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July 30, 2010

Elizabeth B. Lukowski
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NYSDEC
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Albany, NY 12233-7014

RE: Draft Alternative Analysis Report
Operable Unit One (OU1)
Former East 21st Street Works
Site # V00536
Voluntary Cleanup Agreement
Index No. D2-0003-02-08

Dear Ms. Lukowski:

Enclosed please find one (1) paper copy and one (1) CD of the Draft Alternatives Analysis Report for Operable Unit One of the former East 21st Street Works, submitted in accordance with the requirements and provisions of the August 15th 2002 Voluntary Cleanup Agreement (Index No. D2-0003-02-08) between the New York State Department of Environmental Conservation (NYSDEC) and Consolidated Edison Company of New York, Inc. (Con Edison).

Please call me at (718) 204-4295 should you have any comments or questions regarding this submittal.

Sincerely,



for

Christopher F. Hughes
Project Manager
Remediation, EH&S

Enc.

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Environment

Submitted to:
Consolidated Edison Company of NY
Astoria, New York

Submitted by:
AECOM
Westford, MA
60155451.312
July, 2010

Draft Alternatives Analysis Report

Operable Unit One (OU1)
Former East 21st Street Works
Former Manufactured Gas Plant Site
New York, New York
Voluntary Cleanup Agreement (VCA) Index D2-0003-02-08



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Voluntary Cleanup Agreement (VCA) Index D2-0003-02-08

A handwritten signature in blue ink that reads "Michael Gardner".

Prepared By Mike Gardner, Senior Engineer

A handwritten signature in black ink that reads "Mark M. McCabe".

Prepared By Mark M. McCabe, Project Manager

A handwritten signature in blue ink that reads "Aimee Fitzpatrick".

Reviewed By Aimee Fitzpatrick, PE

CERTIFICATION

I, Aimee Fitzpatrick, certify that I am currently a NYS registered professional engineer as defined in 6 NYCRR Part 375 and that this report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plan and any DER-approved modifications.

Aimee Fitzpatrick

Aimee Fitzpatrick, P.E.
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July 30, 2010

Date



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List of Acronyms

AAR	Alternatives Analysis Report
AWQSGVs	Ambient Water Quality Standards or Guidance Values
BEEI	Bureau of Environmental Exposure Investigation
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylene
CEC	The Community Environmental Corporation
Con Edison	Consolidated Edison Company of New York, Inc.
cy	Cubic yards
DER-10	Technical Guidance for Site Investigation and Remediation
DNAPL	Dense non-aqueous phase liquid
EDC	New York City Economic Development Corporation
ENSR	ENSR Corporation
ft	Feet
HASP	Health and Safety Plan
HVAC	Heating, ventilation and air conditioning
ISCO	<i>In situ</i> chemical oxidation
ISMP	Interim Site Management Plan
ISS	<i>In situ</i> solidification
LNAPL	Light non-aqueous phase liquid
MGP	Manufactured Gas Plant
MPE	Multi-Phase Extraction
NAPL	Non-aqueous phase liquid
NSCM	NAPL Site Conceptual Model
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OLM	Oil-like material
OU#	Operable Unit #
PAHs	Polycyclic aromatic hydrocarbons
POTW	Publicly owned treatment works
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RETEC	The RETEC Group, Inc.
RI	Remedial Investigation (RI)
RIR	Remedial Investigation Report

RRUSCOs	Restricted Residential Use Soil Cleanup Objectives
SCS	Site Characterization Study
SMP	Finalized Site Management Plan
SVOCs	Semivolatile Organic Compounds
TLM	Tar-like material
TOGs	Technical and Operations Guidance Series
VCA	Voluntary Cleanup Agreement
VOCs	Volatile Organic Compounds

Executive Summary

The East 21st Street Works former Manufactured Gas Plant (MGP) site is located in the borough of Manhattan in New York City, New York County, New York. The former MGP was situated within a section of Peter Cooper Village, a residential apartment complex, bounded by East 20th Street to the south, First Avenue to the west, the former East 22nd Street to the north and Avenue C to the east. Consolidated Edison Company of New York, Inc. (Con Edison) is managing the former MGP site in accordance with Voluntary Cleanup Agreement (VCA) Index D2-0003-02-08 as negotiated with the New York State Department of Environmental Conservation (NYSDEC). This Alternatives Analysis Report (AAR) presents the results of the remedial alternative selection process for Operable Unit 1 (OU1), which consists of the area within the Peter Cooper Village complex including adjacent sidewalks up to the curbs along surrounding streets. The remedial alternatives for the remaining areas of the site (OU2 – off-site MGP-impacted areas to the east, including the East River, and OU3 – MGP impacts in bedrock beneath the site) will be addressed subsequently in separate analyses.

