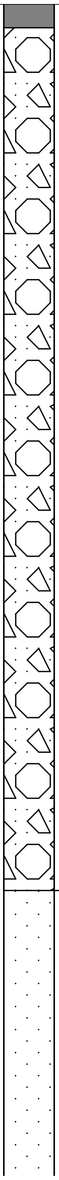
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Boring ID: SB-25

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 7, 2011
Date Started/Completed: July 8, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50.5 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 56.90'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
0	NA	0.2				FILL		0-0.4 ft bgs: CONCRETE 0.4-0.8 ft bgs: FILL: coarse angular gravel, dry. 0.8-1.0 ft bgs: FILL: sand and gravel, dry, brown.
-1		0.3						1-2 ft bgs: FILL: fine grained sand and silt, dry, brown.
-2		0.2						2-3 ft bgs: FILL: clay, ~30% silt, <10% black silty clay mottled throughout.
-3		0.1						3-4 ft bgs: FILL: fine grained sand, ~50% gravel <5% silt, large cobbles throughout, dry, brown.
-4		0.3		▨	SB-25 (4-5)			4-5 ft bgs: SAA, <30% gravel, large cobble at 4.8 ft bgs.
-5	3.6'/ 5.0'	1.5						5-10 ft bgs: FILL: medium to coarse grained sand and medium to coarse angular gravel, 1-3 inch in diameter cobble at 8 ft bgs, loose, dry, brown.
-6								
-7		2.1						
-8								
-9								
-10	3.8'/ 5.0'	2.3						10-15 ft bgs: SAA, 3-4 inch in diameter cobbles throughout, <10% brick fragments, dry.
-11								
-12		2.6						
-13								
-14								
-15	NR	NR				SW		15-20 ft bgs: No Recovery, cobble in bit.
-16								
-17								
-18								
-19								
-20								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented
ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.
Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-25

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50.5 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 95 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 56.90'
Date Pre-Cleared: July 7, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: July 8, 2011	**Logged By:** Rita Papagian	**Well ID:** NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-20	3.9'/ 5.0'	2.1						20-25 ft bgs: WELL GRADED SAND (SW): SAA (10-15 ft bgs).
-21								
-22		6.3						
-23								
-24								
-25	NR	NR						25-30 ft bgs: No Recovery, cobble in bit.
-26								
-27								
-28								
-29								
-30	4.0'/ 5.0'	5.5						30-35 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, medium gravel, <10% silt, loose, dry, brown.
-31								
-32		4.2						
-33								
-34								
-35	1.0'/ 5.0'	19.6						35-39 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand and fine gravel, dry.
-36								
-37		96.2						
-38								
-39						SM		39-40 ft bgs: SILTY SAND (SM): fine grained sand, ~30% silt, <10%

Comments: NA: Not Applicable	ft bgs: feet below grade surface	Sonic drilling started at 5 ft bgs.
NR: No Recovery	SAA: Same as above	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0-5 ft bgs.	

AECOM

Boring ID: SB-25

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 7, 2011
Date Started/Completed: July 8, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50.5 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 56.90'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-40	1.8'/ 5.0'	42.4				SW		grey silt mottled throughout, dry.
-41								40-43 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, <10% fine grained sand, dry, brown.
-42		6.0						
-43			🟧					43-45 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, loose, dry, brown, some tar coated sand, moderate tar-like odor.
-44			🟧					
-45	1.3'/ 5.0	8.1	🟩					45-50 ft bgs: WELL GRADED SAND (SW): medium to coarse grained sand, wet at 50.5 ft bgs, brown, faint sheen, faint tar-like odor.
-46			🟩					
-47		40.7	🟩					
-48			🟩					
-49			🟩					
-50	1.8'/ 5.0'	196.5	🟧					50-55 ft bgs: WELL GRADED SAND (SW): medium grained sand, <10% medium to fine angular gravel, moist, brown, tar coated sand throughout, strong tar-like odor, sheen throughout.
-51			🟧					
-52		369.9	🟧					
-53			🟧					
-54			🟧					
-55	2.0'/ 5.0'	1105	🟧			SP		55-60 ft bgs: POORLY GRADED SAND (SP) medium grained sand, loose, moist, brown, some tar coated sand, sheen, strong tar-like odor.
-56			🟧					
-57		935.9	🟧					
-58			🟧					
-59			🟧					

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

AECOM

Boring ID: SB-25

Project Name: Flatbush Station A&B Former Gas Holder	**Drilling Company:** Boart Longyear	**Water Level:** ~50.5 ft bgs
Project Number: 60218917	**Drilling Method:** Sonic	**Total Depth:** 95 ft bgs
Client: National Grid	**Sampling Method:** Disposable plastic liner	**Ground Elevation:** 56.90'
Date Pre-Cleared: July 7, 2011	**Boring Diameter:** 6 inches	**Converted To Well (Y/N):** No
Date Started/Completed: July 8, 2011	**Logged By:** Rita Papagian	**Well ID:** NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-60	2.0'/ 5.0'	1056	🟧			SW		60-65 ft bgs: WELL GRADED SAND (SW): medium to fine grained sand, <5% silt, moist, brown, tar coated sand throughout, strong tar-like odor, sheen throughout, tar blebs, heavily coated.
-61			🟧					
-62			🟧					
-63		866.6	🟧					
-64			🟧					
-65	3.9'/ 5.0'	733.6	🟧			SP		65-68 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, some tar coated sand, strong tar-like odor, sheen and tar blebs.
-66			🟧					
-67			🟧					
-68		375.8	🟦					68-70 ft bgs: SAA, no tar-like material coating.
-69			🟦					
-70	1.0'/ 5.0'	320.1	🟦			SW		70-75 ft bgs: WELL GRADED SAND (SW): fine to medium grained sand, moist, brown, strong tar-like odor, sheen.
-71			🟦					
-72			🟦					
-73		258.3	🟦					
-74			🟦					
-75	4.0'/ 5.0'	34.0	🟦			SP		75-78 ft bgs: POORLY GRADED SAND (SP): medium grained sand, moist, brown, moderate tar-like odor.
-76			🟦					
-77			🟦					
-78		679.3	🟧					78-80 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, tar coated sand throughout, strong tar-like odor, sheen throughout.
-79			🟧					

Comments: NA: Not Applicable	ft bgs: feet below grade surface	Sonic drilling started at 5 ft bgs.
NR: No Recovery	SAA: Same as above	Visual impacts also includes olfactory impacts.
ND: Not Documented	Hand cleared from 0-5 ft bgs.	

AECOM

Boring ID: SB-25

Project Name: Flatbush Station A&B Former Gas Holder
Project Number: 60218917
Client: National Grid
Date Pre-Cleared: July 7, 2011
Date Started/Completed: July 8, 2011

Drilling Company: Boart Longyear
Drilling Method: Sonic
Sampling Method: Disposable plastic liner
Boring Diameter: 6 inches
Logged By: Rita Papagian

Water Level: ~50.5 ft bgs
Total Depth: 95 ft bgs
Ground Elevation: 56.90'
Converted To Well (Y/N): No
Well ID: NA

Depth (Feet)	Recovery (Feet)	PID (ppm)	Visual Impacts	Interval Sampled	Sample ID	U.S.C.S	Lithology	Geologic Description
-80	2.1'/ 5.0'	647.9	🟧				⁘	80-84 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, some tar coated sand, strong tar-like odor, sheen throughout.
-81			🟧				⁘	
-82			🟧				⁘	
-83		723.6	🟧	▨	SB-25 (82.5-85)		⁘	
-84			🟧	▨			⁘	84-85 ft bgs: SAA, tar coated sand throughout.
-85	3.0'/ 5.0'	154.7	🟦				⁘	85-90 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown, faint tar-like odor.
-86			🟦				⁘	
-87			🟦				⁘	
-88		38.8	🟦				⁘	
-89			🟦				⁘	
-90	2.4'/ 5.0'	4.9		▨	SB-25 (90-92.5)		⁘	90-95 ft bgs: POORLY GRADED SAND (SP): fine grained sand, moist, brown.
-91				▨			⁘	
-92				▨			⁘	
-93		6.1					⁘	
-94							⁘	End of Boring 95 ft bgs
-95								

Comments: NA: Not Applicable
NR: No Recovery
ND: Not Documented

ft bgs: feet below grade surface
SAA: Same as above
Hand cleared from 0-5 ft bgs.

Sonic drilling started at 5 ft bgs.
Visual impacts also includes olfactory impacts.

Appendix G

Standard Operating Procedures

AECOM

January 2012

Standard Operating Procedures

(AECOM and National Grid)

AECOM Standard Operating Procedures

Contents

1.0 Field Log Books

All field activities will be carefully documented in field log books. Entries will be of sufficient detail that a complete daily record of significant events, observations, and measurements is obtained. The field log book will provide a legal record of the activities conducted at the project site. Accordingly:

- Field books will be assigned a unique identification number.
- Field books will be bound with consecutively numbered pages.
- Field books will be controlled by the Field Team Leader while field work is in progress.
- Entries will be written with waterproof ink.
- Entries will be signed and dated at the conclusion of each day of field work.
- Erroneous entries made while field work is in progress will be corrected by the person that made the entries. Corrections will be made by drawing a line through the error, entering the correct information, and initialing the correction.
- Corrections made after departing the field will be made by the person who made the original entries. Corrections will be made by drawing a line through the error, entering the correct information, and initialing and dating the time of the correction.
- At a minimum, daily field book entries will include the following information:
    - Location of field activity;
    - Date and time of entry;
    - Names and titles of field team members;
    - Names and titles of any site visitors and site contacts;
    - Weather information, for example: temperature, cloud coverage, wind speed and direction;
    - Purpose of field activity;
    - A detailed description of field work conducted;
    - Sample media (soil, sediment, groundwater, *etc*.);
    - Sample collection method;
    - Number and volume of sample(s) taken;

- Description of sampling point(s);
- Volume of groundwater removed before sampling;
- Preservatives used;
- Analytical parameters;
- Date and time of collection;
- Sample identification number(s);
- Sample distribution (*e.g.* laboratory);
- Field observations;
- Any field measurements made, such as pH, temperature, conductivity, water level, *etc.*;
- References for all maps and photographs of the sampling site(s); and
- Information pertaining to sample documentation such as:
  - Bottle lot numbers
  - Dates and method of sample shipment
  - Chain-of-Custody (COC) Record numbers
  - Federal Express Air Bill Number

2.0 Field Equipment Decontamination and Management of Investigation Derived Waste

2.1 Decontamination Area

A temporary decontamination area lined with polyethylene sheeting will be constructed on-site for decontaminating the drilling equipment. Water collected from the decontamination cleaning activities will be collected in 55-gallon drums and managed as IDW.

2.2 Equipment Decontamination

The following procedures will be used to decontaminate equipment used during the field activities:

- All drilling equipment including the drilling rig, augers, bits, rods, tools, split-spoon samplers, and tremie pipe will be cleaned with a high-pressure steam cleaning or hot water pressure washing unit, as appropriate, before beginning work.
- Tools, drill rods, and augers will be placed on sawhorses or polyethylene plastic sheets following steam cleaning or pressure washing. Direct contact with the ground will be avoided.
- All augers, rods, and tools will be decontaminated between each drilling location according to the above procedures.
- The back of the drill rig and all tools, augers, and rods will be decontaminated at the completion of the work and prior to leaving the project site.

2.2.1 Sampling Equipment Decontamination

Suggested Materials:

- Potable water
- Phosphate-free detergent (*e.g.* Alconox™)
- Distilled water
- Aluminum foil
- Plastic/polyethylene sheeting
- Plastic buckets and brushes
- Personal protective equipment in accordance with the HASP

Procedures:

- Prior to sampling, all non-dedicated sampling equipment (bowls, spoons, interface probes, *etc.*) will be either steam cleaned or washed with potable water and a phosphate-free detergent (such as Alconox^{TM}). Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, *etc.*

- The sampling equipment will then be rinsed with potable water followed by a deionized water rinse.

- Between rinses, equipment will be placed on polyethylene sheets or aluminum foil if necessary. At no time will washed equipment be placed directly on the ground.

- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

2.3 Management of Investigation Derived Wastes

2.3.1 Decontamination Fluids

Steam-cleaning and decontamination fluids will be collected in 55-gallon drums. The drums will be labeled as investigation derived wastewater subsequently characterized and disposed.

2.3.2 Drill Cuttings

Visibly impacted drill cuttings will be contained in 55-gallon drums. The drums will be labeled as investigation derived soils and subsequently characterized and properly disposed.

2.3.3 Development and Purge Water

All development and purge water will be contained in 55-gallon drums. The drums will be labeled as investigation derived wastewater and subsequently characterized and properly disposed.

2.3.4 Personal Protective Equipment

All personal protective equipment (PPE) will be placed in 55-gallon drums for proper disposal.

2.3.5 Dedicated Sampling Equipment

All dedicated groundwater sampling equipment, if used, will be placed in 55-gallon drums for proper disposal.

3.0 Drilling and Soil Sampling Procedures

3.1 Introduction

Drilling activities during the field work might consist of:

- Soil borings
- Monitoring well installations
- DNAPL collection well installations

These procedures are described in the following section.

3.2 Soil Borings and Subsurface Soil Sampling

The following methods will be used for conducting soil borings.

3.2.1 Suggested Equipment

- Field book
- Project plans
- Personal protective equipment in accordance with the HASP
- Metal detector
- Stakes and flagging
- One pint containers for lithology samples
- Tape measure
- Decontamination supplies
- Water level indicator
- Photoionization detector (PID) with a 10.2 or 10.6 eV lamp
- Camera
- Clear tape, duct tape
- Aluminum foil

- Laboratory sample bottles
- Coolers and ice
- Shipping supplies

3.3 Drilling and Geologic Logging Method

- Soil borings will be advanced using rotosonic, hollow stem auger, or direct push drilling methods. The rotosonic method is preferred.
- Soil samples will be collected continuously to the bottom of the borings using 5 to 10-foot long 4-inch diameter sonic sample bags, 4-foot long, 2-inch diameter macro core samplers or 2-foot long, 2-inch diameter split spoon samplers.
- Soil samples retrieved from the borehole will be visually described for:
    - o Percent recovery
    - o Soil type
    - o Color
    - o Moisture content
    - o Texture
    - o Grain size and shape
    - o Consistency
    - o Visible and olfactory evidence of staining and/or contamination
    - o Any other observations

The descriptions will be in accordance with the Unified Soil Classification System (USCS), American Society for Testing and Materials (ASTM) guidelines, or the modified Burmeister system.

- Soil samples will be immediately screened for the evolution of organic vapors with a PID.
- A representative portion of the sample will be placed in a plastic “zip lock” bag or an eight-ounce sample jar filled approximately half full. The container will be labeled with the boring number and interval sampled. Aluminum foil will be placed on the top of the jar and the cap will be screwed on tightly.
- After a minimum of 10 minutes, the lid will be unscrewed and the tip of the PID will be inserted through the aluminum foil across the cap or into the bag to measure the headspace for organic vapors.

- Remaining soil will be disposed of in accordance with methods specified in the procedure for the management of IDW.
- All borings will be completed as monitoring wells, backfilled with cuttings if soil is not impacted, or sealed with bentonite or cement/bentonite grout following completion.
- All drilling equipment will be decontaminated between each boring in accordance with methods specified in the procedure for field equipment decontamination.
- The designated field geologist will log borehole geology and headspace measurements in the field book and the drilling record along with any other observations (for example, odors, NAPL, soil staining, *etc*.)

3.3.1 Soil Sampling

- Samples for VOC analysis will be collected directly from the sonic liners or split-spoons, placed into appropriate containers, and compacted to minimize headspace and pore space. The remaining sample volume will be placed into a stainless steel bowl or plastic bag, homogenized, and placed in appropriate containers for the other analyses.
- The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed on ice (to maintain a temperature of 4ºC). The coolers will be shipped overnight to the laboratory for analysis.
- Chain-of-custody procedures will be followed as outlined in the QAPP.
- The sampling equipment will be decontaminated between samples in accordance with procedures described in the procedure for field equipment decontamination.
- Excess soil remaining after sampling will be contained in accordance with methods specified in the procedure for the management of IDW.
- The sample locations, descriptions, and depths will be recorded in the field book.

3.4 Monitoring Well Installation and Development

The following methods will be used for drilling, installing, and developing the monitoring wells.

3.4.1 Suggested Equipment

- Field book
- Project plans
- Personal protective equipment in accordance with the HASP
- Metal detector
- Stakes and flagging

- One pint containers for lithology samples
- Tape measure
- Decontamination supplies
- Water level indicator
- Photoionization detector (PID) with a 10.2 or 10.6 eV lamp
- Camera
- Clear tape, duct tape
- Aluminum foil
- Laboratory sample bottles
- Coolers and ice
- Shipping supplies
- Polyethylene disposable bailers (development)
- Polypropylene rope (development)
- Waterra pump or other purge pump (development)
- Stainless steel or glass beakers (development)
- Turbidity meter (development)
- Temperature, conductivity, pH meter (development)

3.4.2 Monitoring Well Installation

The monitoring wells will be installed in accordance to the following specifications:

- The monitoring well borings will be advanced with 6-inch diameter sonic casing pipe or 4.25-inch inner diameter (ID) hollow stem augers.

- Wells will be constructed with 2-inch ID, threaded, flush-joint PVC casings and screens.

- Screens will be 10 feet long with 0.01-inch or 0.02-inch slot openings with a 2-foot sump at the base. Alternatives may be used at the discretion of the field geologist and approval of National Grid based on field conditions.

- The annulus around the screens will be backfilled with silica sand having appropriate size (*e.g.* Morie No. 1) to a minimum height of two feet above the top of the screen. Auger flights will be withdrawn as sand is poured in a manner that will minimize hole collapse and bridging.

- A bentonite pellet seal or slurry seal with a minimum thickness of one foot will be placed above the sand pack. The bentonite seal (pellets) will be allowed to hydrate before placement of grout above the seal.

- The remainder of the annular space will be filled with a cement-bentonite grout to the ground surface. The grout will be pumped through a tremie pipe from the bottom up. The grout will be allowed to set for a minimum of 24 hours before wells are developed.

- Each monitoring well will have a locking expandable gas-tight cap and will be contained in a flush-mount vault.

- The concrete seal or pad will be sloped to channel water away from the well, and be deep enough to remain stable during freezing and thawing of the ground.

- The op of the PVC well casing will be marked and surveyed to 0.01 foot, and the elevation will be determined relative to a fixed benchmark or datum.

- The measuring point on all wells will be on the innermost PVC casing.

- Monitoring well construction details will be recorded in the field book and on a construction log.

3.4.3 Monitoring Well Development

- After a minimum of 24 hours after completion, the monitoring wells will be developed by surging and pumping. Pumping methods may include using a centrifugal or peristaltic pump and dedicated polyethylene tubing, using a Waterra positive displacement pump and dedicated polyethylene tubing, or other methods at the discretion of the field geologist.

- Water levels will be measured in each well to the nearest 0.01 foot prior to development.

- The wells will be developed until the water in the well is reasonably free of visible sediment (50 NTU if possible or until pH, temperature, and specific conductivity stabilize). A portable nephelometer will be used to take this measurement.

- Development water will be contained in accordance with methods specified in the procedure for the management of IDW.

Following development, wells will be allowed to recover for at least 14 days before groundwater is purged and sampled. All monitoring well development will be overseen by a field geologist and recorded in the field book.

4.0 Groundwater Sampling Procedures

4.1 Introduction

Groundwater sampling will be conducted on Site monitoring well locations. Procedures for obtaining samples of groundwater are described in this section.

4.2 Groundwater Sampling

4.2.1 Suggested Equipment

- Field book
- Project plans
- Personal protective equipment in accordance with the HASP
- Water level indicator
- Disposable polyethylene bailers or low flow sampling pump
- Polypropylene rope
- Temperature, conductivity, pH meters
- Turbidity meter
- Dissolved oxygen meter
- 250-mL glass beaker
- Flow through cell (if low flow sampling pump is used)
- Decontamination supplies
- Waterra pump or other purge pump
- Plastic tubing
- Plastic sheeting
- Photovac PID
- Clear tape, duct tape
- Coolers and ice

- Laboratory sample bottles
- Federal Express labels

4.2.2 Groundwater Sampling Method

4.2.2.1 Purging

- The number and frequency of groundwater samples to be collected and the associated analytical parameters are summarized in Section 3-3 of the SMP.
- Prior to sampling, the static water level and thickness of any free product will be measured to the nearest 0.01 foot from the surveyed well elevation mark on the top of the PVC casing with a decontaminated oil/water interface probe. NAPL thickness will be determined using a clear bailer or a weighted string. The measurement will be recorded in the field book.
- The probe will be decontaminated according to procedures outlined in the procedures for field equipment decontamination.
- The well will be purged by removing groundwater until field parameters stabilize to within 10% of previous reading; up to 3 well volumes are removed or 1 hour of purging is performed. Purging will be conducted using a low-stress sampling technique such as the USEPA Region 1 Low-Stress sampling guidance.
- If a well goes dry before the required volumes are removed, it will be allowed to recover, purged a second time until dry or the required parameters are met, and sampled when it recovers sufficiently, in accordance with low flow sampling protocol.
- Purge water will be managed and disposed of in accordance with procedures described in the management of IDW.

4.2.2.2 Sampling

- Samples will be collected using dedicated ¼-inch polyethylene tubing and micro purging techniques consistent with low flow sampling protocol.
- Prior to filling the sample bottles, one 250-mL beaker will be filled with water. The temperature, pH, conductivity, oxidation reduction potential, dissolved oxygen, and turbidity will be measured with a pre-calibrated probe and recorded in the field book. If low flow sampling methods are used, these parameters (except turbidity) will be measured within a flow through cell.
- The sample containers will be labeled, placed in a laboratory-supplied cooler and packed on ice (to maintain a temperature of 4ºC). The cooler will be shipped overnight or delivered to the laboratory for analysis.
- Chain-of-custody procedures will be followed as outlined in the QAPP.

Well sampling data will be recorded on groundwater sampling record forms.

5.0 Field Instruments and Calibration

All field analytical equipment will be calibrated immediately prior to each day's use and more frequently if required. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. All instrument calibrations will be documented in the project field book and in an instrument calibration log. Records of all instrument calibration will be maintained by the Field Team Leader and will be subject to audit by the Quality Assurance Officer (QAO). Copies of all of the instrument manuals will be maintained on-site by the Field Team Leader. All changes to instrumentation will be noted in the field log book.

The following field instruments will be used during the investigation:

- PID
- pH probe
- Mini-RAM dust meter
- Dissolved oxygen probe
- Specific Conductivity probe
- Temperature probe
- Turbidity meter

Probes used to measure pH, dissolved oxygen, specific conductivity, and temperature are all housed in a single instrument and parameters are measured in a sealed flow through cell.

5.1 Portable Photoionization Analyzer

- The photoionization analyzer will be a Thermo 580B (or equivalent), equipped with a minimum 10.2 or 10.6 eV lamp. The PID is capable of ionizing and detecting compounds with an ionization potential of less than 10.6 eV. This accounts for up to 73% of the volatile organic compounds on the Target Compound List.

- Calibration must be performed at the beginning and end of each day of use with a standard calibration gas having an approximate concentration of 100 parts per million of isobutylene. If the unit experiences abnormal perturbation or erratic readings, additional calibration will be required.

- All calibration data must be recorded in field notebooks and on calibration log sheets to be maintained on-site.

- A battery check must be completed at the beginning and end of each working day.

- All changes to the PID will be noted in the field notes (such as bulb or filter cleaning or replacement).

5.2 pH

- Calibration of the pH meter must be performed at the start of each day of use, and after very high or low readings as required by this plan, according to manufacturer's instructions.
- National Institute of Standards and Technology (NIST) – traceable standard buffer solutions which bracket the expected pH range will be used. The standards will be pH of 4.0, 7.0, and 10.0 standard units.
- The use of the pH calibration must be used to set the meter to display the value of the standard being checked.
- The calibration data must be recorded on calibration sheets and maintained on-site.

5.3 Dissolved Oxygen

Calibration of the dissolved oxygen meter must be performed at the start of each day of use, after very high or low readings (approaching or outside of the theoretical dissolved oxygen range at a given temperature), and after bubbles or spurious readings are observed.

Calibrate the meter to a prepared standard or other method in accordance with manufacturer's instructions and note the scale and units on the meter.

5.4 Specific Conductivity and Temperature

- Calibration checks using the conductivity standard must be performed at the start of each day of use, after five to ten readings or after very high or low readings as required by this plan, according to manufacturer's instructions.
- The portable conductivity meter must be calibrated using a reference solution of 200 ohms/cm on a daily basis. Readings must be within five percent to be acceptable.
- The thermometer of the meter must be calibrated against the field thermometer on a weekly basis.

5.5 Turbidity Meter

The turbidity meter must be checked at the start of each day of use and at the end of the day according to manufacturer's instructions.

6.0 Sample Documentation

6.1 Chain of Custody

- A Chain-of-Custody (COC) record will accompany the sample containers during selection and preparation at the laboratory, during shipment to the field, and during return shipment to the laboratory.

- The COC will identify each sample container and the analytical parameters for each, and will list the field personnel that collected the samples, the project name and number, the name of the analytical laboratory that will receive the samples, and the method of sample shipment.

- If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample shipment.

- The COC will be completed by field personnel as samples are collected and packed for shipment.

- Erroneous markings will be crossed-out with a single line and initialed by the author.

- The REMARKS space will be used to indicate if the sample is a matrix spike, matrix spike duplicate, or matrix duplicate.

- Trip and field blanks will be listed on separate rows.

- After the samples have been collected and sample information has been listed on the COC form, the method of shipment, the shipping cooler identification number(s), and the shipper air bill number will be entered on the COC.

- Finally, a member of the sampling team will write his/her signature, the date, and time on the first RELINQUISHED BY space. Duplicate copies of each COC must be completed.

- One copy of the COC will be retained by sampling personnel. The other copy and the original will be sealed in a plastic bag and taped inside the lid of the shipping cooler.

- Sample shipments will be refrigerated at 4ºC, typically by packing with ice, to preserve the samples during shipment.

- After the shipping cooler is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper.

- The seal will be covered with clear tape, and the cooler lid will be secured by wrapping with packing tape.

- The cooler will be relinquished by the shipper, typically an overnight carrier.

- The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the samples will not be analyzed.

- The samples must be delivered to the laboratory within 48 hours of collection.

6.2 Sample Documentation

The field team leader will retain a copy of the COC, and, in addition, the field team leader will ensure that the following information about each sample is recorded in the field book:

- Sample identifier
- Identification of sampled media (*e.g.* soil, sediment, groundwater)
- Sample location with respect to a known reference point
- Physical description of sample location
- Field measurements (*e.g.* pH, temperature, conductivity, and water levels)
- Date and time of collection
- Sample collection method
- Volume of groundwater purged before sampling
- Number of sample containers
- Analytical parameters
- Preservatives used
- Shipping information:
  - Dates and method of sample shipment
  - Chain-of-Custody Record numbers
  - Federal Express Air Bill numbers

Sample recipient (*e.g.* laboratory name)

National Grid Standard Operating Procedures

Field Descriptions of Samples for
Former Manufactured Gas Plant (MGP) Sites

SOIL SAMPLE DESCRIPTIONS

It is important that descriptive qualifiers are consistently used to characterize degree and nature of contaminant impacts and visual-manual soil classification. The following presents some examples of descriptive qualifiers.

SOIL LOGGING

- All soils are to be logged using the **Unified Soil Classification** (ASTM D 2488 field descriptions)
- **PID or FID** used to screen all soil samples (Jar Headspace method) – maximum readings should be recorded and included on the logs. PID/FID to be calibrated daily at a minimum
- **Moisture terms** are: Dry, Moist, and Wet
- **Color terms** - use geotechnical color charts - colors may be combined: e.g. red-brown. Color terms should be used to describe the "natural color" of the sample as opposed to staining caused by contamination (see below)
- **Log of each sample interval** should be prepared as follows:

  [Coarse Grained Example] NARROWLY GRADED SAND (SP); mostly fine sand; <5% fines; red-brown, moist, environmental/depositional/geologic descriptions.

  [Fine Grained Example] SANDY SILT (ML); heterogeneous till structure, nonplastic, ~30% fine to coarse, subangular sand; ~10% subangular fine gravel, max. size ~ 10 mm; brown; environmental/depositional/geologic descriptions.
- **Representativeness** – Soil logs should include particular notes if the field representative believes that there is a possibility the soil sample being described is not representative of the interval sampled.
- **Intervals for Description** – if using a 2' (split spoon) or 4' (Macro-core) long sampler – the field description should not necessarily be for the entire sample interval. It is important to look for, identify, and describe small-scale units and changes within each sample interval.

DESCRIPTION OF CONTAMINANTS

Visible Contamination Descriptors

- **Sheen** - iridescent petroleum-like sheen. Not to be used to describe a "bacterial sheen" which can be distinguished by its tendency to break up on the water surface at angles whereas petroleum sheen will be continuous and will not break up. A field test for sheen is to put a soil sample in a jar of water and shake the sample (jar shake test) , then observe the presence/absence of sheen on the surface of the water in the jar.

- **Stained** - used w/ color (i.e. black or brown stained) to indicate that the soil matrix is stained a color other than the natural (unimpacted) color of the soil.

- **Coated** - soil grains are coated with tar/free product – there is not sufficient free-phase material present to saturate the pore spaces.

- **Blebs** - observed discrete sphericals of tar/free product - but for the most part the soil matrix was not visibly contaminated or saturated. Typically this is residual product.

- **Saturated** - the entirety of the pore space for a sample is saturated with the tar/free product. Care should be taken to ensure that you're not observing water saturating the pore spaces if you use this term. Depending on viscosity, tar/free-phase saturated materials may freely drain from a soil sample.

- **Oil**. Used to characterize free and/or residual product that exhibits a distinct fuel oil or diesel fuel like odor; distinctly different from MGP-related odors/impacts.

- **Tar**. Used to describe free and/or residual product that exhibits a distinct "coal tar" type odor (e.g. naphthalene-like odor). Colors of product can be brown, black, reddish-brown, or gold.

- **Solid Tar**. Used to describe product that is solid or semi-solid phase. The magnitude of the observed solid tar should be described (e.g. discrete granules or a solid layer).

- **Purifier Material**. Purifier material is commonly brown/rust or blue/green wood chips or granular material. It is typically associated with a distinctive sulfur-like odor. Other colors may be present.

Olfactory Descriptors
- Use terms such as " tar-like odor" or "naphthalene-like odor" or "fuel oil-like odor" that provide a qualitative description (opinion) as to the possible source of the odor.
- Use modifiers such as strong, moderate, faint to indicate intensity of the observed odor.

DNAPL/LNAPL
- A jar shake test should be performed to identify and determine whether observed tar/free-phase product is either denser or lighter than water. In addition, MGP residues can include both light and dense phases - this test can help determine if both light and dense phase materials are present at a particular location.

Viscosity of Free-Phase Product – If free-phase product/tar is present a qualitative description of viscosity should be made. Descriptors such as:

- Highly viscous (e.g. taffy-like)
- Viscous (e.g. No. 6 fuel oil or bunker crude like)
- Low viscosity (e.g. No. 2 fuel oil like)

GROUNDWATER SAMPLING OBSERVATIONS

- Any observations of sheen, blebs, free-phase product/tar, staining or coating of the sampling equipment, odor, etc. that made during sampling of groundwater are to be included in the groundwater sample collection log.

MGP COLOR CHART

		RGB Color	Auto Cad Index
🟥	**TAR SATURATED**	255,0,0	10
🟪	**COATED MATERIAL, LENSES**	255,0,255	210
🟧	**BLEBS, GLOBS, SHEEN**	255,191,0	40
🟨	**STAINING, ODOR**	255,255,0	50
🟦	**PETROLEUM IMPACTS SHEEN, STAINING, ODORS**	127,233,255	141
🟦	**PURIFIER WASTE AND ODOR**	0,0,255	170
🟩	**NO OBSERVED IMPACTS**	0,165,0	92

2.4.3 Sampling Interval and Flow Controller Setting

When you request canisters and flow controllers from Air Toxics Ltd., you will be asked for the sampling interval, and the flow controllers will be pre-set prior to shipment according to the table below. The flow controller is set to collect 5 L of sample over the sample interval. Final canister vacuum is targeted at 5 in. Hg. The flow rate is set at standard atmospheric conditions (approximately sea level). If the air sample is a process (pressurized or under vacuum) or is collected at elevation, the canisters will fill faster or slower depending on the sampling conditions. If you specify the pressure of the source at project set-up, we can set the flow controller accordingly. See Section 4 for a discussion of collecting a sample at elevation. The 24-hr flow controllers should not be used for process or source samples.

Table 2.4.3 Flow Rates for Selected Sampling Intervals (mL/min)

Sampling Interval (hrs)	**0.5**	**1**	**2**	**4**	**8**	**12**	**24**
6 L Canister	167	83.3	41.7	20.8	11.5	7.6	3.5
1 L Canister	26.6	13.3	6.7	-	-	-	-

Note: Target fill volumes for 6 L and 1 L canisters are 5,000 mL and 800 mL, respectively.

$$\text{Flow Rate(mL/min)} = \frac{\text{Target Fill Volume (mL)}}{\text{Sampling Interval (min)}}$$

2.4.4 Final Canister Vacuum and Flow Controller Performance

Ideally the final vacuum of a 6 L canister should be 5 in. Hg or greater. As long as the differential pressure is greater than 4 in. Hg ambient pressure, then the flow through the device will remain approximately constant as the canister fills. If there is insufficient differential pressure, the flow through the controller will decrease as the canister pressure approaches ambient. Because of the normal fluctuations in the flow rate (due to changes in ambient temperature, pressure, and diaphragm instabilities) during sampling, the final vacuum will range between 2 and 10 in. Hg.

Compliance Assessment Site Investigation and Remediation

nationalgrid

General Information

Observation Date ☐ **Time** ☐ AM / PM

Primary Task of Crew ☐

(e.g., Installing wire, fusing gas line, etc.)

Additional info on Crew Task ☐

Observed Department ☐

Who did you observe? ○ **Employees** ○ **Contractor**

# of People Observed: ☐

Observers	**Observed Employees or Contractor Company Name**

Location of Observation

Site Name ☐

Address ☐ **City** ☐ **State** ☐

Location Type ○ Company Site ○ Non-Company Site ☐ (e.g., Office, Right of Way, etc.)

Observation Items

Communication & Risk Assessment

Additonal information required under Observation Details

1. Crew members demonstrate clear understanding of job hazards and conditions ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

2. Demonstrates clear understanding of the controls necessary to minimize the risks associated wtih the hazards at the job site (demarcation, position of equipment, shoring, atmospheric monitoring, proper ventilation, etc) ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

3. Understands "What's the worst thing that could happen on the job?" ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

4. Daily safety meeting has been documented and performed with crew ○ Safe ○ Unsafe*

5. Safety risk assessment was developed before work began ○ Safe ○ Unsafe*

6. Job Brief identifies the most significant hazards and controls to mitigate risk. (ie: proximity of energized lines, grounding, shoring, low hanging pipes, etc.) ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

Personal Protection

Additonal information required under Observation Details

7. Maintains PPE in good condition ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

8. Wears all required PPE correctly ○ Safe ○ Unsafe*

Work Area Safety

Additonal information required under Observation Details

9. Slippery or untidy areas are cleaned up quickly ○ Safe ○ Unsafe*

10. Actively Managing Work Area - Good Housekeeping, maintains walking and work surfaces, clear areas of egress and good lighting for task ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

11. Maintains adequate barriers and signs to protect others from the work area ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

12. Properly handles and stores hazardous chemicals and materials ○ Safe ○ Unsafe*

13. Work area air monitoring has been performed and documented ○ Safe ○ Unsafe*

Vehicles / Mobile Equipment

Additonal information required under Observation Details

14. Follows safe vehicle backing procedures ○ Safe ○ Unsafe*

15. Loads are secured properly ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

16. Properly positioned vehicle at the work site ○ Poor* ○ Needs Improvement* ○ Fair ○ Good ○ Very Good

Vehicles / Mobile Equipment

****Additonal information required under Observation Details***

17. Required distances are maintained from energized lines and equipment	○ Safe	○ Unsafe*			

Work Methods and Procedures

****Additonal information required under Observation Details***

18. Crews understand the applicable sections of the HASP	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
19. Environmental permits/plans are on site and conditions followed	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
20. Exclusion zone is properly delineated	○ Safe	○ Unsafe*			
21. Follows proper procedures for confined space / enclosed space	○ Safe	○ Unsafe*			
22. Follows the proper regulatory and corporate safety procedures for trenching, excavation, backfilling, compaction and restoration work	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
23. OSHA certificates and medical monitoring documents are on site	○ Safe	○ Unsafe*			
24. Proper decon procedures are followed	○ Safe	○ Unsafe*			
25. The HASP is on site	○ Safe	○ Unsafe*			
26. Visitor sign in sheet is on site	○ Safe	○ Unsafe*			
27. Works within applicable minimum approach distances	○ Safe	○ Unsafe*			

Work Place Environment

****Additonal information required under Observation Details***

28. Fire Extinguishers - Placement and Inspection Date	○ Safe	○ Unsafe*			
29. First Aid equipment is available and fully stocked	○ Safe	○ Unsafe*			
30. Adequate spill clean up equipment is on site	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
31. Lighting (Safety and Security) within building, garage, yard, parking area and at job site.	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
32. Work site is secure for unauthorized entry	○ Safe	○ Unsafe*			

Work Practices

****Additonal information required under Observation Details***

33. Not climbing or walking over materials, equipment or waste	○ Safe	○ Unsafe*			
34. Takes precautions when working in unique conditions - uneven surfaces, slopes, steps.	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
35. Follows safe practices when working in or near water	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
36. Maintains awareness of other activities in the work area (distance from moving equipment, work overhead, near excavations, confined areas etc)	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
37. Stockpiles are covered and secured at the end of each work day	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good

Environmental

****Additonal information required under Observation Details***

38. Containers of waste appropriately marked	○ Safe	○ Unsafe*			
39. Ensures waste is properly managed	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
40. Follows procedures / methods to help protect the environment during work activities (use of absorbant materials, covers drains, proper location of equipment, hay bales to protect wetlands, good housekeeping etc.)	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
41. Knows procedures for responding to spills or other releases	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
42. Perimiter air monitoring is performed and documented	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good
43. Water quality monitoring is performed and documented	○ Poor*	○ Needs Improvement*	○ Fair	○ Good	○ Very Good

Observation Details

Observation Details for Observation #:

List Applicable Employees

Primary Cause (See List)

Immediate Action Taken (See List)

Comments

Observation Details for Observation #:

List Applicable Employees

Primary Cause (See List)

Immediate Action Taken (See List)

Comments

Observation Details for Observation #:

List Applicable Employees

Primary Cause (See List)

Immediate Action Taken (See List)

Comments

Observation Details for Observation #:

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Primary Cause (See List)

Immediate Action Taken (See List)

Comments

Observation Details for Observation #:

List Applicable Employees

Primary Cause (See List)

Immediate Action Taken (See List)

Comments

Follow-up Items

Description	Assigned To	Due Date	Complete Date

Additional Comments

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Executive Summary

This document presents standard operating procedures (SOPs) for conducting soil vapor intrusion evaluations at National Grid's manufactured gas plant (MGP) sites in New York State. These procedures have been developed on behalf of National Grid in cooperation with the New York State Departments of Health (NYSDOH) and Environmental Conservation (NYSDEC).

These SOPs are based on a current understanding of soil vapor intrusion, existing site-specific conditions at National Grid's MGP sites in New York State, and the current regulatory climate in the state. They have been developed in consideration of NYSDOH's Draft *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006~~5~~), NYSDEC and NYSDOH input, ~~standards~~ guidance documents issued by the United States Environmental Protection Agency (USEPA), O'Brien & Gere's and Haley & Aldrich's indoor air and soil vapor intrusion evaluation experience and expertise, National Grid's experience in New York State and New England, and consultation with other New York utility companies. As such, this set of SOPs may be updated or modified as the understanding of vapor intrusion continues to evolve, and as guidance documents and regulations are revised and updated. Further, these SOPs may be modified based on site-specific conditions.

Although the regulatory community generally considers soil vapor intrusion of non-chlorinated constituents ~~a~~ "… less of a ~~ower~~ priority in the evaluation of past sites …" (NYSDEC 2006), National Grid is working with the NYSDOH and NYSDEC to identify MGP sites where evaluation of the potential vapor intrusion pathway is warranted. For these sites, a soil vapor intrusion evaluation should be conducted during the Remedial Investigation (RI) phase so it can be adequately addressed in the Feasibility Study (FS) and integrated in the selection of a comprehensive site remedy.

SOP Objectives

While the NYSDOH guidance document (2006~~5~~) identified above provides general guidance for evaluating soil vapor intrusion for a wide range of sites, this set of SOPs complements that guidance document by focusing on specific procedures for evaluating soil vapor intrusion at MGP sites. Specifically, the primary objectives of these SOPs are to:

1. Establish consistent protocols for collecting and analyzing samples and evaluating data at National Grid's MGP sites in New York State; and

2. Establish uniform work plan and reporting elements for each applicable MGP site, thus streamlining work plan and report development and review.

Overview of Soil Vapor Intrusion Evaluations

The goal of a soil vapor intrusion evaluation is to assess whether there are complete exposure pathways of soil vapor to indoor air. A complete exposure pathway exists if vapors from MGP-related constituents are migrating through various pathways into nearby buildings at concentrations that may result in an unacceptable human health risk. If a complete exposure pathway does not exist, then further assessment of soil vapor intrusion is not required, unless there is a relevant change in site conditions, or as noted above, the understanding of soil vapor intrusion evolves and guidance documents and regulations are revised and updated. Because soil vapor intrusion requires a complete pathway to exist between the source of the vapors and the receptor, a phased approach can be applied to establish if a complete pathway exists. This phased approach to soil vapor intrusion evaluations, as it applies to National Grid's MGP sites in New York State, includes:

Phase 1 – Documentation Review

Phase 2 – Soil Vapor Sampling

Phase 3 – Sub-Slab Sampling

Phase 4 – Indoor Air Sampling

Please note that not all of these phases may need to be conducted. Depending upon available site-specific data, any one of these phases may be bypassed. For instance, if Phase 1 reveals a high potential for impacted buildings, Phase 2 may be bypassed and the evaluation may proceed directly from Phase 1 to Phase 3 or 4. In addition, Phases 3 and 4 may be conducted simultaneously if site conditions dictate.

The remainder of this document describes the various procedures to review site documentation, conduct sampling, and evaluate sampling data, organized into the four phases outlined above. To facilitate the steps required for each phase, process flow diagrams for all four phases are provided (Figures 1 through 4).

1. Phase 1. Documentation Review

1.1. Objective

The first phase of the soil vapor intrusion evaluation for an MGP site involves reviewing available site documentation, and supplementing that data as necessary, to identify potential vapor receptors with respect to MGP-impacted soil and groundwater and to identify preferential pathways by which vapors would migrate to those receptors.

The steps of Phase 1 include:

Step 1. Data Compilation and Review

Step 2. Data Evaluation

Step 3. Data Reporting

Figure 1 illustrates a process flow diagram for Phase 1. If, during the Phase 1 documentation review, the data suggest that potential receptors are sufficiently close to potential MGP-impacted soil or groundwater, then the evaluation should proceed to Phase 2. This section discusses the Phase 1 steps in more detail and provides guidance on whether to proceed to Phase 2. Please note that the following steps may be modified based on site-specific conditions.

1.2. Step 1. Data Compilation and Review

Step 1 involves compiling and reviewing site-specific data to identify potential vapor receptors, MGP-impacted soil or groundwater, and preferential vapor pathways, as defined in the following subsections. Documentation to be compiled and reviewed includes data collected during the Site Characterization (SC) and/or RI phase, as well as other data/documents generated for the site. For some MGP sites, additional data may be needed to complete this first step, and a site visit may be necessary to collect more data.

1.2.1. Identify Potential Vapor Receptors

During the review of site-specific data, potential vapor receptors must be identified and located. Potential receptors are occupied or unoccupied buildings (which are anticipated to be reoccupied in the near future) to which soil vapors could migrate; however, potential receptors do not include:

- Buildings that are occupied infrequently and are not intended for long-term occupancy (such as storage garages and other storage buildings);
- Active and inactive non-residential buildings where large quantities of petroleum products are~~/were~~ used and/or stored (such as gas stations, auto repair shops, and vehicle staging buildings); and

- Unoccupied buildings owned by National Grid.

Vacant properties are not considered as potential vapor receptors. If no potential vapor receptors are found during this step, then there is no need to continue with the evaluation.

1.2.2. Identify Impacted Groundwater and Soil

During this first step, MGP-impacted groundwater and soil must also be identified. After compiling the necessary site-specific data, that information should be reviewed to determine:

- Depth to groundwater;
- Direction of groundwater flow;
- Location, depth, extent, and concentration of potential MGP-related constituents in unsaturated soil and groundwater;
- Location, depth, and extent of NAPL; and
- Presence of an overlying water bearing zone that does not have MGP impacts and provides an effective barrier to vapor migration.

1.2.3. Identify Preferential Vapor Pathways

During the review of site-specific documentation, preferential vapor pathways (if any) must be identified. A variety of site features can act as preferential pathways for vapor migration, including:

- Common anthropogenic features such as buried utilities and foundations that are backfilled with gravel or other porous fill. Because soil vapor can migrate horizontally and travel further in these features than in the surrounding native soil, vapors may enter buildings that are in contact with these features.
- Natural, buried drainage channels, which can also act as preferential vapor pathways and must be noted if present or suspected.

Most likely, these features would have been identified during previous investigation activities. Only preferential vapor pathways that overlay or intersect impacted groundwater or soil and abut or lay below the foundation of potential receptors, should be considered in the evaluation. However, features that are in saturated soils (*e.g.*, below the water table) do not act as preferential vapor pathways, and should not be evaluated further unless they are found to be transmitting impacted groundwater.

1.3. Step 2. Data Evaluation

The second step of Phase 1 involves evaluating the site-specific data to determine if one or both of the following conditions exist:

Condition 1. MGP-related impacts exist above screening levels in groundwater or detectable levels in unsaturated soil located within 100 feet[1] of a potential receptor.

Condition 2. A potential preferential vapor pathway exists between potential receptors and areas with MGP-related soil or groundwater impacts.

To assess the distance to a receptor (Condition 1), the horizontal distance from the nearest detectable concentration of MGP-impacted groundwater or soil must be determined. In the case of a non-impacted water table or saturated soil layers overlying impacted groundwater or soil, the upper water table serves as a vapor barrier; therefore, these areas should not be considered in this evaluation. It should be noted, that other barriers may also exist and inhibit vapor migration, such as subsurface structures, low-permeable soils, surface water bodies, and other features. These features and their influence on vapor migration need to be evaluated on a site-specific basis.

If one or both of the above conditions exist, then the following screening check~~s~~ must be conducted:

- Compare the impacted groundwater concentrations with the screening levels presented in Table 1. If the concentrations are equal to or greater than the screening levels, then the evaluation should proceed to Phase 2. If the concentrations are less than the screening levels, then further evaluation is not warranted at this time.[1] However, if site conditions change (e.g., soil and/or groundwater impacts increase in concentration or there is a change in property use), then this step must be revisited to confirm if Condition 1 and/or Condition 2 apply and additional investigation is necessary.

~~? Confirm the location of the impacted soil in relation to potential receptors if the site has soil impacts but no groundwater impacts. If the impacted soil lies directly below any receptor, then the evaluation must proceed to Phase 2. If the impacted soil does not lie below any receptors, then further evaluation is not warranted at this time.~~

1.4. Step 3. Data Reporting

Upon completion of Steps 1 and 2, a Phase 1 Summary Report must be prepared to document the site conditions and conclusions from this phase. The report should include pertinent MGP-related data/data trends (e.g., from ~~the most~~ recent rounds of groundwater sampling) or summarize the data/data trends and reference a publicly available document(s) which includes the data. The Phase I Summary Report should also include a site map that shows the following:

- Locations of potential vapor receptors;
- Description of the existing land use (commercial, industrial, residential) and type of commercial or industrial activities at potential vapor receptors;
- Locations of explorations and environmental sampling, such as groundwater monitoring wells, soil boring, and test pits;
- Areas of impacted groundwater and soil;

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[1] Guidance from the USEPA recommends that buildings within 100 feet of known soil or groundwater contaminants be evaluated for potential vapor intrusion (USEPA, 2002).

- Soil type;
- Locations of preferential vapor pathways and/or vapor barriers; and
- Distances between impacted groundwater and soil to receptors.

If no further evaluation is warranted, then the Phase 1 Summary Report must be submitted to NYSDEC and NYSDOH stating that no further evaluation is warranted at this time, and include the basis and supporting documentation for this recommendation. If further evaluation is warranted, then the documentation assembled for this report must be included in the Phase 2 ~~Summary Report~~Work Plan (refer to Section 2).

2. Phase 2. Soil Vapor Sampling

2.1. Objective

Phase 2 involves collecting samples of the soil vapor to assess if vapors exist near potential receptors (which are identified in Phase 1), and at concentrations that would warrant further evaluation. The steps of this phase consist of:

Step 1. Work Plan Development

Step 2. Sampling and Analysis

Step 3. Data Evaluation

Step 4. Data Reporting

Figure 2 illustrates a process flow diagram for Phase 2, and the remainder of this section discusses these steps in more detail. Please note that the following steps may be modified based on site-specific conditions.

2.2. Step 1. Work Plan Development

Step 1 consists of developing a Sampling and Analysis Work Plan that will include:

- Sampling locations (which should be depicted on a site map included with the work plan), quantities, and rationale ;
- Sampling depths and rationale;
- Sampling and analysis methods*;
- Target analytes and reporting limits*;
- Quality assurance/quality control (QA/QC) program*;
- Data evaluation criteria*; and
- Data reporting.

* Details for these items do not need to be included in the work plan. Instead, refer to the details in this SOP.

Any deviations from these items listed above must be called out and briefly explained in the work plan. The work plan must be submitted to the NYSDEC and NYSDOH for review and approval. The work plan items are discussed below along with the remaining steps of Phase 2.

2.3. Step 2. Sampling and Analysis

This step involves implementing the Sampling and Analysis Work Plan that was developed during Step 1. Specifically, this section discusses the rationale for selecting site-specific sampling locations, quantities, and depths, and provides some details on the sampling and analytical methods, target analytes and reporting limits, and QA/QC procedures.

2.3.1. Determine Sample Locations, Quantities, and Rationale

Step 2 includes collecting soil vapor samples to assess the presence (if any) and magnitude of MGP-related constituents in soil vapor at the potential vapor receptors identified during Phase 1. This sampling effort could include the following:

- Sampling Near Buildings – Soil vapor samples would be collected near buildings (potential receptors) identified in Step 1 to assess if MGP-related constituents are present in soil vapor near the building. If this effort involves more than one building, sampling should start at a point nearest the contaminant source and work outward until soil vapor concentrations no longer warrant additional sampling.

Sampling locations should be as close as practical to the building without being in the backfill material surrounding the building's foundation. The number of samples to be collected depends on the anticipated degree of variability of soil vapor concentrations surrounding the building. For instance, buildings that are above or close to a relatively high vapor source may have variable soil vapor concentrations surrounding the building, higher nearer the source and lower farther from the source. In this instance, additional sampling may be required to obtain data that are representative. Such sampling may include collection of samples along one or more sides of the building to assess soil vapor and concentration gradients. Alternatively, buildings that are at some distance from a vapor source or are located above groundwater containing similar concentrations may have equivalent soil vapor concentrations along their foundations. In this second instance, less sampling would be required, such as the collection of one or more samples along the building side nearest the vapor source.

- Sub-Slab Representation – Some surface features may act as vapor caps, by capping the soil vapor and preventing or reducing its release rate to atmosphere. Vapor concentrations tend to equilibrate under these caps and spread out horizontally until they reach the edge of the cap where they release to the atmosphere. Soil vapor sample results can represent sub-slab concentrations when:

    - Soil vapor samples are collected under surface features that are contiguous with the building's foundation;
    - The surface feature is in good condition, without major cracks or openings;
    - The foundation is slab-on-grade;
    - Impacted soil is not located directly under the foundation; and
    - Impacted groundwater concentrations under the foundation are relatively uniform.

When these conditions are met, soil vapor sampling locations should be selected near the building's foundation, which may also include a sample collected on one or more sides of the building to assess whether soil vapor surrounding the building is consistent. These surface features should be shown on the site map presented in the Sampling and Analysis Work Plan, and the condition of the surfaces (e.g., broken pavement or concrete slab without cracks) should be noted.

- Ambient Air Sampling — In conjunction with the soil vapor sampling near buildings, at least one ambient air sample should be collected at breathing zone height above ground and immediately upwind of each building. If there are suspected outdoor sources in close proximity to the building, then additional ambient samples should be collected upwind and downwind of the local sources. The purpose of the ambient air sample collected along with soil vapor samples is to assess the site-specific background. This data may be used in data evaluation or planning for future potential sampling events (Steps 3 and 4).

2.3.2. Determine Sample Depths

Soil vapor samples should be collected from depths that are equivalent to the depth of the building's foundation slab, if possible. This guideline assumes that the sampling objective is to assess the potential soil vapor concentrations beneath an adjacent building. However, the sampling depth may be modified if the sampling objective is different. Although site-specific information may vary, in the case of slab-on-grade foundations, this depth would most likely be approximately 4 feet below grade. For crawl spaces and basements, samples depths would typically be 5 and 8 feet, respectively.

Other considerations for determining the appropriate soil vapor sample depth include the following:

- Sample depths of 3 feet or more below grade may help minimize potential entrainment of ambient air from the surface into the sample. However, a~~A~~ tracer gas should be used during sampling at any depth to assess whether entrainment of ambient air is not occurring (see Section 2.3.3).

- Selection of target sample depths should also consider the presence of any confining or saturated units in the subsurface. Because soil vapor sampling is not recommended in soils that have become saturated from heavy rain, sampling events should be postponed after a heavy rainfall until the soil has time to drain. Selected soil vapor sample depths should not target the capillary fringe. For the purposes of this document, collection of samples from less than 1 foot above the water table is not recommended.

2.3.3. Perform Sampling and Analysis

Detailed soil vapor and ambient air sampling procedures are provided in Appendices A and B, respectively. These procedures can be referenced in the Sampling and Analysis Work Plan. Important sampling and analysis considerations include the following:

- Sampling durations can range from 1 to 8 hours, depending on the practicality of site access.

- Purging and s~~S~~ampling rates must not exceed 0.2 liter per minute.

- Soil vapor samples must be analyzed using USEPA Compendium Method TO-15.

Care should be taken when installing soil vapor probes with direct push or Geoprobe-type drill rigs. The sand used as filter pack or tubing used by some of these contractors is suspected to contaminate the installation with iso-octane and other trimethylpentane isomers. The filter pack material should be glass beads or clean sand that has been confirmed to be free of volatile organic compounds through a laboratory analysis. It is important that the tubing is food grade.

2.3.4. Confirm Target Analytes and Reporting Limits

Target analytes are provided in Table 2, including analytes for which Method TO-15 has been validated and additional analytes that the laboratory must report for both soil vapor and ambient air samples. These additional analytes may assist with identifying MGP-related vapors and are identified in the NYSDOH's guidance document (2006~~5~~) as indicator compounds for MGP sites. These additional analytes may be analyzed as tentatively identified compounds (TICs), which assumes semi-quantitation (using the calibration curve of an analyte with similar detector response).

Table 2 also provides reporting limits for the Method TO-15 list of parameters. The actual reporting limits of field samples may be higher due to sample dilution by the laboratory necessary to properly quantify compounds with elevated concentrations (above the instrument's calibration range) and other factors. In some cases, the elevated compounds will not be related to MGP materials. An accurate quantitation of these compounds is not as important as obtaining appropriate reporting limits for potential MGP-related constituents, if possible. Therefore, the laboratory should be instructed to contact National Grid if sample dilution is warranted and not ~~prior~~ to dilute~~ing~~ samples unless approved by National Grid~~to obtain further guidance~~.

A smaller target list may be appropriate if previous sampling was conducted using the list in Table 2. Once previous sample results establish a site-specific list of analytes (often referred to as Compounds of Concern (COCs)), National Grid may request the laboratory to report results of just the COCs for subsequent sampling.

A larger list of target analytes may be appropriate in some instances where there is a probable subsurface contamination from petroleum-based sources other than MGP residuals. The larger list will assist in a forensic analysis that compares the sampling results to typical chemical fingerprints of various other petroleum sources (gasoline, diesel, etc). If a forensic analysis is warranted, a sample from of a known MGP residual soil vapor may also need to be collected. If other petroleum-based sources are suspected in the vicinity of the proposed sampling, assistance should be sought to evaluate and setup such analyses, as this document does not provide all the details on forensic analyses needed for complete guidance.

2.3.5. Monitor QA/QC Program

As summarized in Table 3, QA/QC samples may include one blind duplicate soil vapor sample for every 10 field samples. Other details of the QA/QC program include the following:

- The relative percent difference (RPD) between the duplicate sample and the co-located field sample must be less than 30% for results that are greater than five times the reporting limit. If this RPD criterion is exceeded, the results may lack adequate precision and may need to be qualified accordingly. If duplicate pair results are less than five times the reporting limit, RPD calculations are not applicable.

- Trip or equipment blanks are not necessary.

- Prior to use, sample canisters must be pre-certified by the laboratory as clean. Batch certification (one canister analyzed per 10) is adequate for soil vapor and ambient air sampling.

- Canisters must be sampled within 15 days of receipt from the laboratory. Canisters exceeding this time limit should be returned to the laboratory unused.

- Sampled canisters must be analyzed within 30 days of sample collection. Samples analyzed after this date shall have its results flagged during the validation process as "estimated."

- Analytical QA/QC, results, and documentation must meet the requirements of NYSDEC Category B deliverables. The analytical data must be reviewed and a Data Usability Summary Report (DUSR) must be generated.

2.4. Step 3. Data Evaluation

Step 3 involves evaluating the data collected during the sampling and analysis program, and includes the following specific tasks:

- Assess whether the constituents detected in the vapors (if any) are MGP-related;

- Compare the sample results to screening criteria of indoor air background and health risk levels; and

- Determine follow-on actions (e.g., continue the investigation, terminate the investigation, or collect more soil vapor data).

Each of these tasks is discussed in more detail below.

2.4.1. Assess Whether Vapor Constituents are MGP-Related

Vapor constituents that may result from MGP materials are also common to household and consumer products. As such, results for vapor constituents which may be related to MGP materials should be assessed.

Potential MGP-related constituents include the following:

- Certain volatile aromatic hydrocarbons such as benzene, toluene, ethylbenzene, and xylene (BTEX).

- Certain semivolatile organic compounds (SVOCs) such as naphthalenes, polycyclic aromatic hydrocarbons (PAHs), thiopenes, and some phenolic compounds.

- Additional volatile constituents associated with MGP sites where the carbureted water gas (CWG) process was employed may also include certain C10 through C19 compounds such as alkyl benzenes and normal alkanes.

The presence of the constituents listed above does not necessarily indicate that the vapors are MGP-related. For example, BTEX compounds are common constituents of gasoline. Table 5 lists some of the types of commonly found non-MGP-related sources and their vapor constituents that are similar to MGP-related constituents.

An analysis must be conducted to evaluate the soil vapor data set and determine the source(s) of the soil vapor impacts. The analysis will evaluate the soil vapor data with respect to:

- Potential MGP and non-MGP vapor constituents (Tables 4 and 5);
- Existing groundwater and soil data; and
- Historic and existing activities at and adjacent to the site.

The conclusions of the analysis will be included in the Phase 2 Summary Report (see Section 2.5).

2.4.2. Compare Sample Results to Screening Criteria

Soil vapor results must be compared to screening criteria which assume that the resulting indoor air concentrations are equal or less than the one-tenth of the soil vapor concentrations. Indoor air concentrations attributable to vapor intrusion are lower, by orders of magnitude, than soil vapor concentrations due to the attenuation caused by the slab and due to the dilution of the compound into a large volume of indoor air. USEPA guidance recommends an attenuation factor[2] of 0.1 be used to conservatively screen shallow soil vapor concentrations (USEPA, 2002). Actual attenuation factors have been found to be as low as 10^{-5}. National Grid has elected to conservatively use the 0.1 attenuation factor to screen soil vapor data.

Soil vapor sample results should be divided by 10 and the resultants compared to two types of criteria: 1) background concentrations; and 2) health risk concentrations. Background concentrations are those indoor air concentrations that already exist or are likely to exist without the influence of vapor intrusion. Two sources of background concentrations will be used: 1) site-specific ambient air; and 2) typical indoor air concentrations published by NYSDOH. The highest concentration for a given compound from these two sources of background concentrations will be used. In urban settings, ambient air concentrations may be higher than typical indoor concentrations. Table 6 presents the typical indoor air concentrations for MGP-related constituents.

USEPA's guidance recommends target indoor air concentrations for some MGP-related constituents (USEPA, 2002). The guidance provides three levels of health risk for potential carcinogenic compounds representing 10^{-4}, 10^{-5}, and 10^{-6} cancer risks. The guidance does not recommend which levels to use for various exposure settings. However, USEPA often uses the 10^{-5} risk level when evaluating health risk under the environmental indicators program for residential exposures. National Grid has elected to also use the 10^{-5} risk level for residential exposures and the 10^{-4} risk level for non-residential exposures. Furthermore, for those non-residential properties where petroleum-related constituents are routinely stored or used, alternate exposure numbers may be appropriate (e.g., Occupational Safety and Health Administration [OSHA] permissible exposure limits [PELs]). Table 6 provides the USEPA health risk levels for potential MGP-related constituents.

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[2] Attenuation factor = indoor air concentration / soil vapor concentration

2.4.3. Determine Follow-On Actions

After sample results are compared to appropriate screening levels, follow-on actions must be determined. Three data evaluation scenarios and associated actions include:

Scenario 1: All MGP-related constituents in soil vapor are less than 10 times the highest criteria.
Next Action: No further investigation is warranted at this time.

Scenario 2: At least one MGP-related constituent in soil vapor is greater than 10 times the highest criteria. Soil vapor does not represent sub-slab vapor.
Next Action: Proceed to Phase 3 and conduct soil vapor sampling of adjacent buildings, if any.

Scenario 3: At least one MGP-related constituent in soil vapor is greater than 10 times the highest criteria. Soil vapor does represent sub-slab vapor.
Next Action: Proceed to Phase 4 or directly to mitigation. Conduct soil vapor sampling of adjacent buildings, if any.

2.5. Step 4. Data Reporting

The final step of Phase 2 involves transmitting data to the State Agencies (which include NYSDEC and NYSDOH) and preparing a Phase 2 Summary Report.

Within 48 hours after receiving data from the laboratory and before data are validated, analytical reports ~~data tables~~ and a figure showing sampling locations must be prepared and transmitted to the State Agencies. Any data summaries should be clearly labeled as preliminary. Receipt of data from the laboratory means the initial receipt of data and not the complete data package that is used for data validation. After validation is complete, any ~~additional~~ changes to the data must be submitted to the Agencies.

After data validation, a ~~complete~~ Phase 2 Summary Report must be submitted to the State Agencies and include the following:

- Phase 1 summary (see Section 1.4);
- Tabulated s~~S~~ummary of validated results of detected compounds;
- Analytical reports showing results of all detected and non-detected compounds;
- Site plan showing sampling locations, impacted groundwater and soil locations, potential vapor receptors, preferential vapor pathways, surface features, and hydraulic vapor barriers;
- Overview of sampling and analysis activities;
- Results of data evaluation; and
- Recommendations for follow-on actions, if appropriate.

The Phase 2 Summary Report will include an evaluation sufficient to conclude that either no further evaluation is warranted at this time or that the evaluation should proceed to Phase 3 or 4.

Article 27, Title 24 of the NYS Environmental Conservation Law (N Y ECL 27-2403(1)) requires any responsible party to provide vapor intrusion test results to the owner of the property that was tested within 30 days of data validation. The date of the finalized DUSR (validated data), discussed in Section 2.3.5, will commence the 30-day period. Results should be submitted in a letter to the property owner from National Grid that presents a table of results showing only detected compounds, an attachment of the laboratory report showing results of all analyzed compounds, and a figure showing locations from where samples were taken. The letter should also provide an interpretation of the results with respect to any follow-on actions based on input from the State Agencies. In order to accommodate input from the State Agencies, the draft letter should be submitted to the State for review at the beginning of or just prior to the start of the 30-day reporting period.