Con Edison has conducted a series of investigations at the site since 2001 to characterize the potential impacts of MGP residuals at the site, resulting in the following findings:

- **Surface Soil** – Based on historical site information, and other physical evidence, e.g. the lack of demolition debris or residuals from the MGP, the surface soils were imported to the site after the MGP operations ceased, possibly for final grading purposes during the construction of Peter Cooper Village. Detected concentrations of constituents are likely attributable to the imported fill quality, anthropogenic sources, and/or naturally occurring sources that are not related to the former MGP operations.
- **Subsurface Soil** – Soil to a depth of approximately 5 feet below ground surface (ft bgs) is also believed to be imported fill that was used to grade the site during the construction of Peter Cooper Village. As a result, constituent concentrations to a depth of 5 ft bgs are generally not believed to be associated with the former MGP.
- **MGP impacts** have been observed in soil at depths below 5 ft bgs across the site. A comparison of the results to the NYSDEC 6NYCRR Part 375 Soil Cleanup Objectives for Restricted Residential Use, i.e. gardens and raising of livestock are not permitted, indicate that constituent exceedances of criteria are associated with the following classes of compounds: Volatile Organic Compounds (VOCs) including benzene, toluene, ethylbenzene, and xylene (BTEX) and polynuclear aromatic hydrocarbons (PAHs). Approximately 480,000 cubic yards (cy) of soil are thought to contain constituent concentrations that exceed the regulatory criteria. The vast majority of these (96%) are located in the saturated zone, i.e. below 9 ft bgs, with 50% of all impacts located at depths from 20 ft bgs to the observed end of impacts at approximately 50 ft bgs. A relatively small portion of the MGP residuals in this interval are present in a concentrated state and can act as a non-aqueous phase liquid (NAPL).
- **Groundwater** – One unconfined, unconsolidated overburden aquifer is present beneath the site. Groundwater occurs at depths ranging from approximately 4 to 12 ft bgs. The groundwater flow direction is to the east-northeast towards the East River. Impacted groundwater, i.e. groundwater containing at least one MGP-related compound at a concentration exceeding its respective NYSDEC Ambient Water Quality Standard or Guidance Value (AWQSGV), are present over the majority of OU1, and extend to the

downgradient eastern OU1 boundary and along portions of the northern and southern OU1 boundaries. Most of the areas of highest MGP constituent concentrations are in the vicinity of, or downgradient of former MGP-structures and/or observed soil impacts.

- Indoor Air - Soil gas and indoor air samples have been obtained from and around all buildings in OU1 during a number of investigations, and as recently as the first quarter of 2010. The results do not suggest that indoor air is being adversely impacted by the subsurface conditions. Although some VOCs have been detected in indoor air samples, they are likely associated with indoor sources, including paint and cleaning materials in basement storage areas.
- A qualitative human health assessment was performed for OU1 following guidelines specified in the NYSDEC DER-10 Draft Technical Guidance for Site Investigation and Remediation. The results from the assessment indicate that there is a low potential for complete risk pathways for apartment building residents, commercial building occupants, site visitors or pedestrians. However, subsurface maintenance/utility workers may be exposed to impacted soil or groundwater via direct contact (i.e., incidental ingestion, dermal contact, and inhalation of volatiles or particulates) while performing subsurface work. There is also the possibility that excavation beneath the building foundations could provide a potential pathway for subsurface vapors into the basement/crawl space areas of the structures. ConEdison has developed an Interim Site Management Plan (ISMP) to ensure that procedures are in place to address potential exposure risks from MGP residuals that could be encountered during routine property management activities.