3. Phase 3. Sub-Slab Sampling

3.1. Objective

Phase 3 involves sub-slab sampling in buildings to assess if vapor from MGP-impacted groundwater and/or soil is present under the slab at such a magnitude that it could potentially intrude into the indoor air. The steps of this phase include:

Step 1. Building Survey and Chemical Inventory

Step 2. Work Plan Development

Step 3. Sampling and Analysis

Step 4. Data Evaluation

Step 5. Data Reporting

Figure 3 illustrates a process flow diagram for Phase 3. Each of the steps listed above is discussed in more detail below. Please note that the following steps may be modified based on site-specific conditions.

3.2. Step 1. Building Survey and Chemical Inventory

For Phase 3 of the evaluation, the first step is to conduct a building survey and chemical inventory to compile the following information:

- Ownership, contact information and address;
- Tenant name(s) and contact information;
- Type of foundation (basement, crawlspace or slab-on-grade);
- Condition of the slab;
- Sub-slab sample location(s);
- Indoor air pressure differential (i.e., negative or positive with respect to outdoor air pressure); and
- Indoor air sources that may contain the same compounds as MGP-related volatile constituents.

The NYSDOH Indoor Air Quality Questionnaire and Building Inventory Field Form (Appendix C) must be completed while conducting the building survey and chemical inventory. The purpose of the chemical inventory at this step is to assess potential indoor air sources in the event that indoor air sampling (Step 4) is required. When selecting the sampling locations, Dig Safely New York will be called and any sub-slab utilities must be identified and, if possible, reviewed with the property owner to avoid potential damage/injury when drilling.

3.3. Step 2. Work Plan Development

The second step is to develop a Sampling and Analysis Work Plan that will include:

- Building survey and chemical inventory findings;
- Building foundation type (i.e., full basement, crawlspaces, slab-on grade);
- Building interior foundations (due to additions, different foundation elevations, etc.)
- Sampling locations and quantities;
- Sampling and analysis methods*;
- Target analytes and reporting limits*;
- QA/QC*;
- Data evaluation criteria*; and
- Data reporting.

* Do not discuss these items in detail in the work plan. Instead, refer to the details in this SOP.

Any deviations from these items listed above must be called out and briefly explained in the work plan. The remaining work plan items are discussed below. The Sampling and Analysis Work Plan should be submitted to NYSDEC and NYSDOH for review and approval prior to implementation.

3.4. Step 3. Sampling and Analysis

This step involves sampling and analysis to implement the work plan that was developed during Step 2. Specifically, this section discusses the rationale for selecting sampling locations, quantities, and depths, and provides some details on the sampling and analytical methods, target analytes and reporting limits, and QA/QC procedures.

3.4.1. Determine Sample Locations and Quantities

Sub-slab samples must be collected directly beneath the floor of the lowest level of the building. These samples should be collected near the center of the slab and away from slab openings (sumps, drains) and major cracks.

For residential buildings, one sample is usually sufficient. However, if the building is large or contains multiple additions and/or multiple foundation depths, more than one sample should be collected. If a building is directly above a known source area, multiple sub-slab locations should be sampled to evaluate the soil vapor concentration gradient.

Ambient air sampling is not necessary unless ambient air concentrations are expected to have changed since the soil vapor sampling. As stated in Section 2.3.1, the purpose of the ambient air sampling is to establish site-specific background.

3.4.2. Perform Sampling and Analysis

Detailed sub-slab sampling procedures are provided in Appendix D. These procedures do not need to be reiterated in the Sampling and Analysis Work Plan. Important sampling and analysis considerations include the following:

- Sampling durations can range from 1 to 24 hours, depending on the practicality of site access.
- Sampling rate should not exceed 0.2 liter per minute.
- Soil vapor samples must be analyzed using USEPA Compendium Method TO-15.

3.4.3. Confirm Target Analytes and Reporting Limits

The same target analytes and reporting limits discussed above in Section 2.3.4 for soil vapor sampling should be used for sub-slab sampling. However, a smaller target list may be appropriate if previous sampling was conducted using the list in Table 2. Once previous sample results establish a site-specific list of analytes (often referred to as Compounds of Concern (COCs)), National Grid may request the laboratory to report results of just the COCs for subsequent sampling.

In addition, forensic analyses also discussed in Section 2.3.4 may be an option for sub-slab sampling.

3.4.4. Monitor QA/QC Program

The same QA/QC components discussed above in Section 2.3.5 for soil vapor sampling should be used for sub-slab sampling.

3.5. Step 4. Data Evaluation

Step 4 of this phase includes the following data evaluation tasks:

- Assess whether the constituents detected in the vapors (if any) are MGP-related;
- Compare the sample results to screening criteria of indoor air background and health risk levels; and
- Determine follow-on actions (e.g., continue the investigation, terminate the investigation, or collect additional sub-slab data).

Refer to Section 2.4 for a discussion of MGP-related vapor constituents and screening criteria. After sample results are compared to appropriate screening levels, follow-on actions must be determined. Two data evaluation scenarios and associated actions include:

Scenario 1: All MGP constituents in sub-slab vapor are less than 10 times the highest criteria.
Next Action: No further investigation is warranted at this time.

Scenario 2: At least one MGP constituent in sub-slab vapor is greater than 10 times the highest criteria.
Next Action: Proceed to Phase 4 or directly to mitigation.

3.6. Step 5. Data Reporting

The final step of Phase 3 involves transmitting the sub-slab sampling data to the State Agencies and preparing a Phase 3 Summary Report. Within 48 hours after receiving data from the laboratory and before data are validated, ~~data tables~~analytical reports and a figure showing sampling~~potential receptor~~ locations must be prepared and transmitted to the State Agencies. Any data summaries should be clearly labeled as preliminary. Receipt of data from the laboratory means the initial receipt of data and not the complete data package that is used for data validation. After validation is complete, any ~~additional~~ changes to the data must be submitted to the Agencies.

Following data validation, a ~~complete~~ Phase 3 Summary Report must be submitted to the State Agencies and include:

- Tabulated summary of validated results of detected compounds;
- Analytical reports showing results of all detected and non-detected compounds;

~~? Summary of validated results;~~

- Site plan showing sampling locations, impacted groundwater and soil locations, potential vapor receptors, preferential vapor pathways, surface features, and hydraulic vapor barriers;
- Overview of sampling and analysis activities;
- Results of data evaluation; and
- Recommendations for follow-on actions, if appropriate.

As described in Section 2.5, the results of samples collected from property not owned by National Grid must be provided to the property owner within 30 days of data validation. See Section 2.5 for more detail.

4. Phase 4. Indoor Air Sampling

4.1. Objective

Phase 4 involves indoor air sampling in buildings identified in Phases 2 and/or 3 to assess if sub-slab vapor is intruding into the indoor space at such a magnitude that it has the potential to cause a health risk. The steps of this phase include:

Step 1. Building Survey and Chemical Inventory

Step 2. Work Plan Development

Step 3. Sampling and Analysis

Step 4. Data Evaluation

Step 5. Data Reporting

Figure 4 illustrates a process flow diagram for Phase 4. Each of these steps is discussed in more detail below. Please note that the following steps may be modified based on site-specific conditions.

4.2. Step 1. Building Survey and Chemical Inventory

If not already completed as part of Phase 3, a site visit to survey the building and inventory indoor chemicals must be conducted (or reconducted as appropriate). The same procedures discussed above in Section 3.2 must be followed. However, some additional tasks for the indoor air sampling program include the following:

- Complete a more detailed chemical survey. Potential sources of VOCs must be identified and photographed. Labels of indoor products should be reviewed for VOC contents; any findings must be recorded on the NYSDOH Indoor Air Quality Questionnaire and Building Inventory Field Form (Appendix C).

- Establish whether the building has a positive or negative pressure with respect to outdoors. Smoke pens may be used to help with this assessment. This may be done immediately before and immediately after indoor air sampling, but not during sampling.

4.3. Step 2. Work Plan Development

The second step is to develop a Sampling and Analysis Work Plan that will include:

- Building survey and chemical inventory findings;
- Sampling locations and quantities;
- Sampling and analysis methods*;

- Target analytes and reporting limits*;
- QA/QC*;
- Data evaluation criteria*; and
- Data reporting.

* Details for these items do not need to be included in the work plan. Instead, refer to the details in this SOP.

Any deviations from these items listed above must be called out and briefly explained in the work plan. The remaining work plan items are discussed in more detail below. The Work Plan should be submitted to NYSDEC and NYSDOH for review and approval prior to implementation.

4.4. Step 3. Sampling and Analysis

Step 3 involves implementing the work described in the Sampling and Analysis Work Plan. Specifically, this section discusses the rationale for selecting sampling locations and quantities, and provides some details on the sampling and analytical methods, target analytes and reporting limits, and QA/QC procedures.

4.4.1. Determine Sample Locations and Quantities

Indoor air samples should be collected from the lowest level of the building. In a large building or buildings with multiple tenants or rooms on the lowest level, more than one sample may be required. Other considerations when collecting indoor air samples include the following:

- Indoor air samples must be collected within the breathing zone, which is approximately 3 to 5 feet above the floor.
- Ambient air sampling must be conducted at the same time and for the same duration as indoor air sampling.
- At least one ambient air sample must be collected at breathing zone height above ground and immediately upwind of the building(s), if possible. For buildings with HVAC intakes, sampling in proximity to the intakes should be considered.
- If suspected outdoor sources are closely located to the building(s), then additional ambient samples must be collected upwind and downwind of those sources.
- One ~~If more than 3 months have lapsed between~~ sub-slab sample~~ing~~ (Phase 3) should be collected concurrently and co-located with each ~~and~~ indoor air sample~~ing, then an additional sub-slab sample may be collected~~.
- Sampling must be conducted under conditions when vapors could potentially migrate and/or accumulate within the indoor air, which is typically when all doors and windows are closed and when the HVAC system is operating. If the property is a business, the sampling should

be conducted during a time of limited activity to avoid door openings to the outdoors, if possible.

4.4.2. Perform Sampling and Analysis

Detailed indoor air sampling procedures are provided in Appendix E, and ambient air sampling procedures are provided in Appendix B. These procedures do not need to be reiterated in the Sampling and Analysis Work Plan. Important sampling and analysis considerations include the following:

- Sampling durations can range from 4 to 24 hours, depending on the practicality of site access and the exposure scenario being evaluated (8 hour sample duration for commercial and industrial settings and 24 hours for residential settings).

- Sampling rate must not exceed 0.2 liter per minute.

- Soil vapor samples must be analyzed using USEPA Compendium Method TO-15.

In addition, building occupants should be instructed that within 24 hours of the sampling and during the sampling to avoid, to the extent possible the activities provided in Appendix F.

4.4.3. Confirm Target Analytes and Reporting Limits

The same target analytes and reporting limits discussed above in Section 2.3.4 for soil vapor sampling should be used for indoor air sampling.~~Air samples must be analyzed using USEPA Compendium Method TO-15 with instrumentation tuned to low levels, which allows for lower reporting limits as those discussed for soil vapor and sub-slab sample analysis. Table 7 provides a list of TO-15 low level analytes, which is a subset of the analyte list for the standard TO-15 analysis (Table 2). The laboratory must also include additional compounds identified in Table 7.~~ However, at this point previous sampling has been conducted that established a site-specific list of analytes (COCs), National Grid may request the laboratory to report results of just the COCs for subsequent sampling.

4.4.4. Monitor QA/QC Program

The same QA/QC components discussed above for sub-slab sampling in Section 3.3.4 should be used for indoor air sampling, except that canisters must be individually certified clean and not batch certified.

4.5. Step 4. Data Evaluation

Step 4 of this phase consists of the following data evaluation tasks:

- Evaluate whether the indoor air sample results are not attributable to vapor intrusion, indoor air sources or ambient air sources;

- Compare the indoor air sample results to criteria of ambient air background and health risk levels; and

- Determine follow-on actions (e.g., discontinue the investigation, additional assessment, or implement mitigation measures).

Each of these tasks is discussed in more detail below.

4.5.1. Assess Whether Vapor Constituents are MGP-Related

The primary goal of the assessment is to determine which detected indoor air analytes, if any, are solely or partially attributable to indoor air sources. As such, results for vapor constituents which may be related to MGP materials should be assessed.

- Compare the indoor air results with data from the sub-slab sampling. The ratio of indoor air to sub-slab vapor must be calculated for all analytes detected in both sample types.

- Compare the indoor air results with information obtained from the chemical inventory to verify the assumptions made from the first comparison.

4.5.2. Compare Sample Results to Screening Criteria

After completing the forensic analysis summarized above, the next task is to compare any indoor air results that are suspected to be partially or solely attributable to vapor intrusion with ambient air data and USEPA target indoor air concentrations. These indoor air screening criteria are presented in Table 6.

4.5.3. Determine Follow-On Actions

After sample results are compared to appropriate screening levels, follow-on actions must be determined. Two data evaluation scenarios and associated actions include:

Scenario 1:	No MGP-related constituents in indoor air are attributable to vapor intrusion or all are less than the respective ambient air concentration or background or health risk criteria (whichever is higher).
Next Action:	No further investigation is warranted.
Scenario 2:	At least one MGP-related constituent in indoor air attributable to vapor intrusion is greater than the respective ambient air concentration, background, and health risk criteria.
Next Action:	Resampling or mitigation is warranted.

4.6. Step 5. Data Reporting

The final step of Phase 4 involves transmitting the sub-slab, indoor air, and ambient air sampling data to the State Agencies and preparing a Phase 4 Summary Report. Within 48 hours after receiving data from the laboratory and before data are validated, ~~data tables~~analytical reports and a figure showing ~~potential receptor~~sampling locations must be prepared and submitted to the State Agencies. Any data summaries should be clearly labeled as preliminary. Receipt of data from the laboratory means the initial receipt of data and not the complete data package that is used for data validation. After validation is complete, any ~~additional~~ changes to the data must be submitted to the Agencies.

Following data validation, a ~~complete~~ Phase 4 Summary Report will be prepared and submitted to the State Agencies and will include:

- Tabulated summary of validated results of detected compounds;
- Analytical reports showing results of all detected and non-detected compounds;

~~? Summary of validated results;~~

- Site plan showing sampling locations, impacted groundwater and soil locations, potential vapor receptors, preferential vapor pathways, surface features, and hydraulic vapor barriers;
- Overview of sampling and analysis activities;
- Results of data evaluation; and
- Recommendations for follow-on actions.

As described in Section 2.5, the results of samples collected from property not owned by National Grid must be provided to the property owner within 30 days of data validation. See Section 2.5 for more detail.

References

NYSDEC. 2006. *DER-13 / Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York.* DEC Program Policy. (October 18, 2006)

NYSDOH. 2006~~5~~. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.* ~~Public Comment Draft~~ (October~~February~~).

USEPA. 2002. *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils.* Office of Solid Waste and Emergency Response (November).

Table 1
Groundwater Screening Levels

Standard Operating Procedures for Soil Vapor Intrusion Evaluations
at National Grid MGP Sites in New York State

MGP-Related Constituent	**USEPA OSWER Target Groundwater Concentrations (ug/L) [a, b]**		**NYS Class GA Groundwater Standard[c]**
	Residential	**Non-Residential**	
Benzene	14	140	1
Ethylbenzene	700	700	5
Toluene	1500	1500	5
m,p-Xylenes	22000	22000	5
o-Xylene	33000	33000	5
Naphthalene	150	150	5
1,2,4-Trimethylbenzene	24	24	5

Notes:

a. USEPA. 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. Office of Solid Waste and Emergency Response (November). R=10^{-5} used for residential. R=10^{-4} used for non-residential.

b. ug/L = micrograms per liter

c. NYS, Div. Of Water Technical Operational Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limittations, June 1998.

Table 2
TO-15 Target Analtyes and Reporting Limits

Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State

Compound	CAS Number	Reporting Limit (ppbv)	Reporting Limit (ug/m^3)
Acetone (2-propanone)	67-64-1	5.0	12
Benzene	71-43-2	0.20	0.64
Bromodichloromethane	75-27-4	0.20	1.3
Bromoethene	593-60-2	0.20	0.87
Bromoform	75-25-2	0.20	2.1
Bromomethane (Methyl bromide)	74-83-9	0.20	0.78
1,3-Butadiene	106-99-0	0.20	0.49
2-Butanone (Methyl ethyl ketone)	78-93-3	0.50	1.5
Carbon disulfide	75-15-0	0.50	1.6
Carbon tetrachloride	56-23-5	0.20	1.3
Chlorobenzene	108-90-7	0.20	0.92
Chloroethane	75-00-3	0.20	0.53
Chloroform	67-66-3	0.20	0.98
Chloromethane (Methyl chloride)	74-87-3	0.20	0.41
3-Chloropropene (allyl chloride)	107-05-1	0.20	0.63
2-Chlorotoluene (o-Chlorotoluene)	95-49-8	0.20	1.04
Cyclohexane	110-82-7	0.20	0.69
Dibromochloromethane	124-48-1	0.20	2.0
1,2-Dibromoethane	106-93-4	0.20	1.5
1,2-Dichlorobenzene	95-50-1	0.20	1.2
1,3-Dichlorobenzene	541-73-1	0.20	1.2
1,4-Dichlorobenzene	106-46-7	0.20	1.2
Dichlorodifluoromethane (Freon 12)	75-71-8	0.20	0.99
1,1-Dichloroethane	75-34-3	0.20	0.81
1,2-Dichloroethane	107-06-2	0.20	0.81
1,1-Dichloroethene	75-35-4	0.20	0.79
1,2-Dichloroethene (cis)	156-59-2	0.20	0.79
1,2-Dichloroethene (trans)	156-60-5	0.20	0.79
1,2-Dichloropropane	78-87-5	0.20	0.92
cis-1,3-Dichloropropene	10061-01-5	0.20	0.91
trans-1,3-Dichloropropene	10061-02-6	0.20	0.91
1,2-Dichlorotetrafluoroethane (Freon 114)	76-14-2	0.20	1.4
1,4-Dioxane	123-91-1	5.0	18
Ethylbenzene	100-41-4	0.20	0.87
4-Ethyltoluene (p-Ethyltoluene)	622-96-8	0.20	0.98
n-Heptane	142-82-5	0.20	0.83
Hexachlorobutadiene	87-68-3	0.20	2.1
n-Hexane	110-54-3	0.20	0.70
Isopropyl Alcohol	67-63-0	5.0	12.5
Methylene chloride	75-09-2	0.50	1.7
Methyl Butyl Ketone	591-78-6	0.50	2.05
4-Methyl-2-pentanone (MIBK)	108-10-1	0.50	2.05
MTBE (Methyl tert-butyl ether)	1634-04-4	0.50	1.8
Styrene	100-42-5	0.20	0.85
Tertiary butyl alcohol (TBA)	75-65-0	5.0	15
1,1,2,2-Tetrachloroethane	79-34-5	0.20	1.4
Tetrachloroethene (PCE)	127-18-4	0.20	1.4
Toluene	108-88-3	0.20	0.75
1,2,4-Trichlorobenzene	120-82-1	0.50	3.7
1,1,1-Trichloroethane	71-55-6	0.20	1.1
1,1,2-Trichloroethane	79-00-5	0.20	1.1
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon TF)	76-13-1	0.20	1.5
Trichloroethene (TCE)	79-01-6	0.20	1.07
Trichlorofluoromethane (Freon 11)	75-69-4	0.20	1.1
1,2,4-Trimethylbenzene	95-63-6	0.20	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	0.98
2,2,4-Trimethylpentane	540-84-1	0.20	1.08
Vinyl chloride	75-01-4	0.20	0.51
Xylenes (m&p)	1330-20-7	0.20	0.87
Xylenes (o)	95-47-6	0.20	0.87
Additional Compounds to be Requested			
1,2,3-Trimethylbenzene	80-62-6	0.20	0.98
Naphthalene	91-20-3	0.50	2.9
1-Methylnaphthalene	90-12-0	TBD	TBD
2-Methylnaphthalene	91-57-6	TBD	TBD
Tetramethylbenzene	25619-60-7	TBD	TBD
Indene	95-13-6	TBD	TBD
Indane	496-11-7	TBD	TBD
Thiophene	110-02-1	TBD	TBD

Notes:

a. Actual reporting limits of field samples may be higher due to sample dilution by the laboratory to quantify compounds at elevated concentrations.(see note b)

b. The laboratory must notify National Grid prior to sample dilution.

c. ppbv = part per billion by volume

d. ug/m3 = microgram per cubic meter

e. TBD = to be determined

Table 4
Potential MGP-Related Volatile Constituents

Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State

---

Benzene
Ethylbenzene
Toluene
Xylenes
Naphthalene
Indene
Indane
1,2,4-Trimethylbenzene [a]
Tetramethylbenzenes [a]
n-Nonane [a]
n-Decane [a]
n-Undecane [a]
n-Dodecane [a]

<u>Note:</u>
a. Volatile constituents associated with petroleum used at MGP sites that employed the carbureted water gas process.

Table 6

Data Evaluation Criteria

Standard Operating Procedures for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State

MGP-Related Constituent	Typical Indoor Air Concentrations (ug/m^3) [a]		USEPA OSWER Target Indoor Air Concentrations (ug/m^3) [b]	
	Residential	Non-Residential	Residential	Non-Residential
Benzene	13	9.4	3.1	31
Ethylbenzene	6.4	5.7	22	220
Toluene	57	43	400	400
m,p-Xylenes	11	22.2	7000	7000
o-Xylene	7.1	7.9	7000	7000
Naphthalene	NA [c]	5.1	3	3
Indene	NA	NA	NA	NA
Indane	NA	NA	NA	NA
1,2,4-Trimethylbenzene	9.8	9.5	6	6
n-Nonane	7.9	7.8	NA	NA
n-Decane	15	17.5	NA	NA
n-Undecane	12	22.6	NA	NA
n-Dodecane	9.2	15.9	NA	NA

Notes:

a. NYSDOH. 2005. " Guidance for Evaluating Soil Vapor Intrusion in the State of New York". Public Comment Draft (October 2006). As recommended by NYSDOH, typical indoor air concentrations in residential settings are the upper fence values from the NYSDOH 2003 Fuel Oil Study data. Typical concentrations in non-residential settings are the 90th percentile values from the USEPA BASE data. ug/m^3 = microgram per cubic meter.

b. USEPA. 2002. "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils". Office of Solid Waste and Emergency Response (November). R=10^{-5} used for residential. R=10^{-4} used for non-residential.

c. NA = not available

APPENDIX A

SOIL VAPOR SAMPLE COLLECTION PROCEDURES

(NYSDEC and NYSDOH Approved, March 15, 2007)

[Updated by National Grid and resubmitted September 18, 2007]

This set of procedures outlines the general steps to collect soil vapor samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

Soil Vapor Probe Installation

Permanent and temporary soil vapor probes will be installed using the procedure outlined below:

- Record weather information (temperature, barometric pressure, rainfall, wind speed, and wind direction). Record substantial changes to these conditions that may occur during the course of the probe installation. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Install soil vapor probes using a direct-push drill rig (e.g., GeoProbe® or similar) or manually using a slide hammer. Probes will consist of stainless-steel drive points with stainless steel screens attached to food-grade (inert) Teflon® or polyethylene tubing through which the soil vapor sample will be drawn. Recommended tubing is ¼-inch O.D. flouropolymer tubing that can be found at AMS, Inc. (Item 215.00).

- Attach the drive points to a drive rod (stainless-steel tube) and drive the rod to the target depth, as define in the site-specific work plan.

- Withdraw the drive rods from the hole, leaving the drive point and tubing.

- Place filter pack material, such as glass beads or clean silica sand, in the annular space surrounding the tubing directly above the sample point to a height of approximately 1 to 2 foot. The depth of the filter pack material should always be adequate to prevent the bentonite slurry above from going over the drive point and sample inlet screen. Recommended ground glass blast media can be found at W.W. Grainger, Inc. (Item 6ZC15).

- Place bentonite slurry in the annulus above the filter pack material to provide a seal in the borehole. Ideally, place the bentonite annular seal at least 3 feet thick, although adjustments to this thickness may be required based on site-specific conditions. The entire borehole must be filled to the ground surface with either entirely bentonite or with natural fill between two bentonite seals (one above the filter pack material and one at the ground surface). Permanent installations must have a surface seal made of cement or cement/bentonite grout.

- For permanent installations, install flush-mounted protective covers to protect the probe and the tubing.

- Cut the end of the tubing to allow proper closure of the flush-mounted protective cover, but with a sufficient length of tubing exposed at the surface to facilitate connection of sampling equipment.

- Close or cap the sample tubing following installation and following collection of each sample.

Collection of Soil Vapor Samples

Collecting soil vapor samples will be accomplished by using the following procedure:

- Record weather information (i.e., temperature, barometric pressure, rainfall, wind speed, and wind direction) at the beginning of the sampling event. Also, record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- Identify sampling locations on a plot plan that also identifies buildings, other landmarks, and potential sources of VOC contamination to both the surface and outdoor air. Record the depth of the probe screen below grade.

- If necessary, connect additional tubing to the tubing extending from the soil vapor probe to allow for connection to sample collection equipment.

- Calculate the volume of air in the probe, tubing (volume = πr^2h), including any additional tubing added in the step above and the annular space between the probe and the native material if sand or glass beads were used.

- Connect a vacuum pump or gas-tight syringe (~60 cubic centimeters [cc]) to the sample tubing. At a flow rate of no more than 0.2 liter per minute (lpm), purge air from the tubing until one to three of the above-calculated air volumes are removed.

- During purging, evaluate the potential for ambient air to be introduced in the soil vapor sample through the annulus of the soil vapor probe or tubing connections using a tracer gas such as helium. The procedures for the tracer gas evaluation are described below. Note that the bentonite used in the probe installation should have sufficient time to seal before the samples are collected. The tracer gas evaluation will verify if the seal is sufficient.

- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the soil vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as identified in the project-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be batch certified as clean by the laboratory.

- Remove the protective brass plug from the canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the soil vapor probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Monitor the vacuum pressure in the canister routinely during sampling.

- Stop sample collection when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

- Provided that no additional sampling is expected to be conducted, either pull out (if practical) or abandon in place the sampling probe. When abandoning, cut the tubing back as far down as practical and cover to surface with native soil.

Tracer Gas Evaluation

The tracer gas evaluation provides a means to evaluate the integrity of the soil vapor probe seal and assess the potential for introduction of ambient air into the soil vapor sample. A tracer gas evaluation should be conducted on all soil vapor probes. After the initial round of sampling and with the approval of the regulating agency, the use of tracer gas may be reduced to a minimum of 10 percent for permanent and semi-permanent probes if the initial round results showed installations with competent seals.

The following tracer gas evaluation procedure uses in-field tracer gas measurements and tracer gases (e.g., helium) that can be measured by portable detectors.

- Retain the tracer gas around the sample probe by filling an air-tight chamber (such as a plastic bucket) positioned over the sample location.

- Make sure the chamber is suitably sealed to the ground surface.

- Introduce the tracer gas into the chamber. The chamber will have tubing at the top of the chamber to introduce the tracer gas into the chamber and a valved fitting at the bottom to let the ambient air out while introducing tracer gas. A tracer gas detector will be attached to the valve fitting at the bottom of the chamber to verify the presence of the tracer gas. Close the valve after the chamber has been enriched with tracer gas at concentrations >50%.

- The chamber will have a gas-tight fitting or sealable penetration to allow the soil vapor sample probe tubing to pass through and exit the chamber.

- After the chamber has been filled with tracer gas, attach the sample probe tubing to a pump that will be pre-calibrated to extract soil vapor at a rate of no more than 0.2 lpm. Purge the tubing using the pump. Calculate the volume of air in the tubing and probe and purge one to three tubing/probe volumes prior measuring the tracer gas concentration.

- Use the tracer gas detector to measure the tracer gas concentration in the pump exhaust.

- Record the tracer gas concentrations in the chamber and in the soil vapor sample.

If the evaluation indicates a high concentration of tracer gas in the sample (>10% of the concentration of the tracer gas in the chamber), then the surface seal is not sufficient and requires improvement via repair or replacement prior to commencement of the sample collection. A non-detectable level of tracer gas is preferred; however, if the evaluation indicates a low potential for introduction of ambient air into the sample (<10% of the concentration of the tracer gas in the chamber), then proceed with the soil vapor sampling. While lower concentrations of tracer gas are acceptable, the impact of the detectable leak on sample results should be evaluated in the sampling report.

APPENDIX B

AMBIENT AIR SAMPLE COLLECTION PROCEDURES

(NYSDEC and NYSDOH Approved, March 15, 2007)

This set of procedures outlines the general steps to collect ambient air samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations and sampling duration.

The following procedures will be followed for the collection of ambient air samples:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- Select a location upwind of the building or other area that is being evaluated. If possible, select a location upwind or near the HVAC air intake for the building being sampled.

- Record weather information (i.e., temperature, barometric pressure, relative humidity, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the ambient air sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be individually certified as clean by the laboratory.

- Place the canister at the sampling location. If the sample should be collected from breathing height (e.g., 3 to 5 feet above ground), then mount the canister on a stable platform such that the sample inlet will be at the proper height.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of custody form for each sample.

- Completely open the valve on the vacuum pressure in the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Document on a field form an outdoor plot sketch that indicates the building being sampled, streets, sampling location, location of potential outdoor air sources, north direction and paved areas. Also record pertinent observations such as odors, readings from field instrumentation, and significant activities in the vicinity that result in air emissions.

- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical). During monitoring, note the vacuum pressure on the gauge.

- Stop sample collection after the scheduled duration of sample collection but make sure that the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valves. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

OSR – 3

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name ____________________________________ Date/Time Prepared ______________

Preparer's Affiliation ________________________________ Phone No.______________________

Purpose of Investigation____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _________________________ First Name: _________________________

Address: ____

County: _________________

Home Phone: ____________________ Office Phone: ____________________

Number of Occupants/persons at this location _______ Age of Occupants ______________________

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _________________________ First Name: _________________________

Address: ____

County: _________________

Home Phone: ____________________ Office Phone: ____________________

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _________________

If the property is residential, type? (Circle appropriate response)

Ranch
Raised Ranch
Cape Cod
Duplex
Modular
2-Family
Split Level
Contemporary
Apartment House
Log Home
3-Family
Colonial
Mobile Home
Townhouses/Condos
Other:________________

If multiple units, how many? ________

If the property is commercial, type?

Business Type(s) ______________________________________

Does it include residences (i.e., multi-use)? Y / N If yes, how many? ______

Other characteristics:

Number of floors______

Building age______

Is the building insulated? Y / N

How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

Airflow near source

Outdoor air infiltration

Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction: wood frame concrete stone brick

b. Basement type: full crawlspace slab other ________

c. Basement floor: concrete dirt stone other ________

d. Basement floor: uncovered covered covered with ________________

e. Concrete floor: unsealed sealed sealed with _________________

f. Foundation walls: poured block stone other ________

g. Foundation walls: unsealed sealed sealed with _________________

h. The basement is: wet damp dry moldy

i. The basement is: finished unfinished partially finished

j. Sump present? Y / N

k. Water in sump? Y / N / not applicable

Basement/Lowest level depth below grade: ________(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

____

____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation
Space Heaters
Electric baseboard
Heat pump
Stream radiation
Wood stove
Hot water baseboard
Radiant floor
Outdoor wood boiler
Other ___________

The primary type of fuel used is:

Natural Gas
Electric
Wood
Fuel Oil
Propane
Coal
Kerosene
Solar

Domestic hot water tank fueled by: ______________________________

Boiler/furnace located in: Basement Outdoors Main Floor Other___________

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level **General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**

Basement ____

1st Floor ____

2nd Floor ____

3rd Floor ____

4th Floor ____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA
Please specify____________________

d. Has the building ever had a fire? Y / N When?__________________

e. Is a kerosene or unvented gas space heater present? Y / N Where? _________________

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _________________

g. Is there smoking in the building? Y / N How frequently? ________________

h. Have cleaning products been used recently? Y / N When & Type? _________________

i. Have cosmetic products been used recently? Y / N When & Type? _________________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _______________

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _______________

l. Have air fresheners been used recently? Y / N When & Type? ________________

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?____________

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?____________

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?_________________

Are there odors in the building? Y / N
If yes, please describe: ____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? ____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly)
Yes, use dry-cleaning infrequently (monthly or less)
Yes, work at a dry-cleaning service
No
Unknown

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: ____________
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _______

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _______

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____________________________________

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: ______________________________________

List specific products found in the residence that have the potential to affect indoor air quality.

Location	**Product Description**	**Size** (units)	**Condition**[*]	**Chemical Ingredients**	**Field Instrument Reading** (units)	**Photo**[**] **Y / N**

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

APPENDIX D

SUB-SLAB VAPOR SAMPLE COLLECTION PROCEDURES

(NYSDEC and NYSDOH Approved, March 15, 2007)

This set of procedures outlines the general steps to collect sub-slab vapor samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

Sub-Slab Vapor Probe Installation

Temporary sampling probes will be installed using the following procedures:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).

- If appropriate, record weather information (temperature, barometric pressure, rainfall, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).

- Identify sampling location(s) on a floor plan that also identifies any slab breeches (e.g., utility penetrations, sumps, drains, and cracks) and locations of HVAC equipment.

- Insert a section of food-grade (inert) Teflon® or other appropriate tubing through a 3/8-inch (approx.) hole drilled through the slab. If necessary, advance the drill bit 2 to 3 inches into the sub-slab material to create an open cavity.

- Install the tubing inlet to the specified sampling depth below the slab, not to exceed 2 inches.

- Seal the annular space between the hole and tubing using 100% beeswax or another inert, non-shrinking sealing compound such as permagum®.

Sub-Slab Vapor Sample Collection

Sub-slab vapor samples will be collected by following the steps outlined below.

- Purge the tubing using a vacuum pump or gas-tight syringe (~60 cc). Calculate the volume of air (volume = πr^2h) in the tubing and purge one to three tubing volumes prior to sample collection at a rate no greater than 0.2 liter per minute (lpm).

- Use an evacuated Summa® passivated (or equivalent) canister to collect the sub-slab vapor sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be batch certified as clean by the laboratory.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.

- Connect the tubing from the sub-slab vapor sampling probe to the flow controller.

- Completely open the valve on the canister. Record the time that the valve is opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical).

- Complete the NYSDOH building survey and chemical survey form.

- Stop sample collection after the scheduled duration of sample collected, but when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

- For temporary probes, remove the probe and seal the slab hole with cement. Repair flooring, if any.

APPENDIX E
INDOOR AIR SAMPLE COLLECTION PROCEDURES
(NYSDEC and NYSDOH Approved, March 15, 2007)

This set of procedures outlines the general steps to collect indoor air samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sampling locations and other indoor air requirements (inventory, etc.).

Indoor air samples will be collected by following the steps outlined below:

- Sampling personnel must avoid activities immediately before and during the sampling that may contaminate the sample (e.g., using markers, fueling vehicles, etc.).
- Record weather information (temperature, barometric pressure, relative humidity, wind speed, and wind direction) and indoor temperature and humidity at the beginning of the sampling event. Record substantial changes to these conditions that may have occurred over the past 24 to 48 hours and that do occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport).
- Identify sampling location(s) on a floor plan that also identifies locations of HVAC equipment, chemical storage areas, garages, doorways, stairways, sumps, drains, utility perforations, north direction, and separate footing sections
- Use an evacuated Summa® passivated (or equivalent) stainless-steel canister to collect the outdoor air sample. The canister will be provided by the laboratory, along with a flow controller equipped with an in-line particulate filter and a vacuum gauge. The flow controller will be pre-calibrated by the laboratory for the desired flow rate or duration of sample collection, as defined in the site-specific work plan. The sampling flow rate should always be less than 0.2 lpm. The canisters will be individually certified as clean by the laboratory.
- Place the canister at the sampling location. The sample should be collected from breathing height (e.g., 3 to 5 feet above ground). Either mount the canister on a stable platform or attach

a length of inert tubing to the flow controller inlet and support it such that the sample inlet will be at the proper height.

- Remove the protective brass plug from canister. Connect the pre-calibrated flow controller to the canister.

- Record the identification numbers for the canister and flow controller. Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of custody form for each sample.

- Completely open the valve on the vacuum pressure in the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.

- Photograph the canister and the area surrounding the canister.

- Monitor the vacuum pressure in the canister routinely during sampling, when practical (sometimes the canister will sample over a 24-hour period and routine monitoring is not practical). During monitoring, note the vacuum pressure on the gauge.

- Complete the NYSDOH building survey and chemical survey form.

- Stop sample collection after the scheduled duration of sample collection, but make sure that the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.

- Record the final vacuum pressure and close the canister valves. Record the date and time that sample collection was stopped.

- Remove the flow controller from the canister and replace the protective brass plug.

- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.

- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.

- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.

- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. The field crew will retain a copy of the chain-of-custody for the project file.

- Deliver or ship the samples to the laboratory within one business day of sample collection and via overnight delivery (when shipping).

Appendix F

Building Owner/Occupant Instructions Prior to Vapor Intrusion Sampling

Some household products and activities can emit chemicals into the indoor air that could interfere with the evaluation of the sampling results. Therefore, it is strongly urged that building occupants refrain from the following activities at least 48 hours before sampling is conducted and during sampling:

- opening windows, fireplace openings or vents;
- keeping doors open for long periods of time;
- operating ventilation fans or air conditioning;
- use of scented candles, air fresheners or odor eliminators;
- smoking;
- use of wood stoves, fireplaces or auxiliary heating equipment, such as a kerosene heater;
- use of paints or varnishes;
- use of cleaning products such as household cleaners, floor cleaners, bathroom cleaners, furniture polish, etc.
- use of cosmetics, including hair spray, nail polish removers and perfume, etc.;
- use of solvents, such as paint thinners, glues, automobile degreasing chemicals, WD-40, etc.;
- use of pesticides (e.g. RAID), herbicides and fungicides;
- use of building repair or maintenance products, such as caulk and roofing tar;
- lawn mowing, paving with asphalt, or snow blowing;
- storing gasoline, oil or petroleum-based or other solvents within the building or attached garage (except for fuel oil tanks); and
- operating or storing automobiles or other gasoline-powered equipment or vehicles in an attached garage.

It should also be noted that any containers of paint, varnish, cleaning products, or solvents stored inside the building should be securely sealed.

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Ambient Air (Canister) Sample Collection Field Form

Project # ____________________ Consultant ____________________

Project Name ____________________ Collector ____________________

Sample ID ____________________

Vacuum gauge "zero" ("Hg) __________

Start Date/Time ____________________ Start Pressure ("Hg) __________

End Date/Time ____________________ End Pressure ("Hg) __________

Canister ID ____________________ End pressure > "zero"? __________

Flow controller ID ____________________ Sampling duration (intended) __________

Tubing type used __________ Length of tubing __________ cm Tubing volume __________ cc

Volume purged __________ cc @ __________ min 1 to 3 volumes purged @ < 200cc/min? __________

Weather Conditions at Start of Sampling:

Air temperature (°F) __________ Rainfall __________ Wind direction __________

Barometric pressure __________ Relative humidity __________ Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments: ____________________

nationalgrid

Indoor Air (Canister) Sample Collection Field Form

Project #
Consultant

Project Name
Collector

Sample ID

Vacuum gauge "zero" ("Hg)

Start Date/Time
Start Pressure ("Hg)

End Date/Time
End Pressure ("Hg)

Canister ID
End pressure > "zero"?

Flow controller ID
Sampling duration (intended)

Associated ambient air sample ID
Associated sub-slab vapor sample ID

Tubing type used
Length of tubing cm
Tubing volume cc

Volume purged cc @ min
1 to 3 volumes purged @ < 200cc/min?

Weather Conditions at Start of Sampling:

Air temperature (°F)
Rainfall
Wind direction

Barometric pressure
Relative humidity
Wind speed (mph)

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Indoor air temp (°F)
Indoor relative humidity (%)

Building Survey and Chemical Inventory Form Completed?
Photograph IDs

Floor Plan showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments:

nationalgrid

Sub-slab Vapor (Canister) Sample Collection Field Form

Project # ______________________

Consultant ______________________

Project Name ______________________

Collector ______________________

Sample ID ______________________

Vacuum gauge "zero" ("Hg) __________

Start Date/Time ______________________

Start Pressure ("Hg) __________

End Date/Time ______________________

End Pressure ("Hg) __________

Canister ID ______________________

End pressure > "zero"? __________

Flow controller ID ______________________

Sampling duration (intended) __________

Associated indoor air sample ID __________

Associated ambient air sample ID __________

Tubing type used __________

Length of tubing __________ cm

Tubing volume __________ cc

Volume purged __________ cc @ __________ min

1 to 3 volumes purged @ < 200cc/min? __________

Weather Conditions at Start of Sampling:

Air temperature (°F) __________

Rainfall __________

Wind direction __________

Barometric pressure __________

Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

____

____

Indoor air temp (°F) __________

Indoor relative humidity (%) __________

Building Survey and Chemical Inventory Form Completed? __________

Photograph IDs __________

Floor Plan showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: ______________________

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nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # ____________________ Consultant ____________________

Project Name ____________________ Collector ____________________

Sample ID ____________________

Vacuum gauge "zero" ("Hg) __________

Start Date/Time ____________________ Start Pressure ("Hg) __________

End Date/Time ____________________ End Pressure ("Hg) __________

Canister ID ____________________ End pressure > "zero"? __________

Flow controller ID ____________________ Sampling duration (intended) __________

Associated ambient air sample ID __________ Depth of sample point below grade __________

Tubing type used __________ Length of tubing __________ cm Tubing volume __________ cc

Volume purged __________ cc @ __________ min 1 to 3 volumes purged @ < 200cc/min? __________

Chamber tracer gas conc. __________ Tracer gas conc. during purging __________

Weather Conditions during Probe Installation:

Air temperature (°F) __________ Rainfall __________ Wind direction __________

Barometric pressure __________ Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) __________ Rainfall __________ Wind direction __________

Barometric pressure __________ Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: ____________________

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Ambient Air (Canister) Sample Collection Field Form

Project # ____________________

Consultant ____________________

Project Name ____________________

Collector ____________________

Sample ID ____________________

Vacuum gauge "zero" ("Hg) __________

Start Date/Time ____________________

Start Pressure ("Hg) __________

End Date/Time ____________________

End Pressure ("Hg) __________

Canister ID ____________________

End pressure > "zero"? __________

Flow controller ID ____________________

Sampling duration (intended) __________

Tubing type used __________ Length of tubing __________ cm Tubing volume __________ cc

Volume purged __________ cc @ __________ min 1 to 3 volumes purged @ < 200cc/min? __________

Weather Conditions at Start of Sampling:

Air temperature (^{o}F) __________ Rainfall __________ Wind direction __________

Barometric pressure __________ Relative humidity __________ Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

____

____

Site Plan showing sample location, building(s) being sampled, building HVAC inlet, outdoor air sources, wind direction

Comments: ____________________

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nationalgrid

Indoor Air (Canister) Sample Collection Field Form

Project # ______________________ Consultant ______________
Project Name ______________________ Collector ______________

Sample ID ______________________

Vacuum gauge "zero" ("Hg) ________

Start Date/Time ______________________ Start Pressure ("Hg) ________

End Date/Time ______________________ End Pressure ("Hg) ________

Canister ID ______________________ End pressure > "zero"? ________

Flow controller ID ______________________ Sampling duration (intended) ________

Associated ambient air sample ID ________ Associated sub-slab vapor sample ID ________

Tubing type used ________ Length of tubing ________ cm Tubing volume ________ cc

Volume purged ________ cc @ ________ min 1 to 3 volumes purged @ < 200cc/min? ________

Weather Conditions at Start of Sampling:

Air temperature (°F) ________ Rainfall ________ Wind direction ________

Barometric pressure ________ Relative humidity ________ Wind speed (mph) ________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

____

____

Indoor air temp (°F) ______________ Indoor relative humidity (%) ______________

Building Survey and Chemical Inventory Form Completed? ________ Photograph IDs ______________

Floor Plan showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: ____

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nationalgrid

Sub-slab Vapor (Canister) Sample Collection Field Form

Project # ______________________

Consultant ______________________

Project Name ______________________

Collector ______________________

Sample ID ______________________

Vacuum gauge "zero" ("Hg) ______________________

Start Date/Time ______________________

Start Pressure ("Hg) ______________________

End Date/Time ______________________

End Pressure ("Hg) ______________________

Canister ID ______________________

End pressure > "zero"? ______________________

Flow controller ID ______________________

Sampling duration (intended) ______________________

Associated indoor air sample ID ______________________

Associated ambient air sample ID ______________________

Tubing type used ____________ Length of tubing ____________ cm Tubing volume ____________ cc

Volume purged ____________ cc @ ____________ min 1 to 3 volumes purged @ < 200cc/min? ____________

Weather Conditions at Start of Sampling:

Air temperature (°F) ____________ Rainfall ____________ Wind direction ____________

Barometric pressure ____________ Wind speed (mph) ____________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Indoor air temp (°F) ______________________ Indoor relative humidity (%) ______________________

Building Survey and Chemical Inventory Form Completed? ____________ Photograph IDs ______________________

Floor Plan showing sample location, HVAC equipment, indoor air sources, preferential pathways

Comments: ______________________

nationalgrid

Soil Vapor (Canister) Sample Collection Field Form

Project # ____________________ Consultant ____________________

Project Name ____________________ Collector ____________________

Sample ID ____________________

Vacuum gauge "zero" ("Hg) __________

Start Date/Time ____________________ Start Pressure ("Hg) __________

End Date/Time ____________________ End Pressure ("Hg) __________

Canister ID ____________________ End pressure > "zero"? __________

Flow controller ID ____________________ Sampling duration (intended) __________

Associated ambient air sample ID __________ Depth of sample point below grade __________

Tubing type used __________ Length of tubing __________ cm Tubing volume __________ cc

Volume purged __________ cc @ __________ min 1 to 3 volumes purged @ < 200cc/min? __________

Chamber tracer gas conc. __________ Tracer gas conc. during purging __________

Weather Conditions during Probe Installation:

Air temperature (°F) __________ Rainfall __________ Wind direction __________

Barometric pressure __________ Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Weather Conditions at Start of Sampling:

Air temperature (°F) __________ Rainfall __________ Wind direction __________

Barometric pressure __________ Wind speed (mph) __________

Substantial changes in weather conditions during sampling or over the past 24 to 48 hrs:

Site Plan showing sample location, buildings, landmarks, potential soil vapor and outdoor air sources, preferential pathways

Comments: ____________________

Appendix H
Field Sampling Plan

Prepared for:
National Grid
Brooklyn, New York

Field Sampling and Analytical Plan (Appendix H of Site Management Plan)

Flatbush Station A&B Former Gas Holder Site
Brooklyn, New York
NYSDEC Site No.: 224061
Order on Consent Index #: A2-0552-0606

AECOM
January 2012
Document No.: 60218917

Contents

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1.0 Introduction

This Field Sampling and Analytical Plan (FSAP) presents the methods and procedures to be used for performing any ground intrusive, maintenance, and monitoring activities covered under the Site Management Plan [(SMP); AECOM, 2011] for the Flatbush Station A&B Former Gas Holder Site (Site).

1.1 Project Description

This document is required as an element of the remedial program at the Site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the NYS Department of Environmental Conservation (NYSDEC). The Site was investigated in accordance with Order on Consent Index A2-0552-0606, Site Number 224061 [NYSDEC, 2007], which was executed in 2007. The Site location and layout is shown on Figures 1-1 and 1-2 of the SMP.

The Order on Consent required National Grid, to investigate contaminated media at the Site. For purposes of further discussion in this document, the term “Site” will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue.

After completion of the investigation work described in the Site Characterization Work Plan [AECOM, 2011], some impacts were identified in the subsurface of the Site. This FSAP was developed as an appendix (Appendix H) to the SMP which was prepared to manage remaining contamination at the Site in perpetuity or until extinguishment of the Environmental Easement in accord with NYS Environmental Conservation Law (ECL) Article 71, Title 36.

This document was prepared by AECOM, on behalf of National Grid, in accord with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation [(DER-10); DEC, 2010] and the guidelines provided by NYSDEC.

1.2 Scope of Work

The scope of work at the Site covered under this FSAP includes.

- Underground utility work
- Surface/shallow subsurface soil sampling and analysis
- Soil boring advancement, subsurface soil sampling and analysis
- Excavation
- Monitoring well installation and development
- Groundwater sampling and analysis
- Indoor air and ambient air sampling and analysis
- Investigation-derived waste management

- Community air monitoring
- Data validation evaluation, and reporting

This FSAP will be modified for specialized work including:

- Sheet Pile Installation
- Confined Space Activities
- Groundwater Dewatering, Treatment, and Discharge

Any modification to the FSAP will require approval in writing from the NYSDEC. The property owner or its representative must notify National Grid of any scheduled ground intrusive work at least 15 days prior to the start of field activity.

2.0 General Field Guidelines

2.1 Site Hazards

Potential Site surface hazards, such as sharp objects, overhead power lines, energized areas, vehicular traffic, and building hazards will be identified prior to initiation of the fieldwork. Generally, potential hazards at the project site will be identified during a project site reconnaissance by the project team on the first day of any field activity. Additional safety measures to be undertaken for the work performed during the investigation are addressed in the Health and Safety Plan [(HASP), Appendix D of the SMP].

2.2 Underground Utilities

Underground utilities, including electric lines, gas lines, water lines, storm and sanitary sewers, and communication lines will be identified prior to initiation of any subsurface work. Underground utility location will be accomplished as follows:

- All work areas will be flagged or marked out with white paint.
- Dig Safely of New York (800) 272-4480 will be contacted to initiate the locating activities. New York State law requires that Dig Safely of New York be notified at least two working days, and not more than 10 working days, before subsurface work is conducted.
- Companies with subsurface utilities present will locate and mark out all subsurface utility lines.
- Geophysical methods may be used to further evaluate the potential presence of underground utilities in the area of each proposed investigation location.
- Subsurface investigation locations may be hand cleared to five feet below ground surface (bgs) prior to advancing borings with mechanized equipment.

2.3 Field Log Books

All field activities will be carefully documented in field log books. Entries will be of sufficient detail that a complete daily record of significant events, observations, and measurements is developed. The field log book will provide a legal record of the activities conducted at the site. Accordingly:

- Field books will be assigned a unique identification number.
- Field books will be bound with consecutively numbered pages.
- Field books will be controlled by the Site Manager while fieldwork is in progress.
- Entries will be written with waterproof ink.
- Entries will be signed and dated at the conclusion of each day of fieldwork.
- Erroneous entries made while fieldwork is in progress will be corrected by the field person that made the entries. Corrections will be made by drawing a line through the error, entering the correct information, and initialing the correction.

- Corrections necessary after departing the field will be made by the person who entered the original information. Corrections will be made by drawing a line through the error, entering the correct information, and initialing and dating the time of the correction.

At a minimum, daily field book entries will include the following information:

- Location of field activity;
- Date and time of entry;
- Names and titles of field team members on site and site contacts;
- Names, titles of any site visitors, as well as the date and time entering and leaving the site;
- Weather information, for example: temperature, cloud coverage, wind speed, and direction;
- Purpose of field activity;
- A detailed description of the fieldwork conducted;
- Sample media (soil, sediment, groundwater, etc.);
- Sample collection method;
- Number and volume of sample(s) taken;
- Description of sampling point(s);
- Volume of groundwater removed before sampling;
- Preservatives used;
- Analytical parameters;
- Date and time of collection;
- Sample identification number(s);
- Sample distribution (e.g., laboratory);
- Field observations;
- All field measurements made, such as volatile organic compounds (VOCs) using a PID, pH, temperature, conductivity, water level, etc.;
- References for all maps and photographs of the sampling site(s); and
- Information pertaining to sample documentation such as:
    - Bottle lot numbers;
    - Dates and method of sample shipments;
    - Chain-of-custody (COC) record numbers; and
    - Federal Express air bill number.

3.0 Field Equipment Decontamination and Management of Investigation-Derived Residuals

3.1 Decontamination Area

A temporary decontamination area lined with polyethylene sheeting will be constructed on the project site for use during decontamination of the drilling and test pitting equipment. Water collected from the decontamination of activities will be collected in 55-gallon drums or a bulk tank and managed as described in Section 3.3.

3.2 Equipment Decontamination

The following procedures will be used to decontaminate equipment used during any activities.

- All equipment including the backhoe bucket; drilling rig; augers; bits; rods; tools; split-spoon samplers; and tremie pipes will be cleaned with a high-pressure, hot water pressure washing unit between locations and following completion of activities.
- Tools, drill rods, and augers will be placed on polyethylene plastic sheets following pressure washing. Direct contact with the ground will be avoided.
- All earth moving equipment, the back of the drill rig and all tools, augers, and rods will be decontaminated at the completion of the work and prior to leaving the project site.

3.2.1 Sampling Equipment Decontamination

Suggested Materials:

- Potable water;
- Phosphate-free detergent (such as Alconox™);
- Distilled water;
- Aluminum foil;
- Plastic/polyethylene sheeting;
- Plastic buckets and brushes; and
- Personal protective equipment (PPE) in accordance with the HASP.

Procedures:

- Prior to sampling, all non-dedicated sampling equipment (bowls, spoons, interface probes, etc.) will be washed with potable water and a phosphate-free detergent (such as Alconox™). Decontamination may take place at the sampling location as long as all liquids are contained in pails, buckets, etc.
- The sampling equipment will then be rinsed with potable water followed by a de-ionized water rinse.

- Between rinses, equipment will be placed on polyethylene sheets or aluminum foil, if necessary. At no time will washed equipment be placed directly on the ground.
- Equipment will be wrapped in polyethylene plastic or aluminum foil for storage or transportation from the designated decontamination area to the sampling location.

3.3 Management of Investigation-Derived Residuals

3.3.1 Decontamination Fluids

Hot water pressure wash and decontamination fluids will be collected in 55-gallon drums or a bulk tank. The storage drums or tank will be labeled as “pending analysis – investigation-derived residual decon water” and temporarily stored in a plastic-lined containment area pending characterization and proper disposal.

3.3.2 Drill Cuttings

Drill cuttings will be contained in 55-gallon drums. The drums will be labeled as “pending analysis – investigation-derived residual – soil from drill cuttings” and temporarily stored in a plastic-lined containment area pending characterization and proper disposal.

3.3.3 Development and Purge Water

All development and purge water will be contained in 55-gallon drums or a bulk tank. The drums or tank will be labeled as “pending analysis - investigation derived residual development and purge water” and temporarily stored in a plastic-lined containment area pending characterization and proper disposal.

3.3.4 Personal Protective Equipment

All PPE will be placed in 55-gallon drums or a lined cardboard yard box for proper disposal.

3.3.5 Dedicated Sampling Equipment

All dedicated groundwater sampling equipment will be placed in 55-gallon drums for disposal.

4.0 Soil Sampling and Well Installation Procedures

4.1 Introduction

Surface and subsurface activities to be conducted at the Site may consist of utility work; excavation; the advancement of soil borings; collection of soil samples; groundwater monitoring, soil vapor intrusion sampling, and the installation of monitoring wells. These activities will require the use of the following equipment and material:

- Field book;
- Project plans;
- PPE in accordance with the HASP;
- Stakes, flagging and marking paint;
- Plastic bags for soil screening samples;
- Stainless steel or disposable bowls and spoons/spatulas;
- Tape measure;
- Decontamination supplies;
- Water level indicator;
- Electronic oil/water interface probe
- Clear polyethylene disposable bailers (NAPL confirmation in wells);
- Polyethylene disposable bailers (well development);
- Polypropylene rope (well development);
- Waterra™ pump or other purge pump (well development);
- Submersible electric pump (well development);
- Stainless steel or glass beakers (well development);
- Turbidity meter (well development);
- Temperature, conductivity, pH meter (well development).
- PID with a 10.2 or 10.6 eV lamp;
- Camera;
- Clear tape, duct tape;
- Laboratory sample bottles;
- Coolers and ice; and
- Shipping supplies.

Procedures for these activities are described in the following sections.

4.2 Excavation

Excavation activities will be dictated by the Contractor hired to conduct the work and will follow the Excavation Work Plan included as Appendix C of the SMP [AECOM, 2012]. During field activities, personnel will stand upwind of the excavation area to the extent possible. Air monitoring and odor mitigation (if necessary) will be conducted in accordance with the Community Air Monitoring Project (CAMP) and HASP. Excavation materials will be photographed and logged for future reference. Material removed from the excavation will be placed on polyethylene sheeting. The location and size of the excavation will be measured and described in the field logbook.

Visually clean soils, such as surface soils, will be segregated from soils that may be impacted. The visually clean soils may be placed back in the excavation with prior approval of the NYSDEC. At a minimum, the top 2 feet of backfilled soil will be visually clean. The excavation will be backfilled as soon as possible after completion and in general prior to the cessation of activities at the end of the day. If excavation resulted in removal of any residual MGP contamination, a demarcation layer as detailed in Appendix C of the SMP [AECOM, 2012] will be placed over the surface prior to backfilling. Following restoration of the excavation, the excavation will be staked/marked to facilitate subsequent location by surveying crews.

4.2.1 Soil Borings

Soil borings, if any, may be advanced and sampled with a combination of either rotosonic drilling methods equipped with 4-inch diameter sampling cores or hollow-stem augers (HSAs) equipped with 2-inch or 3-inch diameter split-spoon samplers. In some instances, a direct-push (Geoprobe™) drilling rig equipped with 4-foot long, 2-inch diameter Macro-Core™ samplers may be used if there are access limitations. All drilling equipment will be decontaminated between each boring in accordance with methods specified in Section 3.2.

All locations will be properly abandoned following the collection of samples. Boreholes for the direct-push borings will be filled with bentonite chips. All rotosonic or auger soil borings not used for the construction of monitoring wells will be tremie grouted to the ground surface following the completion of the soil sampling to prevent cross-contamination of permeable zones. The borings will be filled using a cement/bentonite grout mixture with the following specifications:

- Bentonite will be powdered sodium montmorillonite furnished in moisture resistant sacks without additives.
- Cement shall be a low-alkaline Portland cement, Type I in conformance with ASTM C-150 and without additives.
- The cement/bentonite grout mixture shall be to the following proportion:
  - Three sacks (94 pounds) of Type I Portland cement;
  - 14 pounds of granular bentonite (5% mix); and
  - 25 gallons of water.

The cement will be mechanically mixed, above ground, with water from a potable water source. Bentonite will be added to ensure a lump-free consistency. The mixture will be pumped through a tremie pipe as the drill is being withdrawn.

4.2.2 Geologic Logging Methods

The field geologist will log borehole geology and headspace measurements, and any other observations (e.g., odors, non aqueous phase liquid (NAPL), soil staining, etc.), in the field book and the Drilling Record shown in Figure 4-1, or similar form. Soil samples retrieved from the borehole/test pit will be visually described for: 1) percent recovery, 2) soil type, 3) color, 4) moisture content, 5) texture, 6) grain size and shape, 7) consistency, 8) visible evidence of staining or other hydrocarbon-related impacts, and 9) any other relevant observations. The descriptions will be in accordance with the Unified Soil Classification System (USCS) and the American Society for Testing and Materials (ASTM) guidelines. Descriptions will also follow National Grid's internal field description guidance [KeySpan, 2005] included in Appendix G SOPs of the SMP [AECOM, 2012].

Immediately after describing the core/test pit wall, a representative soil sample will be placed in a re-sealable plastic (e.g., "ziplock") bag filled approximately half full. The bag will be labeled with the boring number and interval sampled. After allowing the bagged soil to warm the tip of the sample probe attached to the PID will be inserted into the bag to measure the headspace for organic vapors. Soil remaining after completion of sample description, collection, and field screening will be disposed of properly.

4.2.3 Collection of Samples

The number and frequency of samples to be collected from each boring and the associated analytical parameters will be based on the field activity. The sample locations, descriptions, and depths will be recorded on the borelogs in the field book.

Samples for laboratory analyses will be collected directly from the sampling spoon (test pits), acetate liners, split-spoons, or core barrel and placed into appropriate containers (for VOC analyses); homogenized (for non-VOC analyses); and compacted to minimize headspace and pore space. Soil used for headspace analysis will not be used for laboratory VOC analysis. The sampling equipment will be decontaminated between samples in accordance with procedures described in Section 3. Soil remaining after completion of sample description, collection, and field screening will be disposed of properly.

The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed with ice. The coolers will then be shipped to the laboratory for analysis. COC procedures will be followed as outlined in Appendix I Quality Assurance Project Plan (QAPP) of the SMP. If there is a delay of sample shipment due to insufficient samples to warrant overnight delivery, the samples will be stored in a cool, secure place with sufficient ice to maintain a temperature of 4˚ C.

4.3 Monitoring Well Installation and Development

The following methods will be used for drilling, installing, and developing the monitoring wells;

4.3.1 Overburden Monitoring Well Installation

Figure 4-2 illustrates the construction details for a typical overburden monitoring well. Specific details regarding the depth and anticipated screened interval of proposed monitoring wells is provided in the SMP. In general, monitoring wells will be installed according to the following specifications:

- The monitoring well borings will be advanced with either 4.25-inch inner diameter (ID) hollow-stem augers or 4-inch ID flush casing.

- Wells will be constructed with 2-inch ID, threaded, flush-joint, Schedule 40 PVC casings and screens.
- Screens will be 10-feet long with 0.01-inch slot openings (or 0.02-inch, if NAPL present) with a 2-foot DNAPL sump at the base. Alternative screen lengths up to 20 feet long may be used at the discretion of the field geologist and with the approval of DEC, based on site conditions.
- The annulus around the screens will be backfilled with clean silica sand having appropriate size (e.g., Morie No. 1) to a minimum height of 2 feet above the top of the screen. Auger flights or casing will be withdrawn as sand is poured in a manner that will minimize hole collapse and bridging.
- A bentonite chip seal with a minimum thickness of 2 feet will be placed above the sand pack. The bentonite seal will be hydrated with clean, potable water before placement of grout above the seal layer.
- The remainder of the annular space will be filled with cement-bentonite grout to ground surface. The grout will be allowed to set for a minimum of 24 hours before wells are developed.
- Each monitoring well will be a flush-mounted installation with a locking cap.
- The concrete seal or pad will be sloped to channel water away from the well, and be deep enough to remain stable during freezing and thawing of the ground.
- The top of the PVC well casing and ground surface will be marked and surveyed to 0.01 foot, and the elevation will be determined relative to a fixed benchmark or datum.
- The measuring point on all wells will be on the innermost PVC casing.
- Monitoring well construction details will be recorded in the field book and on the Construction Log shown in Appendix H of the SMP.

- If commercially available nested wells are considered to sample multiple aquifer depth zones in the same borehole, they will be discussed with DEC prior to installation.

4.3.2 Monitoring Well Development

- After a minimum of 24 hours after installation, the monitoring wells will be developed by surging and pumping. Surging will be performed periodically, across the lengths of screen in 2-foot increments prior to, at interim periods of pumping, and immediately before the final pumping. Pumping methods may include using a centrifugal, submersible, or peristaltic pump and dedicated polyethylene tubing, using a Waterra™ positive displacement pump and dedicated polyethylene tubing, or other methods at the discretion of the field geologist.
- Water levels will be measured in each well to the nearest 0.01 foot prior to development.
- The wells will be developed until the water in the well is reasonably free of visible sediment (50 NTU if possible or until pH, temperature, and specific conductivity stabilize). A portable nephelometer will be used to make the turbidity measurement.
- Development water will be contained in and properly disposed of.

Following development, wells will be allowed to recover for at least 14 days before groundwater is purged and sampled. All monitoring well development will be performed or overseen by a field geologist and recorded in the field book.

5.0 Groundwater Sampling Procedures

5.1 Introduction

Procedures for obtaining samples of groundwater are described in this section. Groundwater samples will be collected using low-flow, low-stress purge and sampling methods.

Procedures for conducting aquifer conductivity testing are also described in this section. Aquifer conductivity testing will be done by using slug or pneumatic testing methods.

5.2 Groundwater Sampling

The number and frequency of the samples that will be collected for laboratory analysis from each well and the analytical parameters are listed in Table 3-1 in the SMP [AECOM, 2012].

The following method will be used to collect groundwater samples from monitoring wells:

5.2.1 Required Equipment and Supplies

- Field book
- Project plans
- PPE in accordance with the HASP
- Electronic oil/water interface probe
- Disposable polyethylene bailers and low-flow sampling pump
- Polypropylene rope
- Temperature, conductivity, and pH meter
- Turbidity meter
- Flow-through cell
- Decontamination supplies
- Peristaltic or submersible pump capable of achieving low-flow rates (i.e., 0.5 liters per minute or less)
- Plastic tubing
- Plastic sheeting
- PID
- Clear tape, duct tape
- Coolers and ice
- Laboratory sample bottles
- Federal Express labels

5.2.2 Groundwater Sampling Method

5.2.2.1 Purging

- Prior to sampling, the static water level and thickness of any light non-aqueous phase liquid (LNAPL) or dense non-aqueous phase liquid (DNAPL) will be measured to the nearest 0.01 foot from the surveyed well elevation mark on the top of the PVC casing with a decontaminated oil/water interface probe. NAPL thickness will be confirmed using a clear bailer or a weighted string. The measurement will be recorded in the field book.
- The probe will be decontaminated between uses.
- Groundwater from the well will be purged until field parameters stabilize, up to three well volumes are removed, or 1 hour of continuous purging is performed. Field parameters are considered to be stable when three consecutive readings are within the stabilization criteria for that parameter. The stabilization criteria are as follows: 10% or below 10 NTUs for turbidity, 3% for conductivity and temperature, 0.1 unit for pH, and 10 mV for ORP. Purging will be conducted using the low-flow sampling technique specified by the United States Environmental Protection Agency (USEPA) Region 1 in its guidance document entitled “Low-Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells”.
- The flow rate measurement will be approximately 0.5 liter per minute or less.
- If a well goes dry before the required volumes are removed, it will be allowed to recover, purged a second time until dry or the required parameters are met, and sampled when it recovers sufficiently, in accordance with low-flow sampling protocol.
- Purge water will be managed and disposed of properly.
- Peristaltic pumps will not be used to collect VOC samples.