This AAR has been prepared in accordance with Draft DER-10, Technical Guidance for Site Investigation and Remediation (DER-10) (NYSDEC, 2010), to define site-specific remedial action goals/objectives, and identify an appropriate approach to address the environmental conditions encountered in OU1. Summaries of activities/conclusions associated with the sequential steps in the alternative analysis process are provided in the following sections.

Defining Remedial Goals/Objectives

The goal for OU1 remedial activities is to eliminate/mitigate the potential risk posed by MGP residuals and to remove the source of MGP contamination to the extent feasible. Achieving the Remedial Goal for OU1 will require that the remediation activities eliminate the potential exposure pathways for users of the property and remove sources of MGP contamination to the extent feasible.

Impacted soil affecting groundwater quality has been identified at off-site locations that are downgradient of OU1. As a result, activities to reduce the amount of dissolved-phase concentrations of MGP constituents that could potentially impact surface water in the East River will be best evaluated in the AAR for Operable Unit 2 as part of a site-wide approach. Given this consideration, the following media-specific Remedial Action Objectives (RAOs) have been developed for OU1:

Soil

- Eliminate the potential for direct contact with MGP residuals for media having constituent concentrations that exceed Part 375 soil criteria for restricted residential use
- Reduce MGP impacts that are adversely impacting groundwater quality to the extent feasible
- Control the migration of remaining impacts that have the potential to be mobile as separate-phase product

Groundwater

- Eliminate the potential for direct contact/ingestion of groundwater having constituent concentrations that exceed AWQSGVs

Soil Gas

- Eliminate the potential for vapor intrusion that affects indoor air quality for residents of site buildings.

These RAOs are intended to address risks identified in the Qualitative Human Health Assessment. When evaluating the ability of a response actions or technology to achieve the RAOs, the impacts to the current property use are also considered. In addition, the physical limitations imposed by the site setting are taken into account during the evaluations.

Identification and Screening of General Response Actions

The initial step in the process of selecting an appropriate remedial alternative was the identification of a set of general response actions and their evaluation using two fundamental criteria: Site-Specific Appropriateness (implementability given the current and future site use) and Protectiveness (ability to limit risk/reduce contamination). The following response actions were identified and are organized by the media (e.g., soil, groundwater, soil gas) that they are intended to treat:

- Soil – Excavation/disposal and *in situ* treatment were identified as general response actions for impacted soil. Both actions were determined to provide some benefit in reducing site-wide levels of contamination, but were significantly limited by an inability to access a sufficient quantity of the subsurface impacts given the presence of existing site structures. Additional actions of containment and extraction were identified/evaluated for concentrated impacts present as separate phase product.
- Groundwater – The evaluation of groundwater response actions was separated into analyses for activities designed to address source material, i.e. impacted soil that, through contact with groundwater or infiltrating storm water can cause increased constituent concentrations in the aquifer (excavation/disposal, *in situ* treatment), and dissolved phase impacts (*in situ* treatment, extraction/treatment). Although the greatest potential for the improvement in groundwater quality is expected to come from the removal or treatment of source material, it is not likely to be significant given the inability to access the majority of impacted soil in OU1. Similarly, treatment of dissolved-phase impacts is not expected to be effective since the “treated” groundwater is likely to become re-contaminated by the relatively large quantity of residual source material located in inaccessible areas of OU1.
- Soil Gas – Data collected during several indoor air monitoring programs in recent years has documented that the vapor intrusion pathway is not complete at the site. However, soil gas remains a potential media of concern in the event that a future change in conditions, e.g., deterioration of the building foundations, would result in an increase in indoor air concentrations of MGP constituents. General response actions included the treatment/removal of impacted media providing the source of contamination to soil gas and the use of engineering controls. Source removal or treatment was determined not to be feasible since the impacted material potentially associated with the vapor intrusion pathway is located directly below the site buildings and is therefore not accessible. Engineering controls, e.g., vapor barriers, sub-slab venting and modification of heating, ventilation and air

conditioning (HVAC) systems were determined to be applicable and effective in preventing soil vapor from concentrating in indoor areas.