5.2.2.2 Sampling

- Samples will be collected using dedicated 1/4- or 3/8-inch polyethylene tubing and/or bailers.
- Prior to filling the sample bottles, the temperature, pH, conductivity, dissolved oxygen, and oxidation reduction potential (ORP) will be measured within a flow-through cell. Turbidity will be measured with a hand-held turbidity meter. All measurements will be recorded in the field book.
- Three 40-ml VOA vials with Teflon™ lined septa and hydrochloric acid as a preservative will be filled for analysis of VOCs. The VOA vials will be filled to ensure that no bubbles are in the sample. Two 1-liter amber glass sample bottles for SVOC analysis and two 1-liter amber glass bottles for PCB analysis will then be filled followed by a 500 milliliter (mL) plastic bottle preserved with nitric acid for the total metals analysis. An opaque, 500 mL plastic bottle, with sodium hydroxide added for preservative to achieve a pH of >12 will then be filled for the analysis of total cyanide.
- The sample containers will be labeled, placed in a laboratory-supplied cooler, and packed on ice (to maintain a temperature of 4ºC). The cooler will be shipped overnight or delivered to the laboratory for analysis.
- COC procedures will be followed as outlined in the QAPP (Appendix I of the SMP).

- Well sampling data will be recorded on the Groundwater Sampling Record shown in Figure 5-1, or similar form.

6.0 Indoor Air Sampling

An indoor air evaluation will be performed at the Site to establish post remedy conditions. The work will be performed in accordance with *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* [DOH, 2006] and the USEPA document entitled *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, Office of Solid Waste and Emergency Response* [USEPA, 2002]. Methods will also be consistent with National Grid's Draft Standard Operating Procedure for Soil Vapor Intrusion Evaluations at National Grid MGP Sites in New York State. A draft Indoor Air Sampling Plan will be submitted to DEC for approval outlining the locations and frequency of the samples.

A pre-sampling survey and a product inventory will be conducted on the day of sampling. The surveys and inventories will be completed in accordance with the NYDOH guidance. The chemical inventory check will be performed at each location to document current conditions with the regard to the storage of chemicals. The previous surveys will be reviewed and any changes in conditions from the previous sampling will be noted. As with previous surveys, a screening for total volatiles will be conducted with a ppbRAE. An ambient air sample will be collected concurrently with the indoor air samples for each property.

The methods to be used for the collection of the indoor air samples and the ambient air sample are summarized as follows:

- The indoor air sample will be collected from a minimum of two-feet above the floor surface.
- The ambient air sample will be collected at a location determined to be upwind at time of sampling.
- The indoor air and ambient air samples will be collected as an integrated (not grab) sample. A laboratory-provided flow controller fixed to a negative pressure vessel (a batch certified clean 6-liter Summa™ canister) will be used to collect the integrated sample. The controller will be a fixed-rate flow controller and the approximate length of the sample time will be set by the laboratory. The flow controllers are fitted with an internal filter to prevent particulates from entering the Summa^{TM} Canister.
- The sample time for the canisters will be set to 8 hours. The collection of the samples in 6-liter canisters over an approximate 8-hour interval will ensure that the samples are collected at the rate specified by the NYSDOH (less than 0.2 liters per minute).
- The sample tubing will be attached to the sampling canister with Swagelok™ fittings.
- Prior to sampling, the initial vacuum in each canister will be checked prior to use to ensure mechanical integrity of the canister. The initial vacuum should be approximately 30 inches mercury (in. Hg).
- To start sampling, the canister ball valve is opened and the initial time and vacuum is recorded.
- The final vacuum should be between 10 and 4 in. Hg, with a target of 5 in. of Hg. The initial and final vacuum in each canister will be recorded on the laboratory chain-of-custody form to be returned to the laboratory with the samples. The gauges provided with the canisters are

accurate only for “indication of change”, and are not sufficiently accurate to provide gauge-to-gauge comparisons. The final vacuum will also be measured in the laboratory.

- Following collection of the sample, the canister will be sealed by closing the ball valve and fitting on the canister inlet. The inlet will then be capped with a laboratory-provided threaded end cap.
- Following collection of the sample, the PID will be used to obtain a final reading from the probe assembly or tubing for the concentration of total organic vapors.
- Quality assurance and quality control samples will include one field duplicate, one trip blank, a laboratory blank and laboratory quality control samples as required by the analytical method.
- The site name, sample identification, canister number, canister certification number, sampler’s name, sample times and date will be recorded on a tag that is attached to each canister.
- The indoor air samples will be shipped overnight to a NY ELAP-certified laboratory for analysis.

The field sampling team will record all information regarding the sampling on field forms. Copies of the field forms that will be used are included as Figures 6-2 and 6-3. Information that will be recorded will include the following: sample identification, date and times of sample collection, identity of the field personnel, sampling methods and equipment, purge volumes and rates, tracer test results, and any other relevant observations made during the sampling. A NYSDOH indoor air quality questionnaire and building inventory form will also be filled out prior to indoor air sampling (Figure 6-4).

7.0 Air Monitoring

7.1 Introduction

Two types of air monitoring will be performed during the site investigation: 1) work zone monitoring for protection of the workers performing the site investigation, and 2) community air monitoring at the perimeter of the work site for protection of the local community.

7.2 Breathing Zone Air Monitoring During Subsurface Work and Sampling

Monitoring of air in the breathing zone within the work site will be conducted periodically during all subsurface work and sampling activities.

- An organic vapor meter (OVM) equipped with a PID will be used to monitor for VOCs or other organic vapors in the breathing zone and borehole, and to screen the samples.
- Additional air monitoring may be required as specified in the HASP (Appendix D of the SMP)..

The PID readings will be recorded in the field book and on the boring log during drilling activities. The procedure for the PID operation and calibration is included in the HASP. Note that equipment calibration will be performed as often as needed to account for changing conditions or instrument readings. The minimum frequency of calibration is specified in the HASP; more frequent calibration will be performed if spurious readings are observed or there are other problems with the instruments.

7.3 Community Air Monitoring

Community air monitoring requires real-time monitoring for VOCs, particulates (i.e., dust), and MGP-related odors at the downwind perimeter of each designated work area when certain activities are in progress at impacted sites. The community air monitoring 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 for community air monitoring require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, community air monitoring helps to confirm that work activities do not spread contamination off site through the air.

The procedures and action levels for community air monitoring are presented in the CAMP and in the HASP.

8.0 Field Instruments and Calibration

All field analytical equipment will be calibrated immediately prior to each day's use and more frequently if required. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. All instrument calibrations will be documented in the project field book and in an instrument calibration log. Records of all instrument calibration will be maintained by the Field Team Leader. Copies of all of the instrument manuals will be maintained on site by the Field Team Leader. All changes to instrumentation will be noted in the field log book.

The following field instruments will be used during the investigation:

- PID
- Particulate monitors
- Multi-parameter meter (pH, specific conductivity, dissolved oxygen, oxidation reduction, and temperature meter)
- Turbidity meter

8.1 Portable Photo-Ionization Detector (PID)

- The photo-ionization detector will be equipped with either a 10.2 or 10.6 eV lamp. In this configuration, the PID is capable of ionizing and detecting compounds that account for over 70% of the VOCs on the USEPA Target Compound List.
- Calibration must be performed at the beginning of each day of use with a standard calibration gas having a concentration of 100 parts per million of isobutylene. If the unit experiences abnormal perturbation or erratic readings, more frequent or additional calibration will be required.
- All calibration data must be recorded in the project field notebooks.
- A battery check must be completed at the beginning and end of each working day.
- All changes to the PID will be noted in the field notes (such as lamp or filter cleaning or replacement or change of instrument).

8.2 Multi-Parameter Meter

- Calibration of the meter (YSI or equivalent) must be performed at the start of each day of use, and after very high or low readings as required by this Plan, according to manufacturer's instructions.
- National Institute of Standards and Technology - traceable standard calibration solutions will be used (where applicable). At least one backup meter will also be present on-site in the event of a malfunction.
- The calibration data must be recorded in the project field book each time it is performed.

8.3 Turbidity Meter

The turbidity meter must be checked at the start of each day of use according to manufacturer's instructions.

9.0 Analytical Program

9.1 Environmental Sample Analyses

The laboratory samples for each media and the chemical analyses to be performed are summarized in Table 3-1 of the SMP.

9.1.1 Soil Analyses

The majority of the soil samples will be analyzed for the following parameters:

- VOC compounds by USEPA Method 8260B;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270C;

A subset (approximately 20%) of the total number of soil samples will be analyzed for an expanded list of the following parameters:

- Full TCL VOCs by USEPA Method 8260B;
- Full TCL SVOCs by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series;
- Free Cyanide with extraction by USEPA Method 9013A and analysis by ASTM Method D4282-02 (microdiffusion);
- TCL Pesticides by USEPA Method 8081A;
- TCL Herbicides by USEPA Method 8151A; and
- PCBs (as Aroclors) by USEPA Method 8082.

9.1.2 Groundwater Analyses

Similar to soils, the majority of groundwater samples will be analyzed for the following parameters:

- VOC compounds by USEPA Method 8260B;
- SVOC compounds by USEPA Method 8270C.

A subset (approximately 20%) of the total number of groundwater samples will be analyzed for an expanded list of the following parameters:

- Full TCL VOCs by USEPA Method 8260B;
- Full TCL SVOCs by USEPA Method 8270C;
- TAL Metals by USEPA Method 6000-7000 Series;
- Total Cyanide by USEPA Method 9012;
- TCL Pesticides by USEPA Method 8081A;

- TCL Herbicides by USEPA Method 8151A; and
- PCBs (as Aroclors) by USEPA Method 8082.

9.1.3 Indoor Air/Ambient Air Analyses

The indoor air and ambient air samples will be analyzed for VOCs by USEPA Method TO-15 (including naphthalene). The indoor air samples will also be analyzed for helium by ASTM Method ASTM D-1945. In addition to the standard TO-15 list of compounds, several additional compounds will be analyzed for, including: 1,2,3-trimethyl benzene, 1-methylnaphthalene, 2-methylnaphthalene, tetramethylbenzene, indene, indane, thiophene , 2-methylpentane, isopentane, and 2,3-dimethylpentane.

9.1.4 Waste Characterization/Profiling

Sufficient samples (a minimum of two) will be collected during the investigation and analyzed for full RCRA Hazardous Characteristics testing to determine if materials exhibiting hazardous characteristics may be present at the site and to support waste disposal profiling purposes. The analyses to be performed may include, but not be limited to, the following, depending on the medium and the selected disposal facility:

- Total Metals by USEPA Method 6010B (Mercury 7470A);
- Total Petroleum Hydrocarbons (DRO and GRO) by USEPA Method 8015 modified;
- PCBs by USEPA Method 8082;
- TCLP ZHE Extraction by USEPA Method 1311;
- TCLP VOC by USEPA Method 8260B;
- TCLP SVOC by USEPA Method 8270C;
- TCLP RCRA Metals by USEPA Method 6010B (Mercury 7470A);
- Corrosivity by USEPA Method 9045C;
- Ignitability/Flashpoint by USEPA Method 1010A;
- Reactive Cyanide and Reactive Sulfide by USEPA SW-846 Chapter 7, Sections 7.3.3.2 and 7.3.4.2; and
- Total Organic Halogens – USEPA Method 9020B.

9.2 Field Quality Control Samples

Field quality control samples will be collected and analyzed to document the accuracy and precision of the samples. The quality control samples are described as follows:

- Trip Blank: One trip blank will accompany each shipment of samples for VOC analysis sent to the laboratory. The trip blank will be analyzed to test for any contaminants introduced while samples are being stored or transported to the laboratory. The trip blanks will be analyzed for volatiles only.
- Field Equipment Blanks: The purpose of the equipment blank is to detect any contamination from sampling equipment, cross-contamination from previously sampled locations, and

contamination caused by conditions at sampling locations (e.g., airborne contaminants). One equipment blank will be collected for every 20 samples per medium collected during sampling with non-disposable sampling equipment. The samples will be collected by pouring analyte-free water, prepared in the laboratory, over decontaminated sampling equipment and collecting it in sample jars. The blanks will be collected in the vicinity of a sample location. This field blank will be analyzed for VOCs, SVOCs, PCBs, total or free cyanide (depending if the blank is from groundwater or soil sampling equipment), and TAL metals.

- Field Duplicates: Field duplicates are collected to determine the precision of the soil samples collected. This is achieved by homogenizing soil (for non-VOC analyses) and splitting it evenly between separate sample jars. Duplicate samples will be collected and analyzed for VOC, SVOCs, PCBs, total or free cyanide (depending if the duplicate sample is from groundwater or soil), and TAL metals. The minimum required number of field duplicates is one for every 20 samples.
- Matrix Spikes, and Matrix Spike Duplicates: These samples are laboratory quality control samples and will be completed as part of the laboratory analytical batch quality control. These samples will be collected in the same manner as the field duplicates. Both the matrix spike and matrix spike duplicate will be collected at the same sample location.

9.3 Sample Location Numbering System

- Surface soil samples will be numbered consecutively beginning with SS19 (if applicable).
- Subsurface soil borings will be numbered consecutively beginning with SB240 (soil borings) or SHMW1 (monitoring well borings). Individual samples will also be designated with a depth code (see below).
- Monitoring wells will be numbered consecutively beginning with SHMW1.

9.4 Sample Identification

Each sample will be given a unique alphanumeric identifier in accordance with the following classification system:

Table 9-1 Sample Identification

LL*	NN*	N-N	LL
Sample Type	Sample Number	Depth Code	QC Identifier

Sample Type:	GW – Boring Groundwater Grab	MW – Monitoring Well
	SB – Soil Boring	SV – Soil Vapor
	SS – Surface Soil	IA – Indoor Air
	AMB – Ambient Air	
Sample Number:	Number referenced to a sample location map.	
Depth Code:	Depth in feet of sample interval (0-0.5, 2-4, 10-12, etc.)	
QC Identifier:	TB – Trip Blank	MS – Matrix Spike

EB – Equipment Blank	MSD–Matrix Spike Duplicate
	MB – Matrix Blank

* L = Letter
* N = Number

Field duplicate samples will be assigned identifiers that do not allow the laboratory to distinguish them as field duplicates. Each sample container will be labeled prior to packing for shipment. The sample identifier, site name, date and time of sampling, and analytical parameters will be written on the label in waterproof ink and recorded in the field book.

9.5 Chain-of-Custody

- A Chain-of-Custody (COC) record (Figure 9-1 or similar) will accompany the sample containers during selection and preparation at the laboratory, during shipment to the field, and during return shipment to the laboratory.
- The COC will include the sample identities of each sample container and the analytical parameters for each, and will list the field personnel that collected the samples, preservation method, the project name and number, the name of the analytical laboratory that will receive the samples, and the method of sample shipment.
- If samples are split and sent to different laboratories, such as to a specialty laboratory for fingerprint analysis, a copy of the COC record will be sent with each sample shipment.
- The COC will be completed by field personnel as samples are collected and packed for shipment.
- Erroneous markings will be crossed-out with a single line and initialed by the author.
- The REMARKS space will be used to indicate if the sample is a matrix spike, matrix spike duplicate, or matrix duplicate.
- Trip and field blanks will be listed on separate rows.
- After the samples have been collected and sample information has been listed on the COC form, the method of shipment, the shipping cooler identification number(s), and the shipper airbill number will be entered on the COC.
- Finally, a member of the sampling team will write his/her signature, the date, and time on the first RELINQUISHED BY space.
- One copy of the COC will be retained by sampling personnel. The other copy and the original will be sealed in a plastic bag and taped inside the lid of the shipping cooler.
- Sample shipments will be refrigerated at 4˚C, typically by packing with bagged ice, to preserve the samples during shipment.
- After the shipping cooler is closed, custody seals provided by the laboratory will be affixed to the latch and across the front and back of the cooler lid, and signed by the person relinquishing the samples to the shipper.
- The seal will be covered with clear tape, and the cooler lid will be secured by wrapping with packing tape.
- The cooler will be relinquished to the shipper, typically an overnight carrier.

- The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the samples will not be analyzed until directed to do so.
- The samples must be delivered to the laboratory within 48 hours of collection.

9.6 Sample Documentation

The field team leader will retain a copy of the COC, and, in addition, the field team leader will ensure that the following information about each sample is recorded in the field book:

- Sample identifier;
- Identification of sampled media (e.g., soil, sediment, groundwater);
- Sample location with respect to known reference point;
- Physical description of sample location;
- Field measurements, (e.g., pH, temperature, conductivity, and water levels);
- Date and time of collection;
- Sample collection method;
- Volume of groundwater purged before sampling;
- Number of sample containers;
- Analytical parameters;
- Preservatives used; and
- Shipping information:
  - Dates and method of sample shipments;
  - COC Record numbers;
  - Federal Express Air Bill numbers; and
  - Sample recipient (e.g., laboratory name).

Figures

AECOM

Figure 4-1

Boring/Well ID:________________

Page _______ of _______

Project Name:	Drilling Company:	Surface Comp:
Project Number:	Drilling Method:	Grout (bgs):
Date Pre-Cleared:	Rig Type:	Filter Pack (bgs):
Date Started Drilling:	Casing ID:	Riser (bgs):
Date Finished Drilling:	Water Level While Drilling (bgs):	Well Screen (bgs):
Logged By:	Total Depth of Boring (bgs):	Sump (bgs):

(Note: bgs = below ground surface)

Depth Range	Blow per 6 Inch	Re-covery ft/ft	PID	Lab Sample ID	USCS	Geologic Description Method:________________________________

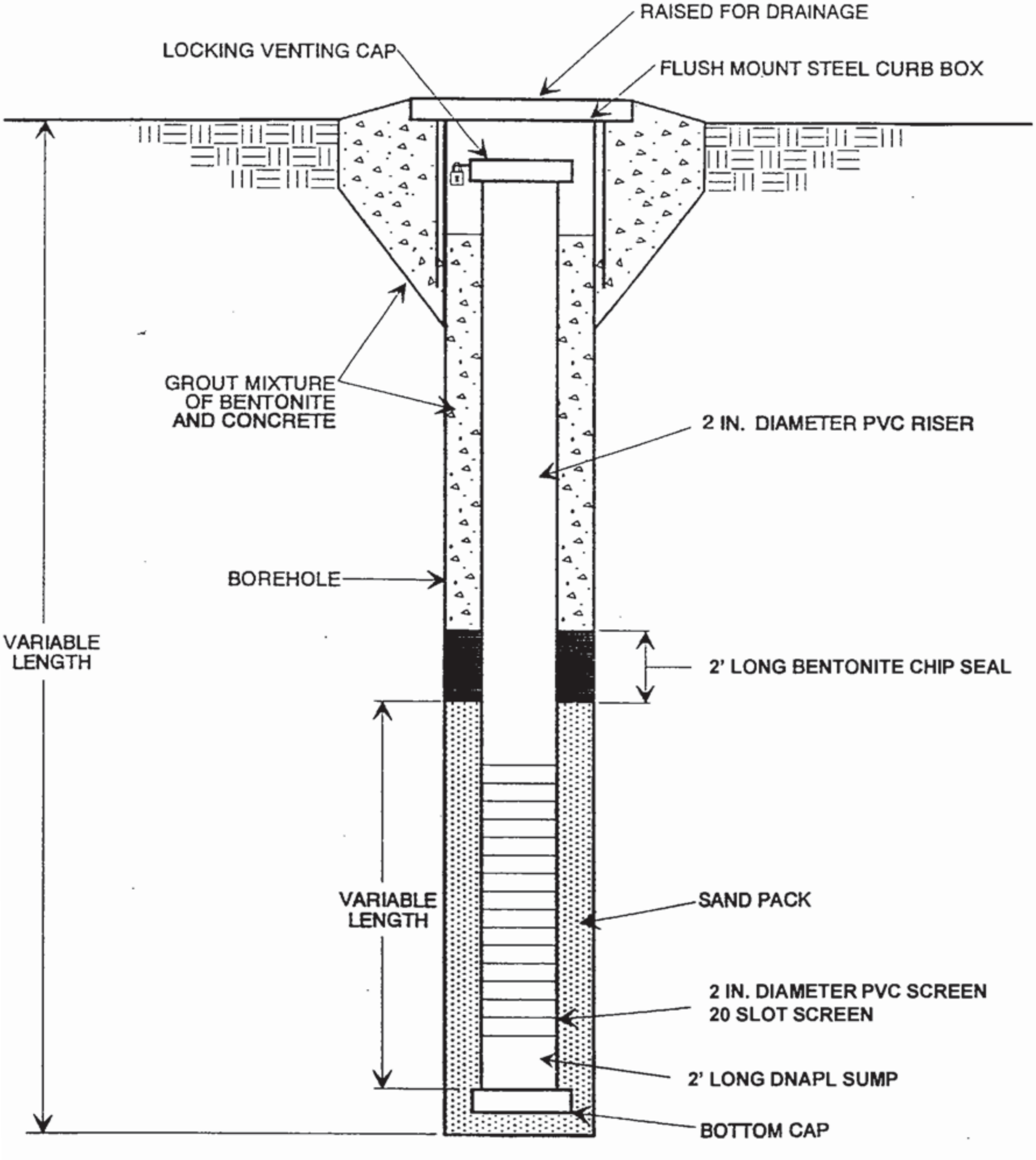
Lithology:

1.)	5.)
2.)	6.)
3.)	7.)
4.)	8.)

Comments:

Figure 4-2

TYPICAL MONITORING WELL CROSS SECTION



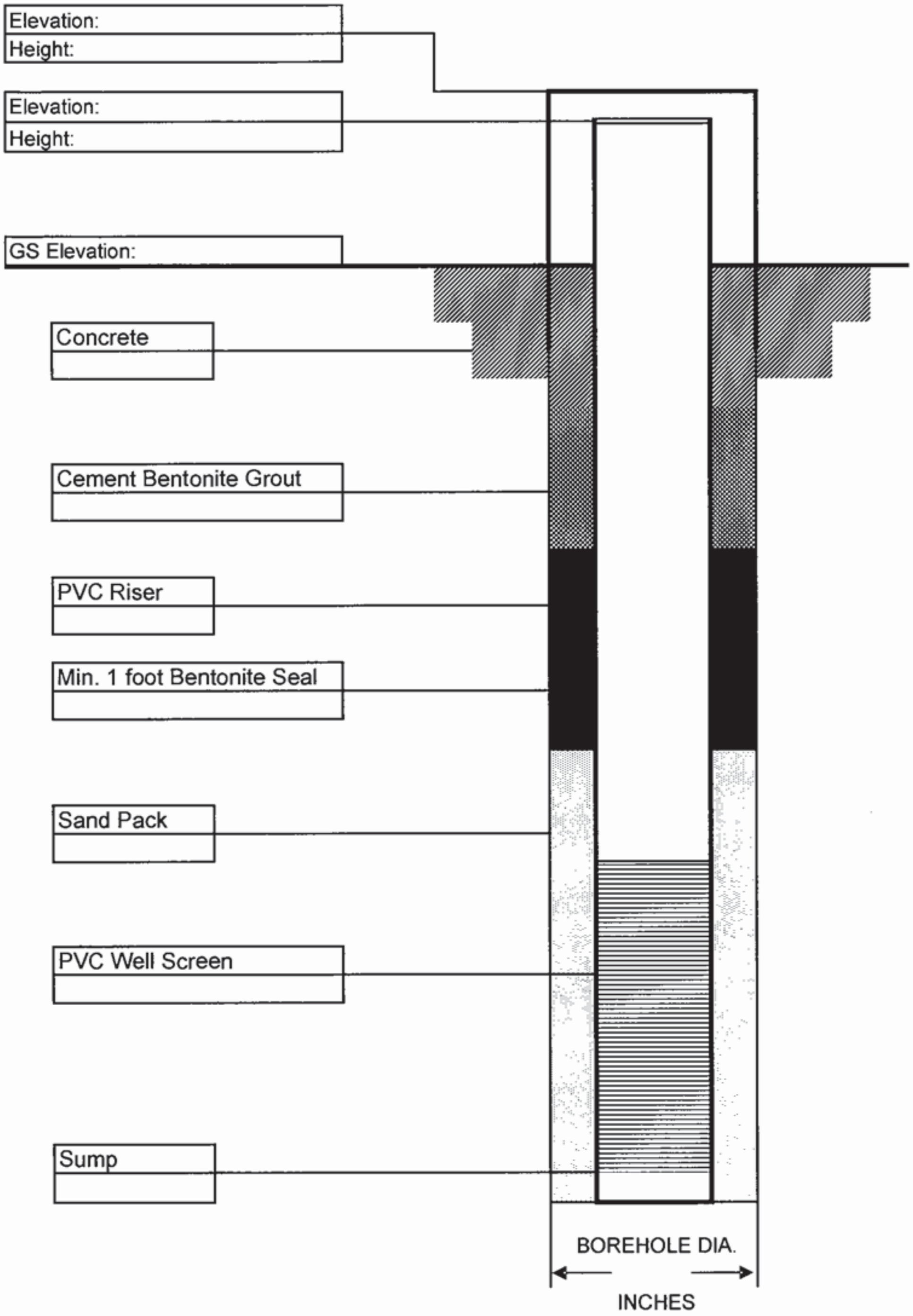
NOT TO SCALE

Figure 4-3

WELL CONSTRUCTION LOG

WELL NO.:
PROJ. NO.:
INSPECTOR:
DATE START:
LOCATION:

FACILITY/SITE NAME:
CLIENT:
DRILLING CONTACTOR:
DATE END:
DRILLING METHOD:



PROTECTIVE CASING

Material:
Diameter:
Depth BGS:
Water Tight Seal:
Flushmount:
Weep hole:

GUARD POSTS

Material:
No. & Size:

SURFACE PAD

Composition:
Size:

RISER PIPE

Material:
Schedule:
Joint Type:
O-ring:
Diameter:

GROUT

Amt cement:
Amt bentonite:
Amt water:
Tremied:
Interval:

SEAL

Material:
Type:
Amount Used:
Interval:

FILTER PACK

Material:
Brand Name:
Amount Used:
Grain Size Dist.:
Interval:
Tremied:

SCREEN

Material:
Diameter:
Slot Size & Type:
Interval BGS:

SUMP

Interval BGS:
Bottom Cap:

BACKFILL PLUG

Material:
Setup/Hydration Time:

Figure 5-1

LOW-STRESS GROUND WATER SAMPLING FORM

Project Number: ____________________
Project Name: ____________________
Date: ____________________
Weather: ____________________

Well ID: ____________________
Sample ID: ____________________
Permit Number: ____________________
Well Condition: ____________________

PRE-PURGE INFORMATION

Protective Casing Diameter (inch): ____________________
Inner Casing Diameter (inch): ____________________
Inner Casing Material: ____________________
Purge/Sample Method: ____________________
Pump Intake Setting* (feet): ____________________
PID/FID Reading of Well Headspace (ppm)
Before Cap Removal: ____________________
After Cap Removal: ____________________

Depth to Product* (feet): ____________________
Initial Depth to Water* (feet): ____________________
Product Thickness (feet): ____________________
Depth to Top of Screen* (feet): ____________________
Total Depth* (feet): ____________________
Water Column (feet): ____________________
Casing Volume (gal): ____________________
DTW After Pump Installed: ____________________

PURGING/SAMPLING INFORMATION

Time	Rate (gpm)	Gallons Purged	pH (SI Units)	Conductivity (µohms/cm)	Temp (°C)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP (mv)	Depth to Water (ft)	Comments

Start Purge Date/Time: ____________________
End Purge Date/Time: ____________________
Total Volume Purged (gal): ____________________
Depth to Water After Purge* (feet): ____________________

Pre-Sample Depth to Water* (feet): ____________________
Start Sample Date/Time: ____________________
End Sample Date/Time: ____________________
Sampler Names: ____________________
____

Observations During Sampling (e.g. slow recharge, turbidity, odor, sheen, PID/FID readings):

____
____
____

AECOM

Figure 5-1

LOW-STRESS GROUND WATER SAMPLING FORM

Sampling Sequence:

Analysis	Method	Container	Number of Bottles	Preservative	Comments
Volatile Organics					
Base/neutrals					
TPH					
Total Metals					
Dissolved Metals					
Cyanide					
Sulfate and Chloride					
Nitrate and Ammonia					
Preserved Inorganics					
Non-Preserved Inorg					
Bacteria					

Complete those analyses that apply.

Stabilization Ranges
Dissolved Oxygen: +/- 10%
Turbidity: +/- 10%
Specific Conductance: +/- 3%
Temperature: +/-3 %
pH: +/- 0.1 unit
Redox Potential: +/- 10mv

* = Measured from top of inner casing
DTW - Depth to Water
Thermo Environmental Instruments Model 580s OVM w/ 10.2 ev bulb
Water Levels Measured with an Electronic Water Level Meter
Field parameter meter calibration results are recorded in the field book.

AECOM

Figure 5-2

Well ID:

HYDRAULIC CONDUCTIVITY TEST LOG

Client:
Date:
Time: Start am/pm
Finish am/pm
Project No:
Site Location:
Weather Conds:
Tester (s):

1. WELL INFORMATION

a. Ref. Point Elev.
b. Static Depth to GW
c. Time of GW reading
d. Static GW Elev.(Ho) (a-b)
e. Total Well Depth
f. Gravel Pack Diameter
g. Water Column Height (e-b)
h. Casing Diameter
i. Screen Length
j. Geology of Screened Interval

2. SLUG INFORMATION (see back for volume calculation)

a. Slug Length
b. Slug Diameter

3. DATA COLLECTION

a. Method of Data Collection: Manual (see back) Electronic

b.Transducer Information
- Make
- Model
- Serial Number
- Offset
- Linearity
- Scale
- Coefficient
- Diameter/Length

c. Data Logging Information
- Make
- Model
- Serial Number
- Mode (linear or logarithmic)
- Ref. Point (designation) (TOC, Ground Surface, actual el
- Ref. Point value (if elev.)
- Positive numbers indicate increase or decrease in water level (circle one)

4. HYDRAULIC TEST INFORMATION

Start Time	Test Type (rising, falling)	Electronic File Name	Comments	End Time

5. MANUAL WATER LEVEL READINGS (as needed for control)

Time	Location	Depth to Water	Time	Location	Depth to Water

Signature
Date

Q:\mw97\sops\7720\hydraulicconductivitytestlog.xls, page 1

Figure 5-2

6. EXPECTED WATER LEVEL DISPLACEMENT CALCULATION (optional)

a. Diameter of Slug (in) __________

b. Length of Slug (ft) __________

c. Volume/Linear ft of Slug (gal/ft from chart) __________

d. Volume of Slug (gal) __________ (b*c)

e. Diameter of Well (in) __________

f. Volume/Linear ft of Well (gal/ft from chart) __________

g. Expected Change in Water Level __________ (d/f)

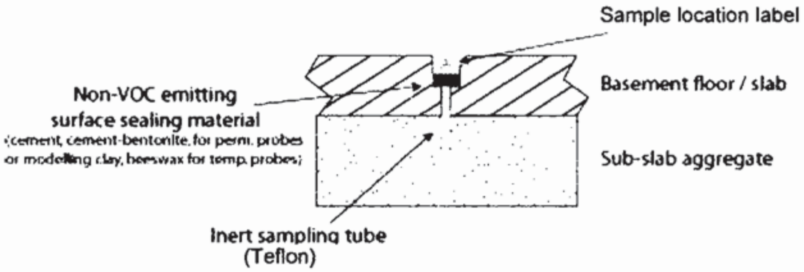
Volume / Linear Ft. of Pipe		
Diam. (in)	Gallon	Liter
0.25	0.0025	0.0097
0.375	0.0057	0.0217
0.5	0.0102	0.0386
0.75	0.0229	0.0869
1	0.0408	0.1544
1.25	0.0637	0.2413
1.5	0.0918	0.3475
2	0.1632	0.6178

Note: Water column height (1-g from front page) should be greater than transducer length plus length of slug, unless well geometry prohibits.

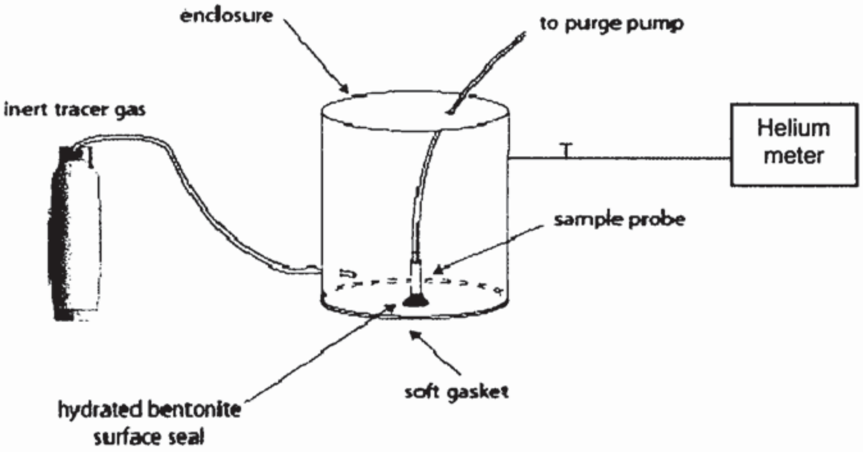
7. MANUAL WATER LEVEL MEASUREMENTS

Time (HH:MM)	Elapsed Time (min)	Depth to Water from TOC (ft)	Head, h (TOC - water depth)	h/Ho	Comments
	0			1	

q:\mw97\sops\7720\hydraulicconductivitytestlog.xls, page 2



TYPICAL SUB-SLAB SAMPLING PROBE SET UP



TYPICAL HELIUM TRACER TEST SET UP

AECOM

DATE. 9/5/06 | DRWN. MLR

TYPICAL HELIUM TRACER AND SUB-SLAB

FIGURE 6-1

FIGURE 6-2

Soil Gas Sampling Log Sheet

Sample ID_______________

Client:____________________
Project Name:____________
Project Number:___________
Date:______________
Sampler:___________________

Location:____
Canister Number:________________
Core Diameter:_______________ Core Material:__________________
Core Length:_________________
Magnehelic Measurement: (Positive number indicates higher pressure in Core)________
Depth of Hand Auguring:______________
Soil Type:____
Method of Probe Advancement:______________________________
Depth of Probe Advancement:________ Length Probe is Retracted:__________

Time of Purging	PID Reading	Time of Purging	PID Reading

Starting Time:_______________ Starting Pressure:__________
Finish Time:_________________ Final Pressure:____________

Room Dimensions: Length:______ Width:_____ Height:_____

Comments:

Indoor Air/Ambient Air Sample

Sample ID____________________

Location:____
Sample ID:__________________
Canister Number:____________
Starting Time:_______________ Starting Pressure:__________
Finish Time:_________________ Final Pressure:____________

Comments:

General Weather Conditions:____
Chemical Inventory:

FIGURE 6-3

FIELD SAMPLING DATA SHEET

(One Sample Per Data Sheet)

GENERAL:

PROJECT: ____________________ DATE(S) SAMPLED: ____________________

SITE: ____________________

LOCATION: ____________________ OPERATOR: ____________________

PID INSTRUMENT MODEL NO.: ____________________ CALIBRATED BY: ____________________
CGI INSTRUMENT MODEL NO.: ____________________ CALIBRATED BY: ____________________

TIME	**CGI READING (%)**	**PID READING (ppm)**	**DRAGER TUBE (ppm)**	**LOCATION**
1)				
2)				
3)				
4)				
5)				
6)				
7)				
8)				
9)				
10)				

CANISTER #	**LOCATION**	**TIME**

DATE/TIME	AMBIENT TEMPERATURE°	BAROMETRIC PRESSURE mm Hg	RELATIVE HUMIDITY %	COMMENTS

Data from meteorological station*

Figure 6-4

OSR-3

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH ASSESSMENT
BUREAU OF TOXIC SUBSTANCE ASSESSMENT

INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY

This form must be completed for each residence involved in indoor air testing.

Preparer's Name ______________________ Date Prepared __________

Preparer's Affiliation ______________________ Phone No. __________

1. **OCCUPANT**

Name: ______________________

Address: ______________________

County: ______________________

Home Phone No. __________ Office Phone No __________

2. **OWNER OR LANDLORD:**
(If different than occupant)

Name: ______________________

Address: ______________________

____

Phone No. ______________________

A. Building Construction Characteristics

Type (circle appropriate responses): Single Family Multiple Dwelling Commercial Public School

Ranch
Raised Ranch
Split Level
Colonial
Mobile Home

2-Family
Duplex
Apartment House __________ Units
Number of floors __________
Other specify ______________

Residence Age __________ General Description of Building Construction Materials ______________

Is the building insulated? Yes / No How air tight is the building? ______________

____

____

Figure 6-4

OSR-3 (continued)

B. <u>Basement construction characteristics (circle all that apply):</u>

1. Full basement, crawlspace, slab on grade, other ___________
2. Basement floor: concrete, dirt, other ________
3. Concrete floor: unsealed, painted, covered, with _________
4. Foundation walls: poured concrete, block, laid up stone, other ___________
5. The basement is: wet, damp, dry___ Sump present? y / n ______ Water in sump? y / n______
6. The basement is: finished, unfinished ______________
7. Identify potential soil vapor entry points (e.g., cracks, utility ports, etc.) ____
8. Describe how air tight the basement is ____
____

C. <u>HVAC (circle all that apply):</u>

1. The type of heating system(s) used in this residence is/are:

Hot Air Circulation	Heat Pump
Hot Water Radiation	Unvented Kerosene Heater
Steam Radiation	Wood stove
Electric Baseboard	Other (specify)_________________________________

2. The type(s) of fuel(s) used is/are: Natural Gas, Fuel Oil, Electric, Wood, Coal Solar

   Other (specify)________________________________
3. Is the heating system's power plant located in the basement or another area? _________________
4. Is there air-conditioning? Yes / No Central Air or Window Units?

   Specify the location ______________________________
5. Are there air distribution ducts present? Yes / No
6. Describe the supply and cold air return duct work in the basement including whether there is a cold air return, the tightness of duct joints

____

____

Figure 6-4

OSR-3 (continued)

D. Potential Indoor Sources of Pollution

1. Has the house ever had a fire? Yes / No
2. Is there an attached garage? Yes / No
3. Is a vehicle normally parked in the garage? Yes / No
4. Is there a kerosene heater present? Yes / No
5. Is there a workshop, hobby or craft area in the residence? Yes / No
6. An inventory of all products used or stored in the home should be performed. Any products that contain volatile organic compounds or chemicals similar to the target compounds should be listed. The attached product inventory form should be used for this purpose.
7. Is there a kitchen exhaust fan? Yes / No Where is it vented? ____________________
8. Has the house ever been fumigated? If yes describe date, type and location of treatment.

____

E. Water and Sewage (Circle the appropriate response)

Source of Water

Public Water Drilled Well Driven Well Dug Well Other (Specify)______________

Water Well Specifications:

Well Diameter ______________________

Well Depth ________________________

Depth to Bedrock ___________________

Feet of Casing ______________________

Grouted or Ungrouted _________________

Type of Storage Tank _________________

Size of Storage Tank __________________

Describe type(s) of Treatment ___________

____

Water Quality:

Taste and/or odor problems? y / n If so, describe ____

How long has the taste and/or odor been present? ____

Sewage Disposal: Public Sewer Septic Tank Leach Field Other (Specify) ______________________

Distance from well to septic system___________Type of septic tank additive ____________________

Figure 6-4

OSR-3 (continued)

F. Plan View

Draw a plan view sketch for each floor of the residence and if applicable, indicate air sampling locations, possible indoor air pollution sources and PID meter readings.

Figure 6-4

OSR-3 (continued)

G. Potential Outdoor Sources of Pollution

Draw a sketch of the area surrounding the residence being sampled. If applicable, provide information on the spill location (if known), potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system if applicable, and a qualifying statement to help locate the site on a topographical map.

Figure 6-4

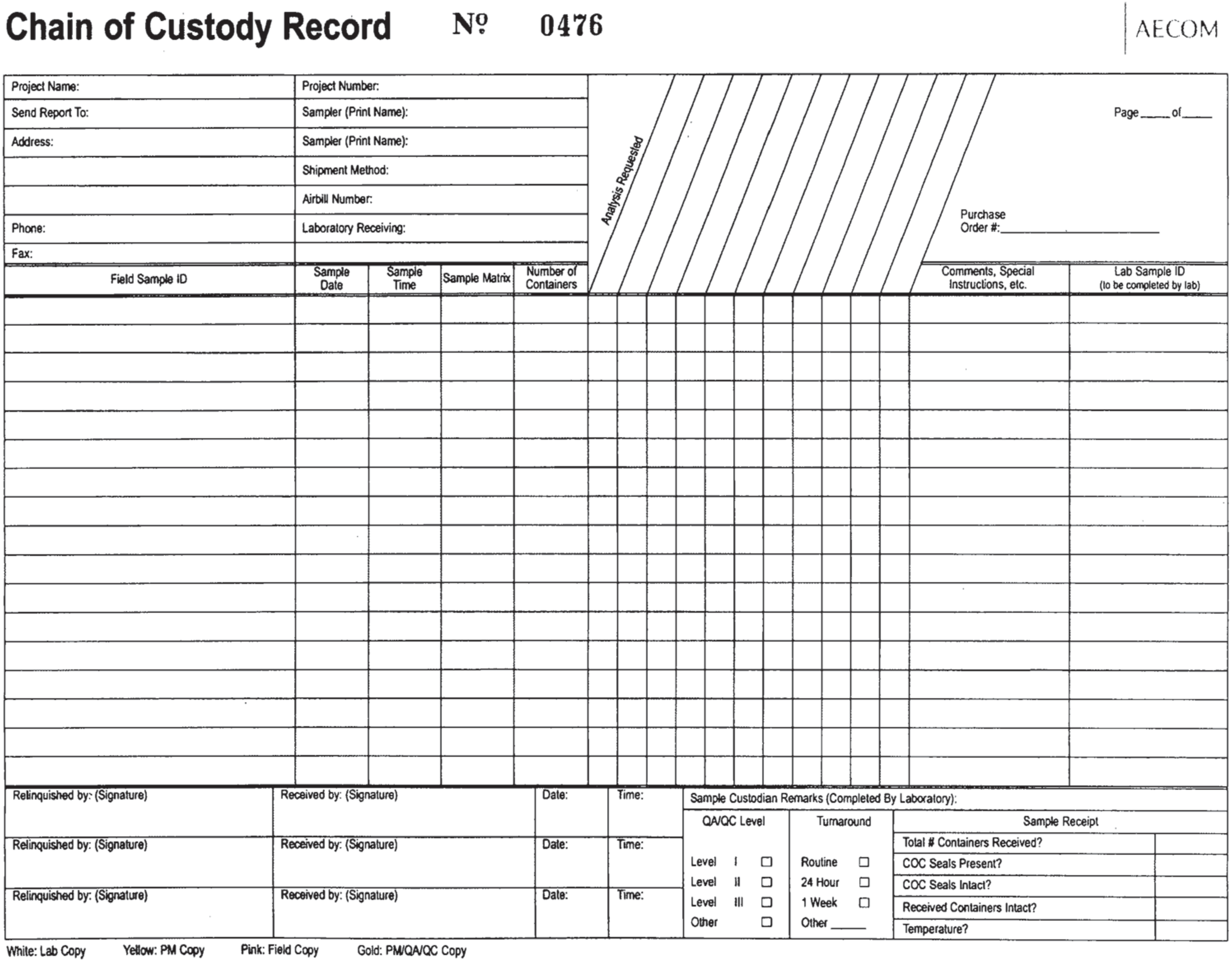
Household Products Inventory

Occupant / residence ____

Investigator: ______________________________ Date: ____________________

Product description (dispenser, size, manufacturer …)	**VOC Ingredients**

FIGURE 9-1



Chain of Custody Record

№ 0476

AECOM

Project Name:

Send Report To:

Address:

Phone:

Fax:

Project Number:

Sampler (Print Name):

Sampler (Print Name):

Shipment Method:

Airbill Number:

Laboratory Receiving:

Analysis Requested

Page _____ of _____

Purchase Order #: ____________

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers												Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround	Sample Receipt	
Level I ☐	Routine ☐	Total # Containers Received?	
Level II ☐	24 Hour ☐	COC Seals Present?	
Level III ☐	1 Week ☐	COC Seals Intact?	
Other ☐	Other _____	Received Containers Intact?	
		Temperature?	

White: Lab Copy Yellow: PM Copy Pink: Field Copy Gold: PM/QA/QC Copy

Appendix I

Quality Assurance Project Plan

Prepared for:
National Grid
Brooklyn, New York

Quality Assurance Project Plan (Appendix I of the Site Management Plan)

Flatbush Station A&B Former Gas Holder Site
Brooklyn, New York
NYSDEC Site No.: 224061
Order on Consent Index #: A2-0552-0606

AECOM
January 2012
Document No.: 60318917

Contents

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List of Acronyms

%R	Percent recovery
ASP	Analytical services program
ASTM	American Society for Testing Materials
CAMP	Community Air Monitoring Plan
CAR	Corrective Action Request
CLP	Contract laboratory program
COC	Chain of custody
CRDLs	Contract Required Detection Limits
CRQLs	Contract Required Quantitation Limits
DQOs	Data quality objectives
DUSR	Data Usability Summary Report
EDD	Electronic data deliverable
ELAP	Environmental Laboratory Accreditation Program
GC/MS	Gas Chromatography/Mass Spectroscopy
HASP	Health and safety plan
LIMS	Laboratory information management system
MDLs	Method detection limits
MGP	Manufactured gas plant
MS	Matrix spike
MSD	Matrix spike duplicate
NIST	National Institute of Standards and Technology
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PA	Preliminary assessment
PID	Photoionization detector
PQL	Practical quantitation limit
QA	Quality assurance
QAO	Quality assurance officer
QAPP	Quality Assurance Project Plan
QC	Quality control
RPD	Relative percent difference
SOPs	Standard operating procedures

SVOA	Semivolatile organic analysis
SVOCs	Semivolatile organic compounds
TCLP	Toxicity characteristics leaching procedure
USEPA	United States Environmental Protection Agency
VOA	Volatile organic analysis
VOCs	Volatile organic compounds

1.0 **Introduction**

This Quality Assurance Project Plan (QAPP) details the protocols and procedures that will be followed during any ground intrusive and monitoring activities covered under the Site Management Plan [(SMP); AECOM, December 2011] for the Flatbush Station A&B Former Gas Holder Site (Site)located in Brooklyn, New York. The purpose of these protocols and procedures is to ensure that all project activities will be performed in a manner consistent with the data quality objectives (DQOs) established for the project and all data collected are precise, accurate, representative, comparable, and complete.

1.1 Project Description

This document is required as an element of the remedial program at the Site under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by the New York State Department of Environmental Conservation (NYSDEC). The Site was investigated in accordance with Order on Consent Index A2-0552-0606, Site Number 224061 [NYSDEC, 2007], which was executed on October 5, 2005. The Site location and layout is shown on Figures 1-1 and 1-2 of the SMP.

1.1.1 General

The Order on Consent required National Grid, to investigate contaminated media at the Site. For purposes of further discussion in this document, the term “Site” will comprise of portions of three parcels including Block 4827 Lots 24 and 30 (324 Winthrop Street), portion of Block 4828 Lot 21 (329 Clarkson Avenue), and Block 4828 Lot 22 (760 Parkside Avenue), a portion of Parkside Avenue, and a portion of Clarkson Avenue.

After completion of the investigation work described in the Site Characterization Work Plan [AECOM, 2011], some impacts were identified in the subsurface of the Site. This FSAP was developed as an appendix (Appendix H) to the SMP which was prepared to manage remaining contamination at the Site in perpetuity or until extinguishment of the Environmental Easement in accord with NYS Environmental Conservation Law (ECL) Article 71, Title 36.

This document was prepared by AECOM, on behalf of National Grid, in accord with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation [(DER-10); DEC, 2010] and the guidelines provided by NYSDEC.

1.2 Scope of Work

The scope of work covered under this QAPP includes but is not limited to:

- Underground utility work
- Surface/shallow subsurface soil sampling and analysis
- Soil boring advancement, subsurface soil sampling and analysis
- Excavation of test pits, soil sampling and analysis

- Monitoring well installation and development
- Groundwater sampling and analysis
- Indoor air and ambient air sampling and analysis
- Investigation-derived waste management
- Community air monitoring
- Site survey
- Data validation evaluation, and reporting

1.3 Data Quality Objectives

DQOs are qualitative and quantitative statements to ensure that data of known and appropriate quality are obtained during any activities. Data will be used to achieve the overall objectives of the project. These objectives are to:

- Identify potential residual Manufactured Gas Plant (MGP) contamination during any subsurface activity.
  - Data will identify MGP-related constituents in soil and groundwater.
  - Data will be collected using a systematic method to delineate the perimeter of MGP-related impacts.
  - Analytical methods will be of sufficient sensitivity that method detection limits (MDLs) and practical quantitation limits (PQLs) measure constituent concentrations at or below constituent NYSDEC guidance values.
- Perform, if necessary, an indoor air survey in accordance with NYS Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York. The DQOs for vapor intrusion data include the following items.
  - Data will identify MGP-related constituents in indoor air (if present).
  - Data will be collected using a systematic method to determine whether vapor intrusion of MGP-related impacts is occurring.
  - Analytical methods will be of sufficient sensitivity to meet a minimum PQL of at most one part per billion.

1.3.1 Data Quality Levels

There are five analytical levels of data quality which may be used to accomplish these objectives. They are typically designated as follows:

- Level I – Field screening or analysis using portable instruments, calibrated to non-compound specific standards
- Level II – Field analysis using portable instruments, calibrated to specific compounds
- Level III – Non-Contract Laboratory Program (CLP/ASP) laboratory methods
- Level IV – ASP-CLP Routine Analytical Services methods
- Level V – Non-standard analytical methods.

To meet the specific objectives of this project, Levels I and III data quality levels will be utilized.

1.3.1.1 Level I – Field Screening Methods

These tests, which are quantitative and/or semi-quantitative, are classified as field screening evaluations, even though they typically are not used for characterization purposes.

Soil and soil headspace screening will be conducted using a photoionization detector (PID) to determine the soil boring interval(s) that will be submitted for analytical laboratory analysis.

In addition, as part of the Health and Safety Plan (HASP) and the Community Air Monitoring Plan (CAMP), worker safety and ambient air quality may be monitored using one or more of a variety of field screening tests. Applicable equipment may include but not be limited to: a PID, Draeger tubes, and personal monitors to test for volatile organic vapors, or a combustible gas indicator to test for explosive potential. Worker health and safety requirements are specified in the HASP.

1.3.1.2 Level III – Non-Contract Laboratory Program (CLP/ASP) Laboratory Methods

Samples will be analyzed according to the required United States Environmental Protection Agency (USEPA) SW-846, ASTM, and USEPA Compendium air methods described in the most recent editions of the USEPA reference methods (see section 7.0). Data will be analyzed using Level III Non-Contract Laboratory Program (CLP/ASP) laboratory methods; however, the laboratory will provide Level IV data packages for all data including hazardous waste classification data. Laboratory data will be reported in the New York State Analytical Services Program (ASP) Category B deliverables format. This level of data quality will ensure the generation of legally and technically defensible data for project use. The laboratory performing the analysis of samples will be certified for the specific parameters pursuant to NYSDOH ELAP Certification program.

2.0 Project Organization

Any field activity will be completed for National Grid by an environmental contractor (the Contractor), who will arrange for analytical services and provide an onsite field representative to perform the oversight, soil logging, soil sampling, surveying, and groundwater sampling. The Contractor will also perform the data interpretation and reporting tasks.

Any field activity to be completed on behalf of the respective Property owner must require at least 15 day notification to National Grid and DEC.

Key contacts for this project are as follows:

National Grid Project Manager:

Name: Andrew Prophete
Address: 287 Maspeth Avenue, Brooklyn, NY
Telephone: (718) 963-5412
Fax: (718) 963-5611
Email: andrew.prophete@us.ngrid.com

NYSDEC Project Manager:

Name: Section Chief
Address: New York State Department of Environmental Conservation
Site Control Section, Bureau of Technical Support
625 Broadway Albany, New York 12233-7014
Telephone: (518) 402-9662
Fax: (518) 402-9679

3.0 Quality Assurance/Quality Control Objectives for Measurement of Data

3.1 Introduction

The quality assurance and quality control (QA/QC) objectives for all measurement data include precision, accuracy, representativeness, completeness, and comparability. These objectives are defined in following subsections. They are formulated to meet the requirements of the USEPA SW-846. The analytical methods and their Contract Required Quantitation Limits (CRQLs) and Contract Required Detection Limits (CRDLs) are provided in Section 7.

3.2 Precision

Precision is an expression of the reproducibility of measurements of the same parameter under a given set of conditions. Specifically, it is a quantitative measurement of the variability of a group of measurements compared to their average value (USEPA, 1987). Precision is usually stated in terms of standard deviation, but other estimates such as the coefficient of variation (relative standard deviation), range (maximum value minus minimum value), relative range, and relative percent difference (RPD) are common.

For this Site, field sampling precision will be determined by analyzing coded duplicate samples (labeled so that the laboratory does not recognize them as duplicates) for the same parameters, and then, during data validation (Section 8), calculating the RPD for field duplicate sample results.

Analytical precision will be determined by the laboratory by calculating the RPD for the results of the analysis of internal QC duplicates and matrix spike duplicates. The formula for calculating RPD is as follows:

$$RPD = \frac{|V1 - V2|}{(V1 + V2)/2} \times 100$$

where:

RPD= Relative Percent Difference

V1, V2 = The two values to be compared

|V1 - V2| = The absolute value of the difference between the two values

(V1 + V2)/2 = The average of the two values

For soil samples, the data quality objectives for analytical precision, calculated as the RPD between duplicate analyses, is presented in Table 3-1.

The same is presented for groundwater in Table 3-2 and air samples in Table 3-3.

Table 3-1 Quality Control Limits For Soil Samples

Analytical	Analytical Method [(a)]	Matrix Spike (MS) Compounds	Laboratory Accuracy and Precision			Surrogate Compounds	Surrogate Recovery (%)
			MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	LCS [(d)] Recovery (%)		
VOCs [(e)]	8260B	1,1-Dichloroethane	77-139	20	50-150	Toluene-d8	63-124
		Trichloroethene	81-129	20	82-113	Bromofluorobenzene	50-133
		Benzene	83-135	20	81-118	1,2-Dichloroethane-d4	54-142
		Toluene	79-140	20	81-115		
		Chlorobenzene	80-141	20	83-114		
SVOCs [(f)]	8270C	Phenol	42-105	20	48-96	Nitrobenzene-d5	28-110
		2-Chlorophenol	52-107	20	54-92	2-Fluorobiphenyl	32-109
		1,4-Dichlorobenzene	40-101	20	57-86	Terphenyl-d14	30-150
		N-Nitroso-di-n-propylamine	63-97	20	49-99	Phenol-d5	29-104
		1,2,4-Trichlorobenzene	42-98	20	57-93	2-Fluorophenol	23-104
		4-Chloro-3-methylphenol	60-100	20	57-92	2,4,6-Tribromophenol	24-112
		Acenaphthene	65-100	20	52-97		
		4-Nitrophenol	45-95	20	24-120		
		2,4-Dinitrotoluene	56-104	20	61-101		
		Pentachlorophenol	33-111	20	32-102		
		Pyrene	49-120	20	53-103		
PCBs (as Aroclors)	8082	Aroclor-1016	55-128	20	67-121	TCMX	44-141
		Aroclor-1260	58-140	20	78-128	DCB	34-145

Analytical	Analytical Method [(a)]	Matrix Spike (MS) Compounds	Laboratory Accuracy and Precision			Surrogate Compounds	Surrogate Recovery (%)
			MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	LCS [(d)] Recovery (%)		
Pesticides	8081A	4,4'-DDD	35-165	20	86-133	TCMX	30-158
		4,4'-DDE	50-144	20	80-130	DCB	30-161
		4,4'-DDT	23-170	20	72-141		
		Aldrin	57-145	20	84-133		
		alpha-BHC	37-154	20	81-136		
		beta-BHC	51-161	20	83-132		
		delta-BHC	43-159	20	77-131		
		gamma-BHC (Lindane)	48-159	20	83-135		
		alpha-Chlordane	44-156	20	88-132		
		gamma-Chlordane	61-147	20	87-135		
Pesticides (cont.)	8081A	Dieldrin	41-154	20	81-129		
		Endosulfan II	52-151	20	85-132		
		Endosulfan sulfate	32-162	20	76-135		
		Endrin	31-165	20	82-134		
		Endrin aldehyde	48-152	20	85-134		
		Endrin ketone	70-141	20	87-132		
		Heptachlor	41-155	20	85-132		
		Heptachlor epoxide	44-160	20	86-132		
		Methoxychlor	44-163	20	82-137		
		Toxaphene	50-150	20	50-150		

Analytical	Analytical Method [a]	Matrix Spike (MS) Compounds	Laboratory Accuracy and Precision			Surrogate Compounds	Surrogate Recovery (%)
			MS/MSD [b] Recovery (%)	MS/MSD RPD [c] (%)	LCS [d] Recovery (%)		
Herbicides	8151A	2,4,5-TP (Silvex)	47-128	20	47-128	2,4-DCAA	50-130
		2,4,5-T	72-130	20	72-130		
		2,4-D	55-122	20	55-122		
		2,4-DB	75-125	20	75-125		
Inorganics [h]	6010B	Inorganic Analyte	75-125 [i]	20 [j]	80-120	NA	NA
	6020		75-125 [i]	20 [j]	80-120	NA	NA
	7471A		75-125 [i]	20 [j]	80-120	NA	NA
	ASTM D4282-02 (free cyanide)		75-125 [i]	20 [j]	90-110	NA	NA

Notes

(a) Analytical Methods: USEPA SW-846, 3rd edition, Revision 1, November 1990, any subsequent revisions shall supersede this information
(b) Matrix Spike/Matrix Spike Duplicate
(c) Relative Percent Difference
(d) Laboratory Control Sample
(e) Target Compound List Volatile Organic Compounds
(f) Target Compound List Semivolatile Organic Compounds
(g) Limits are advisory only
(h) Target Analyte List Inorganics (metals and cyanide)
(i) Matrix spike only
(j) Laboratory duplicate RPD
NA - Not Applicable

Table 3-2 Quality Control Limits for Water Samples

Analytical	Analytical Method [(a)]	Matrix Spike Compounds	Laboratory Accuracy and Precision			Surrogate Compounds	Surrogate Recovery (%)
			MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	LCS [(d)] Recovery (%)		
VOCs [(e)]	8260B	1,1-Dichloroethane	55-139	20	55-139	Toluene-d8	83-117
		Trichloroethene	55-138	20	61-138	Bromofluorobenzene	74-123
		Benzene	85-121	20	66-125	1,2-Dichloroethane-d4	75-124
		Toluene	83-123	20	68-121		
		Chlorobenzene	85-119	20	70-122		
SVOCs [(f)]	8270C	Phenol	11-48	20	10-100	Nitrobenzene-d5	30-120
		2-Chlorophenol	35-99	20	41-91	2-Fluorobiphenyl	35-111
		1,4-Dichlorobenzene	49-88	20	53-91	Terphenyl-d14	26-135
		N-Nitroso-di-n-propylamine	55-127	20	54-116	Phenol-d5	30-77
		1,2,4-Trichlorobenzene	62-105	20	59-104	2-Fluorophenol	30-78
		4-Chloro-3-methylphenol	12-125	20	46-97	2,4,6-Tribromophenol	27-118
		Acenaphthene	68-99	20	63-101		
		4-Nitrophenol	10-89	20	10-78		
		2,4-Dinitrotoluene	61-99	20	67-106		
		Pentachlorophenol	39-107	20	33-100		
		Pyrene	72-112	20	64-108		
PCBs (as Aroclors)	8082	Aroclor-1016	30-150	20	65-126	TCMX	42-133
		Aroclor-1260	36-147	20	76-131	DCB	30-141
Pesticides	8081A	4,4'-DDD	55-177	20	86-134	TCMX	30-150
		4,4'-DDE	54-126	20	89-126	DCB	45-131

Analytical	Analytical Method [(a)]	Matrix Spike Compounds	Laboratory Accuracy and Precision			Surrogate Compounds	Surrogate Recovery (%)
			MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	LCS [(d)] Recovery (%)		
Pesticides (continued)	8081A	4,4'-DDT	55-160	20	74-138		
		Aldrin	57-167	20	83-131		
		alpha-BHC	63-178	20	87-136		
		beta-BHC	50-150	20	88-131		
		delta-BHC	98-131	20	78-128		
		gamma-BHC (Lindane)	89-138	20	86-133		
		alpha-Chlordane	69-144	20	88-131		
		gamma-Chlordane	76-126	20	92-133		
Pesticides (cont.)	8081A	Dieldrin	72-136	20	81-132		
		Endosulfan I	84-127	20	91-132		
		Endosulfan II	79-138	20	90-129		
		Endosulfan sulfate	84-134	20	99-130		
		Endrin	75-143	20	87-130		
		Endrin aldehyde	62-160	20	95-133		
		Endrin ketone	87-135	20	90-130		
		Heptachlor	63-131	20	85-131		
		Heptachlor epoxide	82-125	20	89-132		
		Methoxychlor	76-161	20	88-139		
		Toxaphene	50-150	20	50-150		
Herbicides	8151A	2,4,5-TP (Silvex)	48-140	20	48-140	2,4-DCAA	45-140
		2,4,5-T	60-145	20	60-145		

Analytical	Analytical Method [(a)]	Matrix Spike Compounds	Laboratory Accuracy and Precision			Surrogate Compounds	Surrogate Recovery (%)
			MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	LCS [(d)] Recovery (%)		
Herbicides (continued)	8151A	2,4-D 2,4-DB	60-138 75-125	20 20	60-138 75-125		
Inorganics [(h)]	6010B 6020 7470A 9012 (cyanide)	Inorganic Analyte	75-125 [(i)] 75-125 [(i)] 75-125 [(i)] 75-125 [(i)]	20 [(j)] 20 [(j)] 20 [(j)] 20 [(j)]	80-120 80-120 80-120 80-120	NA NA NA NA	NA NA NA NA

Notes

(a) Analytical Methods: USEPA SW-846, 3rd edition, Revision 1, November 1990, any subsequent revisions shall supersede this information
(b) MS/MSD = Matrix Spike/Matrix Spike Duplicate
(c) RPD = Relative Percent Difference
(d) LCS = Laboratory Control Sample
(e) Target Compound List Volatile Organic Compounds
(f) Target Compound List Semivolatile Organic Compounds
(g) Limits are advisory only
(h) Target Analyte List Inorganics (metals and cyanide)
(i) Matrix spike only
(j) Laboratory duplicate RPD
NA - Not Applicable

Table 3-3 Quality Control Limits for Air Samples

Analytical Parameter	Analytical Method [(a)]	Analyte Compounds	LCS [(d)] Recovery (%)	Duplicate RPD [(c), (e)] (%)	Laboratory Accuracy and Precision			
					MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	Surrogate Compounds	Surrogate Recovery (%)
VOCs	TO-15 Mod.	Acetone	60-140	25	NA	NA	Toluene-d8 Bromofluorobenzene 1,2-Dichloroethane-d4	70-130 70-130 70-130
		Bromodichloromethane	60-140	25				
		Butadiene, 1,3-	60-140	25				
		Carbon Disulfide	60-140	25				
		Chloro-1-Propene, -3 (Allyl Chloride)	60-140	25				
		Chlorodibromomethane	60-140	25				
		Cumene	60-140	25				
		Dichloroethylene, Trans-1,2-	60-140	25				
		Dioxane, 1,4-	60-140	25				
		Hexane	60-140	25				
		Methyl Ethyl Ketone	60-140	25				
		Methyl Isobutyl Ketone	60-140	25				
		Methyl Tert-Butyl Ether (MTBE)	60-140	25				
		Naphthalene	60-140	25				
		Propylbenzene, N-	60-140	25				
		Tribromomethane (Bromoform)	60-140	25				
		Cyclohexane	60-140	25				
		2-Hexanone	60-140	25				
		4-Ethyltoluene	60-140	25				

Analytical Parameter	Analytical Method [(a)]	Analyte Compounds	LCS [(d)] Recovery (%)	Duplicate RPD [(c), (e)] (%)	Laboratory Accuracy and Precision			
					MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	Surrogate Compounds	Surrogate Recovery (%)
		Ethanol	60-140	25				
		Heptane	60-140	25				
		2-Methylpentane	60-140	25				
		Isopentane	60-140	25				
		2,3-Dimethylpentane	60-140	25				
		2,2,4-Trimethylpentane	60-140	25				
		Indene	60-140	25				
		Indan	60-140	25				
		Thiopene	60-140	25				
		2-Propanol	60-140	25				
		Tetrahydrofuran	60-140	25				
VOCs	TO-15 Mod.	Benzene	70-130	25	NA	NA	Toluene-d8 Bromofluorobenzene 1,2-Dichloroethane-d4	70-130 70-130 70-130
		Bromomethane	70-130	25				
		Carbon Tetrachloride	70-130	25				
		Chlorobenzene	70-130	25				
		Chloroethane	70-130	25				
		Chloroform	70-130	25				
		Dibromoethane, 1,2- (Ethylene Dibromide)	70-130	25				
		Dichlorobenzene, 1,2-	70-130	25				

Analytical Parameter	Analytical Method [(a)]	Analyte Compounds	LCS [(d)] Recovery (%)	Duplicate RPD [(c), (e)] (%)	Laboratory Accuracy and Precision			
					MS/MSD [(b)] Recovery (%)	MS/MSD RPD [(c)] (%)	Surrogate Compounds	Surrogate Recovery (%)
		Dichlorobenzene, 1,3-	70-130	25				
		Dichlorobenzene, 1,4-	70-130	25				
		Dichlorodifluoromethane (Freon 12)	70-130	25				
		Dichloroethane, 1,1-	70-130	25				
		Dichloroethane, 1,2-	70-130	25				
		Dichloroethylene, 1,1-	70-130	25				
		Dichloroethylene, Cis-1,2-	70-130	25				
		Dichloromethane (Methylene Chloride)	70-130	25				
		Dichloropropane, 1,2-	70-130	25				
		Dichloropropene, Cis-1,3-	70-130	25				
		Dichloropropene, Trans-1,3-	70-130	25				
		1,2-Dichloro-1,1,2,2,-tetrafluoroethane	70-130	25				
		Ethyl Benzene	70-130	25				
		Fluorotrichloromethane (Freon 11)	70-130	25				
		Methyl Chloride	70-130	25				
		Styrene	70-130	25				
		Tetrachloroethane, 1,1,2,2-	70-130	25				
		Tetrachloroethylene (PCE)	70-130	25				
		Toluene	70-130	25				

Analytical Parameter	Analytical Method (a)	Analyte Compounds	LCS (d) Recovery (%)	Duplicate RPD (c), (e) (%)	Laboratory Accuracy and Precision			
					MS/MSD (b) Recovery (%)	MS/MSD RPD (c) (%)	Surrogate Compounds	Surrogate Recovery (%)
		Trichloro-1,2,2-Trifluoroethane, 1,1,2-	70-130	25				
		Trichlorobenzene, 1,2,4-	70-130	25				
VOCs	TO-15 Mod.	Trichloroethane, 1,1,1-	70-130	25	NA	NA	Toluene-d8 Bromofluorobenzene 1,2-Dichloroethane-d4	70-130 70-130 70-130
		Trichloroethane, 1,1,2-	70-130	25				
		Trimethylbenzene, 1,3,5-	70-130	25				
		Vinyl Chloride	70-130	25				
		m,p-xylene	70-130	25				
		o-xylene	70-130	25				
		Hexachlorobutadiene	70-130	25				
		alpha-chlorotoluene	70-130	25				
Fixed Gas	ASTM D1945 Mod.	Helium	75-125	30	NA	NA	NA	NA

Notes

(a) USEPA, 1999. Compendium Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared-Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS). January 1999.