Institutional Controls were determined to be appropriate for each of the media and protective through the elimination of potential exposure pathways. Note that Institutional Controls would need to be reviewed and approved by the property owner.

Technology Approach/Screening

The second step in the analysis was to evaluate specific treatment processes/approaches associated with those general response actions that have the potential to provide remedial benefit at the site. The review of general response actions indicated that excavation, *in situ* treatment, and institutional controls could be applied in OU1 to provide some level of benefit for both soil and groundwater. Containment/removal of separate phase product and the use of engineering controls were determined to be applicable for NAPL and soil gas impacts, respectively. Dissolved phase treatment of groundwater, and source removal to address constituents in soil gas beneath site buildings have been eliminated from further consideration due to their impracticability.

The following technologies were selected for evaluation based upon their previous application at former MGP sites and qualifications as presumptive remedies in DER-10 guidance:

Soil

- Excavation and disposal
- *In situ* treatment
 - Chemical oxidation
 - Solidification
 - Thermal treatment
 - Bioremediation
 - Soil vapor extraction
- Containment/removal of separate phase product
- Institutional controls

Groundwater

- Excavation and disposal of source material
- *In situ* treatment of source material
 - Chemical oxidation
 - Solidification
- Institutional controls

Soil Gas

- Engineering controls

- Sub-slab venting
- Modification of HVAC systems

The technologies/approaches were reviewed based on their site-specific applicability and ability to achieve the RAOs that have been developed for OU1, i.e., elimination of risk, and contaminant reduction to the extent feasible. The evaluation resulted in the identification of the following set of preferred approaches/technologies for achieving the RAOs in each of the site media.

Elimination of Risk

- Institutional Controls – provide the most comprehensive, site-wide means for eliminating the direct contact pathway associated with MGP impacts in soil and groundwater by controlling site activities.
- Excavation and Disposal – can mitigate the direct contact risk for the primary risk receptors (construction workers) by removing impacted soil from areas where construction could take place, e.g. utility corridors in open and accessible site areas.
- HVAC Modification – provides the most reliable approach to mitigate concentrations of constituents of interest (regardless of source) in the basement/crawlspace areas of the buildings.

Contaminant Reduction

- *In Situ* Chemical Oxidation – provides the ability to reach the greatest quantity of impacted media at the site.
- Containment/Removal of Separate-Phase Products – extraction through well points provides the greatest flexibility in locations and the highest degree of access to deep impacts.

Excavation and *in situ* treatment were determined to have significant limitations for site-wide application for deep and shallow soil impacts, respectively. Additionally, both approaches were determined to be largely ineffective in improving groundwater quality since the relatively large quantity of remaining source material in inaccessible areas would continue to contaminate groundwater, potentially to current constituent levels. The remaining *in situ* technologies (thermal treatment, bioremediation and vapor extraction) were not determined to provide potential benefit because their application was either not appropriate for use in the saturated zone, or not appropriate to the full range of MGP constituents. Sub-slab venting of buildings was determined to be impractical since the relatively high water table at the site (observed to be within 18 inches of the bottom of the building foundations in some areas) could seriously compromise the operation of the systems.

Alternatives Evaluation

The preferred technologies/approaches were assembled into a set of five remedial alternatives for OU1. As required by DER-10 guidance, the alternatives covered the range of activities from no action to complete site restoration. The alternatives were evaluated using a set of prescribed criteria that included: overall protection of human health and the environment, compliance with standards, criteria and guidance (SCGs), long-term effectiveness and permanence, reduction in toxicity, mobility, and volume (TMV), short-term effectiveness, implementability and cost. The final criterion, community acceptance, will be evaluated later as part of the public hearings which are part of the Citizen

Participation Plan. Descriptions of the alternatives and summaries of their associated evaluations are provided below:

Alternative 1 – No Action

No Action does not require any intrusive work, however it does not address potential risks and does not meet the RAOs.

Alternative 2 – Institutional Controls – includes the following activities:

- Institutional Controls as a legally binding mechanism to enforce the implementation of the SMP and response to evidence of a complete vapor intrusion pathway in site buildings
- Installation of properly constructed product recovery wells in appropriate locations, with NAPL removal/off-site disposal conducted, as required
- Continued monitoring of indoor air quality

Institutional Controls maintains the condition of no significant risk and meets the RAOs, with minimal contaminant removal. Intrusive site activities are limited to 4-6 weeks per year, with costs estimated to be \$6,500,000 (NPV).