American Society of Testing Materials, 2003. D1945-03. Standard Test Method for Analysis of Natural Gas by Gas Chromatograph, 2003.

(b) Matrix Spike/Matrix Spike Duplicate

(c) Relative Percent Difference

(d) Laboratory Control Sample

(e) Laboratory duplicate RPD

NA - Not Applicable

3.3 Accuracy

Accuracy is a measure of the degree of agreement of a measured value with the true or expected value of the quantity of concern (Taylor, 1987), or the difference between a measured value and the true or accepted reference value. The accuracy of an analytical procedure is best determined by the analysis of a sample containing a known quantity of material, and is expressed as the percent of the known quantity which is recovered or measured. The recovery of a given analyte is dependent upon the sample matrix, method of analysis, and the specific compound or element being determined. The concentration of the analyte relative to the detection limit of the analytical method is also a major factor in determining the accuracy of the measurement. Concentrations of analytes which are close to the detection limits are less accurate because they are more affected by such factors as instrument "noise". Higher concentrations will not be as affected by instrument noise or other variables and thus will be more accurate.

Sampling accuracy may be determined through the assessment of the analytical results of field blanks and trip blanks for each sample set. Analytical accuracy is typically assessed by examining the percent recoveries of surrogate compounds that are added to each sample (organic analyses only), and the percent recoveries of matrix spike compounds added to selected samples and laboratory blanks. Additionally, initial and continuing calibrations must be established and be within method control limits. Instrument and method analytical accuracy can then be determined for any sample set.

Accuracy is normally measured as the percent recovery (%R) of a known amount of analyte, called a spike, added to a sample (matrix spike) or to a blank (blank spike). The %R is calculated as follows:

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where:

%R = Percent recovery
SSR = Spike sample result: concentration of analyte obtained by analyzing the sample with the spike added
SR = Sample result: the background value, i.e., the concentration of the analyte obtained by analyzing the sample
SA = Spiked analyte: concentration of the analyte spike added to the sample

The acceptance limits for accuracy for each parameter are presented in Tables 3-1, 3-2, and 3-3.

3.4 Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness is a qualitative parameter which is most concerned with the proper design of the sampling program (USEPA, 1987). Samples must be representative of the environmental media being sampled. Selection of sample locations and sampling procedures will incorporate consideration of obtaining the most representative sample possible.

Field and laboratory procedures will be performed in such a manner as to ensure, to the degree that is technically possible, that the data derived represents the in-place quality of the material sampled.

Every effort will be made to ensure that chemical compounds will not be introduced into the sample via sample containers, handling, and analysis. Decontamination of sampling devices and digging equipment will be performed between samples. Analysis of field blanks, trip blanks, and method blanks will also be performed to monitor for potential sample contamination from field and laboratory procedures.

The assessment of representativeness also must consider the degree of heterogeneity in the material from which the samples are collected. Sampling heterogeneity will be evaluated during data validation through the analysis of coded field duplicate samples. The analytical laboratory will also follow acceptable procedures to assure the samples are adequately homogenized prior to taking aliquots for analysis, so the reported results are representative of the sample received.

Chain-of-custody procedures will be followed to document that contamination of samples has not occurred during container preparation, shipment, and sampling. Details of blank, duplicate and chain-of-custody procedures are presented in Sections 4 and 5.

3.5 Completeness

Completeness is defined as the percentage of measurements made which are judged to be valid (USEPA, 1987). The QC objective for completeness is generation of valid data for at least 90 percent of the analyses requested. Completeness is defined as follows for all sample measurements:

$$\%C = \frac{V}{T} \times 100$$

where:

%C = Percent completeness
V = Number of measurements judged valid
T = Total number of measurements

3.6 Comparability

Comparability expresses the degree of confidence with which one data set can be compared to another (USEPA, 1987). The comparability of all data collected for this project will be ensured by:

- Using identified standard methods for both sampling and analysis phases of this project,
- Requiring traceability of all analytical standards and/or source materials to the USEPA or National Institute of Standards and Technology (NIST),
- Requiring that all calibrations be verified with an independently traceable standard from a source other than that used for calibration (if applicable),
- Using standard reporting units and reporting formats including the reporting of QC data,
- Performing a complete data validation on all of the analytical results, including the use of data qualifiers in all cases where appropriate,
- Requiring that all validation qualifiers be considered any time an analytical result is used for any purpose.

These steps will ensure all future users of either the data or the conclusions drawn from them will be able to judge the comparability of these data and conclusions.

4.0 **Sampling Program**

4.1 Introduction

The sampling program, if necessary, will provide data concerning the presence and the nature and extent of contamination of groundwater, soil, and air. This section presents sample collection procedures, sample container preparation procedures, sample preservation procedures, sample holding times, and field QC sample requirements.

4.2 Sample Collection

Soil, groundwater, and air samples may be collected at the Site. The location and frequency of sampling and the methods selected for field procedures and laboratory analysis are described in detail in the SMP.

4.3 Sample Container Preparation and Sample Preservation

All sample containers will be new and will meet the specifications required by the USEPA. Copies of the sample container QC analyses will be provided by the laboratory for each container lot used for sample collection. The containers will be labeled and the appropriate preservatives will be added. The container requirements are shown in Tables 4-1, 4-2, and 4-3.

Samples shall be preserved according to the preservation techniques given in Tables 4-1 through 4-3. Preservatives will be added to the sample bottles by the laboratory prior to their shipment in sufficient quantities to ensure that proper sample pH is met. Following sample collection, the sample bottles should be placed on ice in the shipping cooler, cooled to 4 ± 2 ºC with ice, and delivered to the laboratory within 48 hours of collection. Chain-of-custody (COC) procedures are described in Section 5.

4.4 Sample Holding Times

The sample holding times for organic and inorganic parameters are given in Tables 4-1 through 4-3 and must be in accordance with the NYSDEC ASP requirements. Holding times for Toxicity Characteristic Leaching Procedure (TCLP) samples are given in Table 4-4. The NYSDEC ASP holding times must be strictly adhered to by the laboratory. Any holding time exceedances must be reported to National Grid.

4.5 Field Quality Control Samples

To assess field sampling and decontamination performance, two types of "blanks" will be collected and submitted to the laboratory for analyses. In addition, the precision of field sampling procedures will be assessed by collecting coded field duplicates and matrix spike/matrix spike duplicates (MS/MSD). The blanks will include the following.

- Trip Blanks – A trip blank will be prepared before the sample containers are sent by the laboratory. The trip blank will consist of a 40-ml VOA vial containing distilled, deionized water, which accompanies the water sample bottles into the field and back to the laboratory. A trip blank will be included with each shipment of water samples for volatiles analysis. The trip blank will be analyzed for volatile organic compounds to assess any contamination from sampling, transport, storage, and internal laboratory procedures.

- Rinseate Blanks – Rinseate blanks will be taken at a minimum frequency of one per 20 field samples per sample matrix. Rinseate blanks are used to determine the effectiveness of the decontamination procedures for sampling equipment. It is a sample of reagent water provided by the laboratory that has passed through a decontaminated bailer or other sampling apparatus. It is usually collected as a last step in the decontamination procedure, prior to taking an environmental sample. The rinseate blank may be analyzed for all or some of the parameters of interest.

The duplicates collected to assess field sampling/laboratory precision and sample homogeneity will consist of the following.

- Coded Field Duplicate – To determine the representativeness of the sampling methods, coded field duplicates will be collected. The samples are termed "coded" because they will be labeled in such a manner that the laboratory will not be able to determine that they are field duplicate samples. This will eliminate any possible bias that could arise. Field duplicates will be taken at a minimum frequency of one per 20 field samples per sample matrix.

- Matrix Spike/Matrix Spike Duplicate (MS/MSD) – MS/MSD samples (MS/MSD for organics; MS and laboratory duplicate for inorganics) will be collected at a frequency of one pair per 20 field samples. MS/MSD samples are used to assess the effect of the sample matrix on the recovery of target compounds or target analytes. The advisory acceptance limits for MS/MSD %R and RPDs are given in Tables 3-1 and 3-2.

Table 4-1 Soil and Waste Sample Containerization and Holding Times

Analysis	Bottle Type	Preservation (a)	Holding Time (b)
Volatile Organic Compounds (VOCs)	Wide-mouth glass w/ Teflon lined cap	Cool to 4ºC	10 days
Extractable Organic Compounds (c)	Wide-mouth glass w/ Teflon lined cap	Cool to 4ºC	10 days*
Metals	Wide-mouth plastic or glass	Cool to 4ºC	6 months, except mercury (26 days)
Cyanide	Wide-mouth plastic	Cool to 4ºC	10 days
TCLP Organic Compounds	Wide-mouth glass w/ Teflon lined cap	Cool to 4ºC	See Table 4-5
TCLP Metals	Wide-mouth plastic or glass	Cool to 4ºC	See Table 4-5
Total Petroleum Hydrocarbons (TPH)	DRO: Clear glass GRO: Clear glass	DRO: Cool to 4ºC GRO: Cool to 4ºC	DRO: 7 days to extraction/40 days to analysis GRO: 14 days
Corrosivity	Clear glass	None	Analyze ASAP
Ignitability	Clear glass	None	Analyze ASAP
Reactive Cyanide and Sulfide	Clear glass	None	Analyze ASAP
Total Organic Halogens	Amber glass	pH < 2 with H_2SO_4, Cool to 4ºC, Dark	28 days

Notes
(a) All samples to be preserved with ice during collection and transport
(b) Days from verified time of sample receipt (VTSR).
(c) Semivolatile organic compounds, PCBs, pesticides, herbicides.

* Sohxlet or sonication procedures for extraction and concentration of soil/waste samples for SVOCs must be completed within 5 days of VTSR. Sohxlet or sonication procedures for extraction and concentration of soil/sediment/waste samples for PCBs must be completed within 5 days of VTSR. Extracts of soil samples must be analyzed within 40 days of extraction.

Table 4-2 Water Sample Containerization and Holding Times

Analysis	Bottle Type	Preservation [(a)]	Holding Time [(b)]
Volatile Organic Compounds (VOCs)	(2) 40 mL glass vial with Teflon septum	Cool to 4ºC	10 days
Extractable Organic Compounds [(c)]	1000 mL glass w/ Teflon-lined cap	Cool to 4ºC	5 days*
Metals	1000 mL plastic bottle	Nitric Acid to pH < 2 Cool to 4ºC	6 months, except mercury (26 days)
Cyanide	500 mL plastic bottle	NaOH to pH > 12 Cool to 4ºC	10 days

Notes

(a) All samples to be preserved in ice during collection and transport.
(b) Days from validated time of sample receipt (VTSR)
(c) Semivolatile organic compounds, PCBs, pesticides, herbicides

* Continuous liquid-liquid extraction is the required extraction for water samples for SVOCs. Continuous liquid-liquid extraction and concentration of water samples for SVOC analysis must begin within 5 days and be completed within 7 days of VTSR. Extracts of water samples must be analyzed within 40 days of extraction.

Table 4-3 Soil Gas Sample Containerization and Holding Times

Analysis	Bottle Type	Preservation	Holding Time (b)
Volatile Organic Compounds (VOCs)	6 L Summa® canister (a)	NA	30 days
Fixed Gases (Helium)	6 L Summa® canister (a)	NA	30 days

Notes

(a) Stainless steel SUMMA® canisters must be certified clean by the laboratory using TO-15 § 8.4.1. The canisters will be delivered to the field with a pressure of 28-30” Hg. Canisters received with a vacuum pressure less than 25” Hg will not be used.

(b) Days from date of sample collection. The holding time for the TO-15 analysis is 30 days. The holding time for an evacuated canister is 30 days. After 30 days, unused canisters must be exchanged for recently cleaned canisters.

Table 4-4 TCLP [(a)] Sample Holding Times

Analytical Parameter	From: Sample Collection To: TCLP Extraction*	From: TCLP Extraction To: Preparative Extraction	From: Preparative Extraction To: Determinative Analysis
Volatiles	7 days	NA	7 days
Semivolatiles	5 days	7 days	40 days
PCBs (as Aroclors)	5 days	7 days	40 days
Mercury	5 days	NA	28 days
Metals (except Mercury)	180 days	NA	180 days

Notes:
NA - Not Applicable.
(a) Toxicity Characteristic Leaching Procedure.

*Times shown are from verified time of sample receipt (VSTR).

5.0 **Sample Tracking and Custody**

5.1 Introduction

This section presents sample custody procedures for both the field and laboratory. Implementation of proper custody procedures for samples collected in the field is the responsibility of field personnel. Both laboratory and field personnel involved in collection and transfer of samples will be trained as to the purpose and procedures for sample custody prior to implementation.

Evidence of sample traceability and integrity is provided by COC procedures. These procedures document the sample traceability from the selection and preparation of the sample containers by the laboratory, to sample collection, to sample shipment, to laboratory receipt and analysis. The sample custody flowchart is shown in Figure 5-1. A sample is considered to be in a person's custody if the sample is:

- In a person's possession,
- Maintained in view after possession is accepted and documented,
- Locked and tagged with Custody Seals so that no one can tamper with it after having been in physical custody,
- In a secured area which is restricted to authorized personnel.

5.2 Field Sample Custody

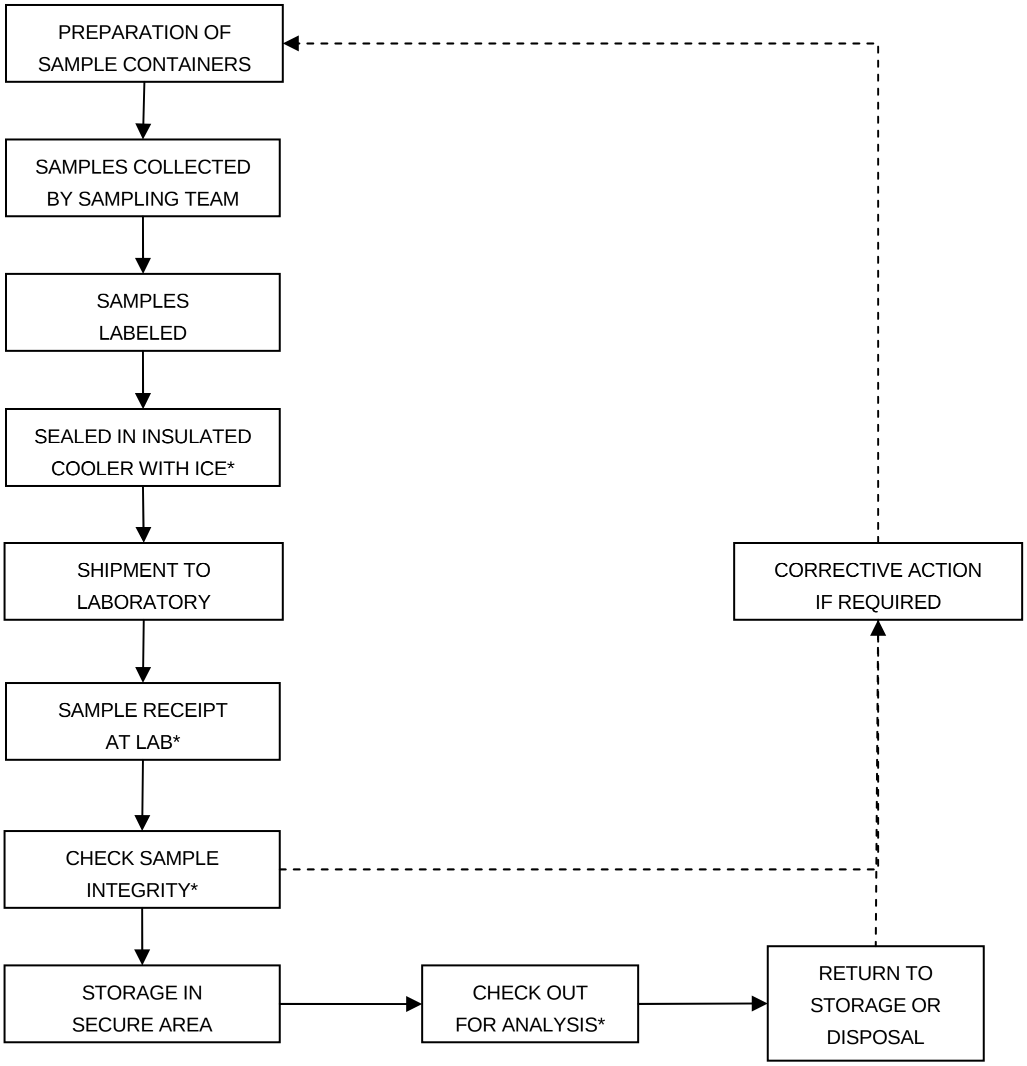
A COC record (Figure 5-2 or similar) accompanies the sample containers from selection and preparation at the laboratory, during shipment to the field for sample collection and preservation, and during the return to the laboratory. Triplicate copies of the COC must be completed for each sample set collected.

The COC lists the field personnel responsible for taking samples, the project name and number, the name of the analytical laboratory to which the samples are sent, and the method of sample shipment. The COC also lists a unique description of every sample bottle in the set. If samples are split and sent to different laboratories, a copy of the COC record will be sent with each sample.

The **REMARKS** space on the COC is used to indicate if the sample is a matrix spike, matrix spike duplicate, or any other sample information for the laboratory. Since they are not specific to any one sample point, trip and field blanks are indicated on separate rows. Once all bottles are properly accounted for on the form, a sampler will write his or her signature and the date and time on the first **RELINQUISHED BY** space. The sampler will also write the method of shipment, the shipping cooler identification number, and the shipper airbill number on the top of the COC. Errors in field records will be crossed out with a single line in ink and initialed by the author.

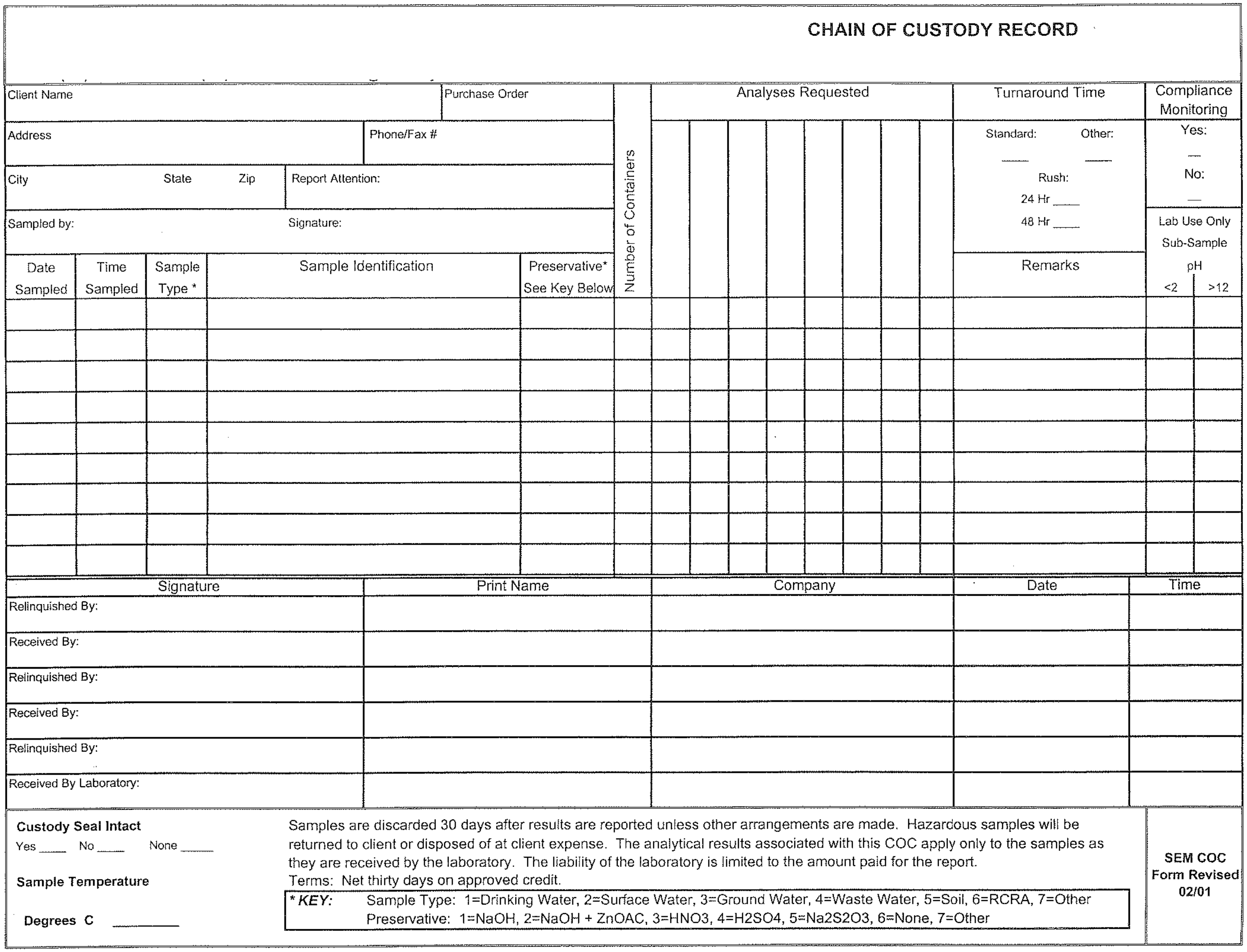
One copy of the COC is retained by sampling personnel and the other two copies are put into a sealable plastic bag and taped inside the lid of the shipping cooler. The cooler lid is closed, custody seals provided by the laboratory are affixed to the latch and across the back and front of the cooler lid, and the person relinquishing the samples signs their name across the seal. The seal is taped, and the cooler is wrapped tightly with clear packing tape. It is then relinquished by field personnel to personnel responsible for shipment, typically an overnight carrier. The COC seal must be broken to open the container. Breakage of the seals before receipt at the laboratory may indicate tampering. If tampering is apparent, the laboratory will contact the Project Manager, and the sample(s) will not be analyzed.

Figure 5-1 Sample Custody Flowdown



*Requires Sign-Off On Chain-Of-Custody.

Figure 5-2 Chain-Of-Custody Record



CHAIN OF CUSTODY RECORD

Client Name
Purchase Order
Address
Phone/Fax #
City State Zip
Report Attention:
Sampled by:
Signature:

Analyses Requested

Turnaround Time
Standard: ____ Other: ____
Rush:
24 Hr ____
48 Hr ____

Compliance Monitoring
Yes: —
No: —

Lab Use Only
Sub-Sample

Date Sampled	Time Sampled	Sample Type *	Sample Identification	Preservative* See Key Below	Number of Containers									Remarks	pH <2	>12

Signature	Print Name	Company	Date	Time
Relinquished By:				
Received By:				
Relinquished By:				
Received By:				
Relinquished By:				
Received By Laboratory:				

Custody Seal Intact
Yes ____ No ____ None _____

Sample Temperature

Degrees C _________

Samples are discarded 30 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense. The analytical results associated with this COC apply only to the samples as they are received by the laboratory. The liability of the laboratory is limited to the amount paid for the report.
Terms: Net thirty days on approved credit.

* *KEY:* Sample Type: 1=Drinking Water, 2=Surface Water, 3=Ground Water, 4=Waste Water, 5=Soil, 6=RCRA, 7=Other
Preservative: 1=NaOH, 2=NaOH + ZnOAC, 3=HNO3, 4=H2SO4, 5=Na2S2O3, 6=None, 7=Other

SEM COC
Form Revised
02/01

5.3 Laboratory Sample Custody

The Project Manager or Field Team Leader will notify the laboratory of upcoming field sampling activities and the subsequent shipment of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

The following laboratory sample custody procedures will be used:

- The laboratory will designate a sample custodian who will be responsible for maintaining custody of the samples and for maintaining all associated records documenting that custody.
- Upon receipt of the samples, the custodian will check cooler temperature, and check the original COC documents and compare them with the labeled contents of each sample container for correctness and traceability. The sample custodian will sign the COC record and record the date and time received.
- Care will be exercised to annotate any labeling or descriptive errors. In the event of documentation or sample integrity issues, the laboratory will immediately contact the Project Manager or Field Team Leader as part of the corrective action process. A qualitative assessment of each sample container will be performed to note any anomalies, such as broken or leaking bottles. This assessment will be recorded as part of the incoming COC procedure.
- The soil, water, and air samples will be stored in a secured area until analyses commence, at a temperature of approximately 4 ± 2 ˚C if required.
- A laboratory tracking record will accompany the sample or sample fraction through final analysis for control.

A copy of the tracking record will accompany the laboratory report and will become a permanent part of the project records.

6.0 Calibration Procedures

6.1 Field Instruments

All field analytical equipment will be calibrated immediately prior to each day's use. The calibration procedures will conform to manufacturer's standard instructions. This calibration will ensure that the equipment is functioning within the allowable tolerances established by the manufacturer and required by the project. Records of all instrument calibration will be maintained by the Field Team Leader. Copies of all the instrument manuals will be maintained onsite by the Field Team Leader.

Calibration procedures for instruments used for monitoring health and safety hazards (e.g., photoionization detector [PID] and explosimeter) are provided in the HASP. More frequent calibration may be needed depending on conditions encountered in the field.

6.2 Laboratory Instruments

The laboratory will follow all calibration procedures and schedules as specified in the sections of the USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods given in Section 7.

7.0 **Analytical Procedures**

7.1 Introduction

Soil, water, and waste samples will be analyzed according to the USEPA SW-846 "*Test Methods for Evaluating Solid Waste*," November 1986, 3rd edition and subsequent updates. Air and soil gas samples will be analyzed according to the USEPA Compendium Method TO-15, *Determination of VOCs in Air Collected in Specially Prepared-Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS)*, January 1999 and helium (fixed gas) analyses will be performed using American Society for Testing Materials (ASTM), Method 1945 modified. The methods to be used for the laboratory analysis of water and soil samples are presented in Tables 7-1 and 7-2. The soil gas and ambient air samples will be analyzed by USEPA Method TO-15 as presented in Table 7-3. These methods were selected because they attain the quantitation limits and DQOs required by the project, which are compiled on Tables 7-1 through 7-3. All analytical analysis will be conducted at an ELAP certified laboratory as per Section 1.3.1.2.

Table 7-1 Project Quantitation Limits for Soil and Water

CAS No.	Analysis/Compound	Method	Quantitation Limits		State of New York Standards	
			Water (µg/L)	Soil (µg/kg)	Water [(a)] (µg/L)	Soil [(b)] (µg/kg)
Volatile Organics						
71-55-6	1,1,1-Trichloroethane	SW8260B	5	5	5	800
79-34-5	1,1,2,2-Tetrachloroethane	SW8260B	5	5	5	600
79-00-5	1,1,2-Trichloroethane	SW8260B	5	5	1	
76-13-1	1,1,2-Trichlorotrifluoroethane	SW8260B	5	5	5	
75-34-3	1,1-Dichloroethane	SW8260B	5	5	5	200
75-35-4	1,1-Dichloroethene	SW8260B	5	5	5	400
120-82-1	1,2,4-Trichlorobenzene	SW8260B	5	5	5	3400
96-12-8	1,2-Dibromo-3-Chloropropane	SW8260B	5	5	0.04	
106-93-4	1,2-Dibromoethane	SW8260B	5	5	0.0006	
95-50-1	1,2-Dichlorobenzene	SW8260B	5	5	3	7900
107-06-2	1,2-Dichloroethane	SW8260B	5	5	0.6	100
78-87-5	1,2-Dichloropropane	SW8260B	5	5	1	
541-73-1	1,3-Dichlorobenzene	SW8260B	5	5	3	1600
106-46-7	1,4-Dichlorobenzene	SW8260B	5	5	3	8500
78-93-3	2-Butanone	SW8260B	25	25	50	300
591-78-6	2-Hexanone	SW8260B	25	25	50	
108-10-1	4-Methyl-2-Pentanone	SW8260B	25	25		1000
67-64-1	Acetone	SW8260B	25	25	50	200
71-43-2	Benzene	SW8260B	5	5	1	60
75-27-4	Bromodichloromethane	SW8260B	5	5	50	
75-25-2	Bromoform	SW8260B	5	5	50	
74-83-9	Bromomethane	SW8260B	5	5	5	
75-15-0	Carbon Disulfide	SW8260B	5	5		2700
56-23-5	Carbon Tetrachloride	SW8260B	5	5	5	600
108-90-7	Chlorobenzene	SW8260B	5	5	5	1700
75-00-3	Chloroethane	SW8260B	5	5	5	1900
67-66-3	Chloroform	SW8260B	5	5	7	300
74-87-3	Chloromethane	SW8260B	5	5	5	
156-59-2	cis-1,2-Dichloroethene	SW8260B	5	5	5	
10061-01-5	cis-1,3-Dichloropropene	SW8260B	5	5	0.4	
110-82-7	Cyclohexane	SW8260B	5	5		
124-48-1	Dibromochloromethane	SW8260B	5	5	50	
75-71-8	Dichlorodifluoromethane	SW8260B	5	5	5	
100-41-4	Ethyl Benzene	SW8260B	5	5	5	5500
98-82-8	Isopropylbenzene	SW8260B	5	5	5	
79-20-9	Methyl Acetate	SW8260B	5	5		
1634-04-4	Methyl tert-butyl Ether	SW8260B	5	5		
108-87-2	Methylcyclohexane	SW8260B	5	5		
75-09-2	Methylene Chloride	SW8260B	5	5	5	100
100-42-5	Styrene	SW8260B	5	5	930	
10061-02-6	t-1,3-Dichloropropene	SW8260B	5	5	0.4	

CAS No.	Analysis/Compound	Method	Quantitation Limits		State of New York Standards	
			Water (µg/L)	Soil (µg/kg)	Water (a) (µg/L)	Soil (b) (µg/kg)
127-18-4	Tetrachloroethene	SW8260B	5	5	5	1400
108-88-3	Toluene	SW8260B	5	5	5	1500
156-60-5	trans-1,2-Dichloroethene	SW8260B	5	5	5	300
79-01-6	Trichloroethene	SW8260B	5	5	5	700
75-69-4	Trichlorofluoromethane	SW8260B	5	5	5	
Volatile Organics (continued)						
75-01-4	Vinyl Chloride	SW8260B	5	5	2	200
136777-61-2	m/p-Xylenes	SW8260B	10	10	5	1200
95-47-6	o-Xylene	SW8260B	5	5	5	
Semivolatile Organics						
92-52-4	1',1-Biphenyl	SW8270C	10	330	5	
108-60-1	2,2'-oxybis(1-Chloropropane)	SW8270C	10	330	5	
95-95-4	2,4,5-Trichlorophenol	SW8270C	10	330		100
88-06-2	2,4,6-Trichlorophenol	SW8270C	10	330		
120-83-2	2,4-Dichlorophenol	SW8270C	10	330		400
105-67-9	2,4-Dimethylphenol	SW8270C	10	330		
51-28-5	2,4-Dinitrophenol	SW8270C	10	330		200
121-14-2	2,4-Dinitrotoluene	SW8270C	10	330	5	
606-20-2	2,6-Dinitrotoluene	SW8270C	10	330	5	1000
91-58-7	2-Chloronaphthalene	SW8270C	10	330	10	
95-57-8	2-Chlorophenol	SW8270C	10	330		800
91-57-6	2-Methylnaphthalene	SW8270C	10	330		36400
95-48-7	2-Methylphenol	SW8270C	10	330		100
88-74-4	2-Nitroaniline	SW8270C	10	330	5	430
88-75-5	2-Nitrophenol	SW8270C	10	330		330
91-94-1	3,3'-Dichlorobenzidine	SW8270C	10	330	5	n/a
65794-96-9	3+4-Methylphenols	SW8270C	10	330		900
99-09-2	3-Nitroaniline	SW8270C	10	330	5	500
534-52-1	4,6-Dinitro-2-methylphenol	SW8270C	10	330		
101-55-3	4-Bromophenyl-phenyl ether	SW8270C	10	330		
59-50-7	4-Chloro-3-methylphenol	SW8270C	10	330		240
106-47-8	4-Chloroaniline	SW8270C	10	330	5	220
7005-72-3	4-Chlorophenyl-phenyl ether	SW8270C	10	330		
100-01-6	4-Nitroaniline	SW8270C	10	330	5	
100-02-7	4-Nitrophenol	SW8270C	10	330		100
83-32-9	Acenaphthene	SW8270C	10	330	20	50000
208-96-8	Acenaphthylene	SW8270C	10	330		41000
98-86-2	Acetophenone	SW8270C	10	330		
120-12-7	Anthracene	SW8270C	10	330	50	50000
1912-24-9	Atrazine	SW8270C	10	330	7.5	
56-55-3	Benzo(a)anthracene	SW8270C	10	330	0.002	224
50-32-8	Benzo(a)pyrene	SW8270C	10	330	ND	61
205-99-2	Benzo(b)fluoranthene	SW8270C	10	330	0.002	1100
191-24-2	Benzo(g,h,i)perylene	SW8270C	10	330		50000

CAS No.	Analysis/Compound	Method	Quantitation Limits		State of New York Standards	
			Water (µg/L)	Soil (µg/kg)	Water [(a)] (µg/L)	Soil [(b)] (µg/kg)
207-08-9	Benzo(k)fluoranthene	SW8270C	10	330	0.002	1100
100-52-7	Benzaldehyde	SW8270C	10	330		
111-91-1	bis(2-Chloroethoxy)methane	SW8270C	10	330	5	
111-44-4	bis(2-Chloroethyl)ether	SW8270C	10	330	1	
117-81-7	bis(2-Ethylhexyl)phthalate	SW8270C	10	330	5	50000
85-68-7	Butylbenzylphthalate	SW8270C	10	330	50	50000
105-60-2	Caprolactam	SW8270C	10	330		
86-74-8	Carbazole	SW8270C	10	330		
218-01-9	Chrysene	SW8270C	10	330	0.002	400
53-70-3	Dibenzo(a,h)anthracene	SW8270C	10	330		14
Semivolatile Organics (continued)						
132-64-9	Dibenzofuran	SW8270C	10	330		6200
84-66-2	Diethylphthalate	SW8270C	10	330	50	7100
131-11-3	Dimethylphthalate	SW8270C	10	330	50	2000
84-74-2	Di-n-butylphthalate	SW8270C	10	330	50	8100
117-84-0	Di-n-octyl phthalate	SW8270C	10	330	50	50000
206-44-0	Fluoranthene	SW8270C	10	330	50	50000
86-73-7	Fluorene	SW8270C	10	330	50	50000
118-74-1	Hexachlorobenzene	SW8270C	10	330	0.04	410
87-68-3	Hexachlorobutadiene	SW8270C	10	330	0.5	
77-47-4	Hexachlorocyclopentadiene	SW8270C	10	330	5	
67-72-1	Hexachloroethane	SW8270C	10	330	5	
193-39-5	Indeno(1,2,3-cd)pyrene	SW8270C	10	330	0.002	3200
78-59-1	Isophorone	SW8270C	10	330	50	4400
91-20-3	Naphthalene	SW8270C	10	330	10	13000
98-95-3	Nitrobenzene	SW8270C	10	330	0.4	200
621-64-7	N-Nitroso-di-n-propylamine	SW8270C	10	330		
86-30-6	N-Nitrosodiphenylamine	SW8270C	10	330	50	
87-86-5	Pentachlorophenol	SW8270C	10	330		1000
85-01-8	Phenanthrene	SW8270C	10	330	50	50000
108-95-2	Phenol	SW8270C	10	330		30
129-00-0	Pyrene	SW8270C	10	330	50	50000
Metals						
7429-90-5	Aluminum	6010B / 6020	50	5000	2000	SB
7440-36-0	Antimony	6010B / 6020	25	2500	6	SB
7440-38-2	Arsenic	6010B / 6020	10	1000	50	7500
7440-39-3	Barium	6010B / 6020	50	5000	2000	300000
7440-41-7	Beryllium	6010B / 6020	3	300	3	160
7440-43-9	Cadmium	6010B / 6020	3	300	5	1000
7440-70-2	Calcium	6010B / 6020	1000	100000		SB
7440-47-3	Chromium	6010B / 6020	5	500	100	10000
7440-48-4	Cobalt	6010B / 6020	15	1500	5	30000
7440-50-8	Copper	6010B / 6020	10	1000	1000	25000
7439-89-6	Iron	6010B / 6020	50	5000	600	2000000
7439-92-1	Lead	6010B / 6020	6	600	50	400 [(c)]

CAS No.	Analysis/Compound	Method	Quantitation Limits		State of New York Standards	
			Water (µg/L)	Soil (µg/kg)	Water (a) (µg/L)	Soil (b) (µg/kg)
7439-95-4	Magnesium	6010B / 6020	1000	100000	35000	SB
7439-96-5	Manganese	6010B / 6020	10	1000	600	SB
7440-02-0	Nickel	6010B / 6020	20	2000	200	13000
7440-09-7	Potassium	6010B / 6020	1000	100000		SB
7782-49-2	Selenium	6010B / 6020	10	1000	20	2000
7440-22-4	Silver	6010B / 6020	5	500	100	SB
7440-23-5	Sodium	6010B / 6020	1000	100000		SB
7440-28-0	Thallium	6010B / 6020	20	2000	0.5	SB
7440-62-2	Vanadium	6010B / 6020	20	2000		150000
7440-66-6	Zinc	6010B / 6020	20	2000	5000	20000
7439-97-6	Mercury	7471A	0.2	10	1.4	100
Inorganics						
n/a	Cyanide, Free	ASTM D4282-02 / 9013A		60		
n/a	Cyanide, Total	9012 / 9010A	10		400	
Pesticides						
72-54-8	4,4'-DDD	8081	0.05	1.7	0.3	2900
72-55-9	4,4'-DDE	8081	0.05	1.7	0.2	2100
50-29-3	4,4'-DDT	8081	0.2	1.7	0.2	2100
309-00-2	Aldrin	8081	0.05	1.7	ND	41
319-84-6	alpha-BHC	8081	0.05	1.7	0.01	110
319-85-7	beta-BHC	8081	0.2	1.7	0.04	200
319-86-8	delta-BHC	8081	0.05	1.7	0.04	300
58-89-9	gamma-BHC (Lindane)	8081	0.05	1.7	0.05	60
5103-71-9	alpha-Chlordane	8081	0.05	1.7		540
5566-34-7	gamma-Chlordane	8081	0.05	1.7		540
57-74-9	Chlordane	8081	0.5	17	0.05	540
60-57-1	Dieldrin	8081	0.05	1.7	0.004	44
959-98-8	Endosulfan I	8081	0.05	1.7		900
33213-65-9	Endosulfan II	8081	0.05	1.7		900
1031-07-8	Endosulfan sulfate	8081	0.05	1.7		1000
72-20-8	Endrin	8081	0.05	1.7	ND	100
7421-93-4	Endrin aldehyde	8081	0.05	1.7	5	
53494-70-5	Endrin ketone	8081	0.05	1.7	5	
76-44-8	Heptachlor	8081	0.05	1.7	0.04	100
1024-57-3	Heptachlor epoxide	8081	0.05	1.7	0.03	20
72-43-5	Methoxychlor	8081	0.05	1.7	35	
8001-35-2	Toxaphene	8081	0.5	17	0.06	
PCB's						
12674-11-2	Aroclor-1016	8082	0.5	17	0.09* Applies to the sum of the PCBs	1000 (total surface soil) 10000 (total subsurface
11104-28-2	Aroclor-1221	8082	0.5	17		
11141-16-5	Aroclor-1232	8082	0.5	17		
53469-21-9	Aroclor-1242	8082	0.5	17		
12672-29-6	Aroclor-1248	8082	0.5	17		

CAS No.	Analysis/Compound	Method	Quantitation Limits		State of New York Standards	
			Water (µg/L)	Soil (µg/kg)	Water [(a)] (µg/L)	Soil [(b)] (µg/kg)
11097-69-1	Aroclor-1254	8082	0.5	17		soil)
11096-82-5	Aroclor-1260	8082	0.5	17		
37324-23-5	Aroclor-1262	8082	0.5	17		
11100-14-4	Aroclor-1268	8082	0.5	17		
Herbicides						
93-72-1	2,4,5-TP (Silvex)	8151	2	67	0.26	700
93-76-5	2,4,5-T	8151	2	67		1900
94-75-7	2,4-D	8151	2	67		500
94-82-6	2,4-DB	8151	2	67		

Notes:

N/A - Not Applicable

SB - soil background

ND - not detected

(a) - Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, NYSDEC, October 1993, reissued June 1998

(b) - Determination of Soil Cleanup Objectives and Cleanup Levels, NYSDEC, January 24, 1994

(c) - EPA Guidance on Residential Lead-Based Paint, Lead Contaminated Dust, and Lead Contaminated Soil, July 14, 1994

Table 7-2 Practical Quantitation Limits (PQLs) for TCLP

Compound	SW-846 Analysis	Water (µg/L)
TCLP Volatile Organic Compounds		
Benzene	1311 / 8260B	25
Carbon Tetrachloride	1311 / 8260B	25
Chloroform	1311 / 8260B	25
1,2-Dichloroethane	1311 / 8260B	25
1,1-Dichloroethene	1311 / 8260B	25
2-Butanone	1311 / 8260B	125
Tetrachloroethene	1311 / 8260B	25
Trichloroethene	1311 / 8260B	25
Vinyl Chloride	1311 / 8260B	25
TCLP Semivolatile Organic Compounds		
2-Methylphenol	1311 / 3510 / 8270B	10
3 & 4-Methylphenol	1311 / 3510 / 8270B	10
1,4-Dichlorobenzene	1311 / 3510 / 8270B	10
2,4-Dinitrotoluene	1311 / 3510 / 8270B	10
Hexachlorobutadiene	1311 / 3510 / 8270B	10
Hexachloroethane	1311 / 3510 / 8270B	10
Hexachlorobenzene	1311 / 3510 / 8270B	10
Nitrobenzene	1311 / 3510 / 8270B	10
Pentachlorophenol	1311 / 3510 / 8270B	10
Pyridine	1311 / 3510 / 8270B	10
2,4,5-Trichlorophenol	1311 / 3510 / 8270B	10
2,4,6-Trichlorophenol	1311 / 3510 / 8270B	10
TCLP Metals		
Arsenic	1311 / 3010 / 6010B	10
Barium	1311 / 3010 / 6010B	50
Cadmium	1311 / 3010 / 6010B	3
Chromium	1311 / 3010 / 6010B	5
Lead	1311 / 3010 / 6010B	6
Selenium	1311 / 3010 / 6010B	10

Silver	1311 / 3010 / 6010B	5
Mercury	7470A	0.2
TCLP Pesticides		
Chlordane	1311 / 8081A	0.5
Endrin	1311 / 8081A	0.05
Heptachlor (and its hydroxide)	1311 / 8081A	0.05
Lindane	1311 / 8081A	0.05
Methoxychlor	1311 / 8081A	0.05
Toxaphene	1311 / 8081A	0.5
TCLP Pesticides		
2,4-D	1311 / 8151A	2
2,4,5-TP Silvex	1311 / 8151A	2

Notes:

ND - Not Determined

Table 7-3 Project Quantitation Limits for Air

Analysis / Compound	Method	Quantitation Limits Soil Gas/Air (µg/M^3)
Fixed Gases		
Helium	ASTM D1945 mod.	16360 (0.01%)
Volatile Organics [1]		
Freon 12	TO-15 Mod.	0.81
Freon 114	TO-15 Mod.	1.14
Chloromethane	TO-15 Mod.	0.34
Vinyl Chloride	TO-15 Mod.	0.42
Bromomethane	TO-15 Mod.	0.63
Chloroethane	TO-15 Mod.	0.43
Freon 11	TO-15 Mod.	0.92
1,1-Dichloroethene	TO-15 Mod.	0.64
Freon 113	TO-15 Mod.	1.26
Methylene Chloride	TO-15 Mod.	0.56
1,1-Dichloroethane	TO-15 Mod.	0.66
cis-1,2-Dichloroethene	TO-15 Mod.	0.64
Chloroform	TO-15 Mod.	0.81
1,1,1-Trichloroethane	TO-15 Mod.	0.89
Carbon Tetrachloride	TO-15 Mod.	1.03
Benzene	TO-15 Mod.	0.52
1,2-Dichloroethane	TO-15 Mod.	0.66
Trichloroethene	TO-15 Mod.	0.89
1,2-Dichloropropane	TO-15 Mod.	0.76
cis-1,3-Dichloropropene	TO-15 Mod.	0.74
Toluene	TO-15 Mod.	0.61
trans-1,3-Dichloropropene	TO-15 Mod.	0.74
1,1,2-Trichloroethane	TO-15 Mod.	0.89
Tetrachloroethene	TO-15 Mod.	1.11
1,2-Dibromoethane (EDB)	TO-15 Mod.	1.26

Analysis / Compound	Method	Quantitation Limits Soil Gas/Air (µg/M^3)
Chlorobenzene	TO-15 Mod.	0.76
Ethyl Benzene	TO-15 Mod.	0.71
m,p-Xylene	TO-15 Mod.	0.71
o-Xylene	TO-15 Mod.	0.71
Styrene	TO-15 Mod.	0.69
1,1,2,2-Tetrachloroethane	TO-15 Mod.	1.13
1,3,5-Trimethylbenzene	TO-15 Mod.	0.81
1,2,4-Trimethylbenzene	TO-15 Mod.	0.81
1,3-Dichlorobenzene	TO-15 Mod.	0.98
1,4-Dichlorobenzene	TO-15 Mod.	0.98
alpha-Chlorotoluene	TO-15 Mod.	0.85
1,2-Dichlorobenzene	TO-15 Mod.	0.98
1,2,4-Trichlorobenzene	TO-15 Mod.	6.12
Hexachlorobutadiene	TO-15 Mod.	8.69
Propylene	TO-15 Mod.	1.4
1,3-Butadiene	TO-15 Mod.	1.77
Acetone	TO-15 Mod.	1.93
Carbon Disulfide	TO-15 Mod.	2.58
trans-1,2-Dichloroethene	TO-15 Mod.	3.22
2-Butanone (MEK)	TO-15 Mod.	2.42
Hexane	TO-15 Mod.	2.9
Tetrahydrofuran	TO-15 Mod.	2.42
Cyclohexane	TO-15 Mod.	2.74
1,4-Dioxane	TO-15 Mod.	2.9
Bromodichloromethane	TO-15 Mod.	5.47
4-Methyl-2-pentanone	TO-15 Mod.	3.38
2-Hexanone	TO-15 Mod.	3.38
Dibromochloromethane	TO-15 Mod.	6.92
Bromoform	TO-15 Mod.	8.37
4-Ethyltoluene	TO-15 Mod.	4.03

Analysis / Compound	Method	Quantitation Limits Soil Gas/Air ($\mu g/M^3$)
Ethanol	TO-15 Mod.	1.55
Methyl tert-butyl ether	TO-15 Mod.	2.9
Heptane	TO-15 Mod.	3.38
Naphthalene	TO-15 Mod.	4.35
2-Methylpentane	TO-15 Mod.	2.9
Isopentane	TO-15 Mod.	2.42
2,3-Dimethylpentane	TO-15 Mod.	3.38
2,2,4-Trimethylpentane	TO-15 Mod.	3.86
Indene	TO-15 Mod.	3.86
Indane	TO-15 Mod.	3.86
Thiophene	TO-15 Mod.	2.74
2-Propanol	TO-15 Mod.	1.93

Notes

(1) The final quantitation limit (QL) is adjusted to reflect the initial pressurization step, dilution required to bring target analyte levels into the calibration range, and/or minimize matrix interferences

Final QL = QL * DF, DF was assumed to be 1.61 for a 6-L Canister, with 5 in. Hg Final Canister Pressure.

8.0 Data Reduction, Assessment, and Reporting

8.1 Data Reduction

Data collected in the field will be reduced in accordance with SW-846 protocols and reviewed by the laboratory QA personnel. The criteria used to identify and quantify the analytes will be those specified for the applicable methods in the USEPA SW-846 and subsequent updates.

8.2 Data Quality Assessment

NYSDEC recommends two levels of data review. The basic review is a Data Usability Summary Report (DUSR). Current NYSDEC policy is to require this level of review for analytical data on most sites. Full data validation is called for at sites where the data will be used in litigation, or where problems are expected with data quality (such as where matrix interference is expected to be significant). The laboratory deliverables (i.e., NYSDEC ASP Category B) are the same in both cases, and a DUSR can be upgraded to full validation at a later time if necessary. For this Site a DUSR will be performed.

Based on the results of data assessment, the validated analytical results reported by the laboratory will be assigned one of the following USEPA-defined data usability qualifiers:

- U – Not detected at given value,
- UJ – Estimated not detected at given value,
- J – Estimated value,
- N – Presumptive evidence at the value given,
- R – Result not useable,
- No Flag – Result accepted without qualification.

Trained and experienced data assessors, who meet NYSDEC approval criteria, will perform the data review. Résumés of people who will perform the data validation and prepare the DUSR will be provided to NYSDEC for review and approval, upon request.

8.2.1 Data Usability Summary Report

Data will be evaluated and qualification applied in accordance with the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, USEPA-540-R-07-003, July 2007 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA-540-R-04-004, October 2004, as they applied to the analytical methods employed. A DUSR will be generated in accordance with USEPA Region II guidelines.

The DUSR will include a review and an evaluation of all the analytical results. To ensure compliance with the analytical method protocols the following parameters will be reviewed:

- Chain-of-custody forms,

- Holding times,
- Initial and continuing calibrations,
- Blanks,
- Laboratory control standards and matrix spikes,
- Surrogate recoveries,
- Matrix interference checks,
- Field and laboratory duplicates,
- Sample data.

The DUSR will contain a description of the samples and parameters reviewed. Any deficiencies identified during the review will be noted and the effect on the generated data will be discussed. Any re-sampling or reanalysis recommendations will be then be made to the Project Manager. The DUSR will be electronically transmitted to the NYSDEC within 15 business days of validating the data and no later than 45 business days from receiving the laboratory data.

8.2.2 Data Validation

The determination to validate data will be made based on the presence of data anomalies, suspect data, or laboratory issues. Data will be validated and qualifications applied in accordance with *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, USEPA-540-R-07-003, July 2007 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, EPA-540-R-04-004, October 2004, as they applied to the analytical methods employed. If applicable, a data validation report will be prepared and reviewed by the Quality Assurance Office (QAO) before issuance. The data validation report will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and COC procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. A detailed assessment of each sample delivery group will follow. For each of the organic analytical methods, the following parameters will be assessed:

- Holding times,
- Instrument tuning,
- Instrument calibrations,
- Blank results,
- System monitoring compounds or surrogate recovery compounds (as applicable),
- Internal standard recovery results,
- MS and MSD results,

- Field duplicate results,
- Target compound identification,
- Result calculations,
- Pesticide cleanup (if applicable),
- Compound quantitation and reported detection limits,
- System performance,
- Results verification.

For each of the inorganic compounds, the following will be assessed:

- Holding times,
- Calibrations,
- Blank results,
- Interference check sample,
- Laboratory check samples,
- Duplicates,
- Matrix Spike(s),
- Furnace atomic absorption analysis QC,
- ICP serial dilutions,
- Results verification and reported detection limits,
- Result calculations.

8.3 Data Reporting

The data package provided by the laboratory will contain all items discussed above in a NT ASP Category B “CLP-equivalent” format. Data quality issues will be discussed in a case narrative included with the data report. The completed copies of the COC records (both external and internal) accompanying each sample from time of initial bottle preparation to completion of analysis shall be attached to the analytical reports.

Two copies of the analytical data packages and an electronic data deliverable (EDD) will be provided by the laboratory approximately 30 days after receipt of a complete sample delivery group. The Project Manager will immediately arrange for filing one package. A second copy and the EDD will be used to generate summary tables. These tables will form the database for assessment of the site contamination condition.

The EDD format required is current format Earths of EQuIS® Environmental Data Management Software.

Each EDD must be formatted and copied using an MS-DOS operating system. To avoid transcription errors, data will be loaded directly into the ASCII format from the laboratory information management system (LIMS). If this cannot be accomplished, the consultant should be notified via letter of transmittal indicating that manual entry of data is required for a particular method of analysis. All EDDs must also undergo a QC check by the laboratory before delivery. The original data, tabulations, and electronic media are stored in a secure and retrievable fashion.

The Project Manager or Task Manager will maintain close contact with the QA reviewer to ensure all nonconformance issues are resolved prior to use of the data. The EDDs and data validation report will be electronically transmitted to the NYSDEC within 15 business days of validating the data and no later than 45 business days from receiving the laboratory data.

9.0 Internal Quality Control Checks

QC procedures and checks are used to evaluate the precision and accuracy of analytical data. Field QC checks are used to identify potential problems associated with sample collection procedures. Laboratory QC checks are used to identify problems associated with sample preparation and analysis.

9.1 Field Quality Control Checks

To check the quality of data from field sampling efforts, blanks and duplicate samples will be collected for analysis. Field duplicate and rinseate blank samples will be collected at a frequency of one in 20 samples. Trip blank samples will be analyzed at a frequency of one per each shipment of VOC samples. Field MS/MSD samples will be collected at a frequency of one in 20 samples. These samples will be treated as separate samples for identification, logging, and shipping purposes. Analytical results for blanks and duplicates will be reported with the field sample data.

9.2 Laboratory Quality Control Checks

The analytical laboratory must have an implemented QC program documented in a QA manual to ensure the reliability and validity of the analysis performed at the laboratory. All analytical procedures are documented in writing as standard operating procedures (SOPs) and each SOP must include a QC section that addresses the minimum QC requirements for the procedure. The internal QC checks differ slightly for each individual procedure, but in general the QC requirements include the following:

- Method blanks,
- Reagent/preparation blanks (applicable to inorganic analysis),
- Instrument blanks,
- MS/MSDs ,
- Surrogate spikes (organic methods only),
- Analytical spike (applicable to graphite furnace analysis),
- Laboratory control samples,
- Internal standard areas for GC/MS analysis,
- Mass tuning for GC/MS analysis,
- Endrin/4,4'-DDT degradation checks for pesticide analysis,
- Second, dissimilar column confirmation for pesticide and polychlorinated biphenyl (PCB) analysis.

All data obtained will be properly recorded. The data package will include a full deliverable package capable of allowing the recipient to reconstruct QC information and compare it to QC acceptance criteria. The laboratory will reanalyze any samples associated with nonconforming quality control checks, if sufficient volume is available. It is expected that sufficient volumes/weights of samples will be collected to allow for reanalysis when necessary.

10.0 Performance and System Audits and Frequency

Two types of audit procedures are conducted during any environmental work: performance and system audits. These audits are performed on the laboratory as well as field activities. The laboratory and field auditors will be independent of the function they will be auditing. Audits will be documented and maintained by the respective Laboratory or Contractor Project Manager.

10.1 Performance Audits

10.1.1 Laboratory Performance Audits

Laboratory performance audits are administered by the laboratory QA department on a periodic basis (e.g., semi-annually). The audit samples are used to monitor accuracy and identify and resolve problems in sample preparation and analysis techniques, which lead to the generation of nonconforming data.

The laboratory performance audits include verification of each analyst's record keeping, proper use and understanding of procedures, and accuracy evaluation. Corrective action will be taken for any performance failure noted.

10.1.2 Field Performance Audits

The QAO or designee will perform field performance audits of the field sample team on an annual basis at a minimum. The field team leader will review all field data. The analytical results of the field blanks and replicate samples are indirect audits of the level of performance of field activities. If a nonconformance is found in the evaluation of field QC data, corrective action will be taken to resolve the issue. The corrective action will be documented.

10.2 System Audits

10.2.1 Laboratory System Audits

Laboratory system audits will be conducted against the QA Manual and the administrative and method SOPs, by the laboratory QA department, on an annual basis. System audits are used to ensure that all aspects of the laboratory's QC program are implemented and effective. This involves a thorough review of all laboratory practices and documentation to confirm that work is performed according to project specifications.

Outside agency performance and system audits may be used to verify contract compliance or the laboratory's ability to meet requirements for analytical methods and documentation. Copies of current certifications and accreditations may be used in lieu of an audit by the Contractor Project Manager.

10.2.2 Field System Audits

The QAO or designee shall perform field system audits of the field sampling team on an annual basis at a minimum. All field activities will be audited to ensure that the field work is being performed according to the approved work plans, QAPP, and method procedures. Accuracy, precision, and documentation clarity will be evaluated. Any time a deficiency is noted during an ongoing systems audit, the project manger or designee will inform the field staff immediately so that corrective actions may be implemented.

11.0 Preventive Maintenance

11.1 Field Instrument Preventive Maintenance

Written procedures will establish the schedule for servicing critical items in order to minimize the downtime of the measurement system(s). Field instruments will be checked and calibrated daily before use. Calibration checks will be documented on the field calibration log sheets. Critical spare parts such as tape and batteries will be kept on-site to reduce potential downtime. Backup instruments and equipment will be available on-site or within 1-day shipment to avoid delays in the field schedule.

11.2 Laboratory Instrument Preventive Maintenance

Designated laboratory employees regularly perform routine scheduled maintenance and repair of all instruments. All maintenance that is performed is documented in the laboratory's operating records. All laboratory instruments are maintained in accordance with manufacturer's specifications. The laboratory's QA Manual specifies the typical frequency with which components of key analytical instruments or equipment will be serviced.

11.3 Records

Logs shall be established to record maintenance and service. All maintenance records will be controlled and traceable to the designated equipment, instruments, tools, or gauges. Records produced shall be reviewed, maintained, and filed by the operators at the laboratories. The QAO may audit the field maintenance records to verify complete adherence to these procedures.

12.0 Corrective Action

12.1 Introduction

The following procedures have been established to ensure that conditions adverse to quality, such as malfunctions, deficiencies, deviations, and errors, are promptly investigated, documented, and corrected.

12.2 Procedure Description

When a significant condition adverse to quality is noted at site, laboratory, or subcontractor location, the cause of the condition will be determined and corrective action will be taken to preclude recurrence. Condition identification, cause, reference documents, and corrective action planned to be taken will be documented and reported to the QAO, Contractor Project Manager, Field Team Leader, and involved contractor management, at a minimum. Implementation of corrective action is verified by documented follow-up action.

All project personnel have the responsibility, as part of the normal work duties, to promptly identify, report, and investigate conditions adverse to quality. Corrective actions will be initiated as follows.

- When predetermined acceptance standards are not attained
- When procedure or data compiled are determined to be deficient
- When equipment or instrumentation is found to be faulty
- When samples and analytical test results are not clearly traceable
- When quality assurance requirements have been violated
- When designated approvals have been circumvented
- As a result of system and performance audit findings
- As a result of a management assessment
- As a result of laboratory/field comparison studies
- As required by USEPA SW-846 and subsequent updates, or by the NYSDEC ASP

Project management and staff, such as field teams, remedial response planning personnel, and laboratory groups, will monitor on-going work performance in the normal course of daily responsibilities. Work may be audited at the sites, laboratories, or contractor locations. Activities or documents ascertained to be nonconforming with quality assurance requirements will be documented. Corrective actions will be mandated through audit finding sheets attached to the audit report. Audit findings are logged, maintained, and controlled by the Task Manager.

Personnel assigned to quality assurance functions will have the responsibility to issue and control Corrective Action Request (CAR) Forms (Figure 12-1 or similar). The CAR identifies the out-of-compliance condition, reference document(s), and recommended corrective action(s) to be administered. The CAR is issued to the personnel responsible for the affected item or activity. A copy is also submitted to the Contractor Project Manager. The individual to whom the CAR is addressed returns the requested response promptly to the QA personnel, affixing his/her signature and date to the corrective action block, after stating the cause of the conditions and corrective action to be taken. The QA personnel maintain the log for status of CARs, confirms the adequacy of the intended corrective action, and verifies its implementation. CARs will be retained in the project file.

Any project personnel may identify issues requiring corrective action; however, the QAO is responsible for documenting, numbering, logging, and verifying the closeout action. The Contractor Project Manager will be responsible for ensuring that all recommended corrective actions are implemented, documented, and approved.

Figure 12-1 Corrective Action Form

CORRECTIVE ACTION REQUEST

Number: ___________________________ Date: ____________

TO: ____

You are hereby requested to take corrective actions indicated below and as otherwise determined by you to (a) resolve the noted condition and (b) to prevent it from recurring. Your written response is to be returned to the project quality assurance manager by

____

CONDITION:

REFERENCE DOCUMENTS:

RECOMMENDED CORRECTIVE ACTIONS:

__________	______	__________	________	___________	________
Originator	Date	Approval	Date	Approval	Date

RESPONSE

CAUSE OF CONDITION

CORRECTIVE ACTION

(A) RESOLUTION

(B) PREVENTION

(C) AFFECTED DOCUMENTS

C.A. FOLLOW-UP:

CORRECTIVE ACTION VERIFIED BY: _____________________________

DATE:_____________

13.0 References

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