Alternative 3 – Institutional Controls and Soil Removal – includes the following activities:

- Proactive removal of 9,000 cy of impacted soil in the vadose zone from 13 separate, accessible areas of the site to address the potential direct contact risk to construction workers
- Institutional Controls requiring the implementation of the site SMP to eliminate potential exposure pathways related to groundwater and construction work in the areas under and immediately adjacent to existing buildings
- Installation of properly constructed product recovery wells in appropriate locations, with NAPL removal/off-site disposal conducted, as required
- Continued monitoring of indoor air quality

Institutional Controls and Soil Removal maintains the conditions of no significant risk and meets the RAOs, with limited contaminant removal. However, the removal of impacted soil from the vadose zone in anticipation of potential future utility/maintenance work would result in the loss of access to a number of open areas of the site over the course of a year. These activities could be un-necessarily disruptive to site residents since future utility work may not be required in all areas to be excavated. The principal intrusive site activities (vadose zone excavation) would be conducted over a 1-year period, with costs estimated to be \$20,600,000 (NPV).

Alternative 4 – Institutional Controls, Soil Removal and Source Material Control – includes the following activities:

- Removal of approximately 130,000 cy of impacted soil in 16 accessible areas of the site to the practical depth of excavation, and chemical oxidation of an additional 310,000 c.y. of underlying impacts

- The use of Institutional Controls requiring the implementation of the site SMP to eliminate potential exposure pathways related to groundwater and construction work in the areas under/immediately adjacent to existing buildings
- Installation of properly constructed product recovery wells in appropriate locations, with NAPL removal/off-site disposal conducted, as required
- Continued monitoring of indoor air quality

Institutional Controls, Soil Removal and Source Material Control maintain the conditions of no significant risk and meets the RAOs, but with extensive disruption from remedial actions, potentially without commensurate environmental benefit. The principal intrusive site activities (excavation and *in situ* treatment of impacted soil) would be conducted over a 1-2 year period with costs estimated to be \$173,700,000 (NPV).

Alternative 5 – Complete Site Restoration – includes the following activities:

- Resident relocation
- Demolition of existing site structures (21 residential apartment buildings)
- Installation of a jet grout wall around the perimeter of OU1
- Excavation and disposal of approximately 810,000 cy of impacted soil
- Backfilling of the excavation with clean soil and site restoration

Complete Site Restoration provides a permanent remedy for OU1, but is not considered to be implementable given the need to relocate residents. The principal intrusive site activities (excavation and disposal of impacted soil) would be conducted over a 5-year period with costs estimated to be \$480,000,000 (NPV).

Recommended Alternative

Institutional Controls (Alternative 2) is the proposed remedial alternative for OU1 of the site. This alternative includes the optimization of the product recovery activities, continued monitoring of indoor air quality, and the use of institutional controls as a legally binding mechanism to eliminate potential exposure pathways.

Alternative 2 was chosen because it meets the RAOs and provides sufficient flexibility to adjust to changes in site conditions. Installation activities would be implemented within a reasonable timeframe of up to one year and would not require large temporary or permanent spatial considerations. The implementation of Alternative 2 provides for intrusive site work only during the installation of recovery wells required site maintenance activities, resulting in minimal disruption to residents. This alternative does not significantly remove contamination and contaminants will remain in place, but engineering/institutional controls can be readily implemented to address associated risk pathways. Long-term maintenance would be required for the NAPL containment/recovery system, and although an on-going monitoring and inspection program will be required, it is expected that an appropriate frequency/schedule of events can be reached to ensure a continued condition of no risk with minimal disruption to site residents.

Pre-Design Investigation

A pre-design investigation will be conducted in preparation for the development of a Remedial Action Work Plan (RAWP) for the site, with activities conducted to:

- Refine the location of product recovery wells
- Define a practical end-point of NAPL recovery

1.0 Introduction

The East 21st Street Works former Manufactured Gas Plant (MGP) site is located in the borough of Manhattan in New York City, New York County, New York. The former MGP was situated within a section of Peter Cooper Village, a residential apartment complex, bounded by East 20th Street to the south, First Avenue to the west, the former East 22nd Street to the north and Avenue C to the east (Figure 1-1).

Consolidated Edison Company of New York, Inc. (Con Edison) is managing the former MGP site in accordance with Voluntary Cleanup Agreement (VCA) Index D2-0003-02-08 as negotiated with the New York State Department of Environmental Conservation (NYSDEC). This Alternatives Analysis Report (AAR) presents the results of the remedial alternative selection process for Operable Unit 1 (OU1), which consists of the areas within the Peter Cooper Village complex including adjacent sidewalks up to the curbs along surrounding streets. The remedial alternatives for the remaining areas of the site (OU2 – off-site MGP-impacted areas to the east, including the East River, and OU3 – MGP-impacted bedrock beneath the site) will be addressed subsequently in separate analyses.

The AAR has been prepared in accordance with the most recent and applicable guidelines of the NYSDEC including Draft DER-10, Technical Guidance for Site Investigation and Remediation (DER-10) (NYSDEC, 2010), to define site-specific remedial action goals/objectives, and identify an appropriate approach to address the environmental conditions encountered at the site. The document is formatted in the following manner: summaries of the site history and investigation results are presented in Section 2; the site-specific remedial objectives and associated remedial action objectives are established in Section 3; the appropriateness of general response actions is evaluated in Section 4; the applicability of specific technologies associated with appropriate response actions is determined in Section 5; the technologies are assembled into alternatives and evaluated against established criteria in Section 6; an appropriate site remedy is proposed in Section 7; and references are provided in Section 8. The appendices provide summary tables for pertinent investigation data as well as cost information to support the evaluation of the remedial alternatives.

2.0 Site History and Investigation Summary

The following discussion provides a description of the East 21st Street Works site, including a summary of its history, summaries of the findings from the environmental investigations of OU1 and the associated Qualitative Human Health Exposure Assessment, and discussions of the on-going activities related to the Interim Site Management Plan (ISMP) in place at the site.

2.1 Site Description and History

2.1.1 Site Location and Description

The grounds of the East 21st Street Works former MGP extended from First Avenue to Avenue C between East 20th and 22nd Streets in the Borough of Manhattan, New York City, New York. The former MGP was situated within the section of the Peter Cooper Village residential housing complex bounded by East 20th Street to the south, First Avenue to the west, the former East 22nd Street to the north and Avenue C to the east. This area is designated as Block 978, Lot 1 on the tax map of the City of New York, New York.

OU1 of the East 21st Street Works site encompasses the 21 fifteen-story brick apartment buildings, tennis and basketball courts, as well as playground, park, and landscaped areas within the Peter Cooper Village complex including adjacent sidewalks up to the curb along surrounding streets. The current site structures are illustrated on Figure 2-1. As illustrated approximately 50% of the site area is occupied by residential housing and associated structures. All of the Peter Cooper Village apartment buildings reportedly have full basements except for one (390 First Avenue – building number 1) which is constructed with crawl spaces and a central basement corridor. The Peter Cooper Village complex is fenced along its perimeter with several gateways for access to the complex and surrounding streets. The main entrances to the complex are through the security gates/booths along Peter Cooper Road at First Avenue and Avenue C. Except for the portion of one building in the southwestern corner of the site (350 First Avenue), all of the buildings encompassed by the former MGP are residential. The Peter Cooper Village property is currently owned by an affiliate of Tishman Speyer Properties, L.P. and Blackrock Realty Advisors, Inc.

2.1.2 Adjoining Property Descriptions

Current surrounding land uses consist of residential, commercial, and institutional. South of the site, on the south side of East 20th Street, is the Stuyvesant Town apartment complex and small commercial operations including a small market, deli, and fitness center. A restaurant is situated on the northeast corner of the First Avenue and East 20th Street intersection (southwestern corner of the site). First Avenue consists of several northbound traffic lanes with an access road with parking and sidewalks along the east side. Commercial establishments are located along the west side of First Avenue across from the site. Institutional facilities including a school, hospital, bank, and gymnasium are located north of the site along East 23rd Street.

The section of Avenue C and the elevated FDR Drive between East 20th and 21st Streets are situated east of the grounds of the former MGP. Parking areas are located beneath the FDR and a waterfront park, Stuyvesant Cove Park, is situated further east between the parking areas and the East River. The park property is owned by the City of New York and managed by the New York City

Economic Development Corporation (EDC). The Community Environmental Corporation (CEC) leases the property from EDC, manages, and operates Stuyvesant Cove Park. The park consists of landscaped areas, bike and walking paths, benches and tables. An Environmental Education Building (Solar One) is situated in the northern portion of the park.

A gasoline station is situated north of Stuyvesant Cove Park, northeast of the site. Previous releases of petroleum products have been documented from a former service station facility with several underground storage tanks (USTs) at this location. Two multi-phase extraction (MPE) systems were installed within Stuyvesant Cove Park between East 18th Street and East 23rd Street to address this contamination and have been decommissioned.

2.1.3 Site History

2.1.3.1 Pre-Manufactured Gas Plant

The site was originally part of the East River with the historic shoreline located approximately 1,500 feet to the northwest of the existing waterfront (approximately First Avenue). The area has undergone extensive filling activities. Historic filling along waterfront areas was generally carried out as uncontrolled bulk fill activities using a wide variety of materials including construction debris, organic soil matter, excavated material from adjacent construction sites, and miscellaneous debris. Therefore, the composition and *in situ* conditions of these materials are highly variable.

2.1.3.2 Manufactured Gas Plant

Detailed historic information is presented in a report entitled MGP Research Report, East 21st Street Works (Langan, 2002) and summarized herein. The former East 21st Street Works, operated circa 1848 to 1945, was used for gas manufacturing, gas purification, and storage. The location of significant former MGP structures, based on Sanborn maps from 1903 to 1944 are also shown on Figure 2-1. Historic site maps are available in Appendix A of the Remedial Investigation Report for OU1 (OU1 RIR) (AECOM, 2008). Major gas manufacturing structures included generators, retorts, condensers, scrubbers, purifiers, gas holders, and meter houses.

Coal gas manufacturing operations reportedly started with 19 retorts circa 1848. By 1849 the first telescopic gas holder in New York City reportedly was put into service at the site. The MGP continued to expand between 1853 and 1868. Between 1923 and 1927, the plant capacity was increased with two additional water gas sets.

Between 1890 and 1929 other land uses adjacent to the former MGP to the northeast between East 22nd Street and East 23rd Street at Avenue C included a coal and stone yard, furniture factory, brass foundry, veterinary hospital, chandelier factory, garage, parking lot, and railroad storage yard (Langan, 2001). A garage with two 275-gallon USTs was situated between East 22nd and East 23rd Streets at Avenue A (Langan, 2001).

2.1.3.3 Post-Manufactured Gas Plant

The grounds of the former East 21st Street Works MGP were sold by Con Edison to Stuyvesant Town Corporation and MetLife in 1944 and 1945, respectively, for the development of the Peter Cooper Village Housing Project (Langan, 2002). The Peter Cooper Village residential units, constructed in the late 1940s, are primarily pile supported, although the buildings along First Avenue may be partially supported directly on shallow bedrock. An affiliate of Tishman Speyer Properties, L.P. and Blackrock Realty Advisors, Inc. purchased the Peter Cooper Village property in 2006.

2.2 Investigation Summary

Several investigations have been performed in OU1 of the East 21st Street Works former MGP site and are listed below.

- Geotechnical Study and Preliminary Environmental Evaluation performed by Langan in 2001
- Evaluation of Indoor Air and Soil Gas Sampling performed by RETEC in 2003 and 2004
- Site Characterization Study (SCS) performed by Haley & Aldrich, Inc. in 2004
- Water valve replacement activities performed by the property owner with oversight provided by RETEC/ENSR in 2006 and 2007
- Remedial Investigation (RI) performed by AECOM from 2006 through 2008

The reports resulting from these investigations are listed in the reference section of this report. The results of these investigations were summarized or compiled in the OU1 RIR (AECOM, 2008) and are briefly presented in this subsection. For more detail on specific topics, refer to the OU1 RIR (AECOM, 2008).

2.2.1 Site Setting

2.2.1.1 Topography and Drainage

The general topography of the site is flat, but slopes towards the east. During rain events, infiltration is absorbed in the green space across the site. Surface runoff not absorbed is directed to storm sewer curb inlets. The storm sewer system is comprised of curb inlets that drain to the smaller local lines which in turn discharge to the larger trunk lines. The trunk lines and smaller storm lines form a complex web of storm drain lines that ultimately discharge to the intercept sewer under dry weather conditions. The intercept sewer discharges to the Newtown Creek wastewater treatment plant, which discharges treated wastewater to the East River. The intercept sewer is 108 inches in diameter and appears to flow south down First Avenue, east on 20th Street, and then south again on Avenue C. As it passes the site, storm and sanitary sewer lines drain into it. During wet weather, overflow chambers allow local storm water to flow to the East River at three permitted outfall locations east of OU1.

2.2.1.2 Site Geology

The site geology consists of five units of varying thickness and distribution across the site. Starting at ground surface, these units consist of fill; organic clay, silt, and or peat; silty sand with varying amounts of silt and clay; dense silt, sand, and gravel; and bedrock.

The fill material typically consists of intermixed sand, silt, and gravel with varying amounts of wood, brick, concrete, boulders, ash, cinders, glass, and metal fragments and pieces. The depth of fill at the site ranges from approximately 6 feet (ft) near First Avenue to 43 ft in former Gasholder #7 in the southwestern portion of the site. In general, the fill depth is shallow in the western portion of the site near First Avenue and deep to the east towards the East River. An upper layer of fill, approximately five feet thick, was observed over the majority of the site and appears to represent fill material imported to the site during the construction of Peter Cooper Village to regrade the property and prepare it for landscaping.

Organic soils consisting of clay, silt and occasionally peat, were frequently encountered beneath the fill, generally between approximately 11 and 34 ft below ground surface (bgs), and where present, varied in thickness from 0.5 to 20 ft.

The silty sand unit was generally encountered between 18 and 43 ft bgs and extended to a depth of approximately 150 ft bgs in the central/western portion of the site and approximately 120 ft bgs in the eastern portion of the site. The unit contains interbedded and lensed silt, sand, and clay throughout the site.

At the deep boring locations, more dense silt, sand, and gravel materials were encountered beneath the silty sands and overlying bedrock. These deposits are considered to be glacial fluvial or glacial till in origin.

The bedrock beneath the site is a dark gray mica-rich schist and quartz. The top of bedrock dips steeply from an elevation of approximately 10 ft above the National Geodetic Vertical Datum of 1988 (NAVD88) at the western edge of the site along First Avenue eastward towards Avenue C to an elevation of approximately -118 ft NAVD88. The top of the bedrock surface dips more steeply in the western portion of the site and more gently in the central and eastern portions of the site.

2.2.1.3 Site Hydrogeology

There is no surface water on the site. The East River is the closest surface water body to the site and is approximately 300 ft east/northeast of the eastern boundary of the former MGP. The East River is classified by the NYSDEC as a Class I saline surface water, i.e. its best usages are for secondary contact recreation and fishing. Note, however, that portions of the East River in Manhattan have been posted to prohibit fishing.

One unconfined, unconsolidated overburden aquifer is present beneath the site. Shallow (5 to 15 ft bgs), intermediate (25 to 35 ft bgs) and deep (50 to 70 ft bgs) zones within the overburden aquifer were evaluated during the investigations. Groundwater occurs at depths ranging from approximately 4 to 12 ft bgs. The groundwater flow direction in all of the depth zones is to the east-northeast towards the East River. The horizontal gradients averaged 0.005 ft/ft, 0.0025 ft/ft, and 0.003 ft/ft for the shallow, intermediate, and deep aquifer zones, respectively. The vertical gradient between the units is generally downward in the western portion of the site and upward near the East River. The East River is tidally influenced and has measurable effects on adjacent groundwater elevations.

2.2.2 Investigation Data Summary

This section presents a summary of the findings of the previous investigations and includes field observations and analytical results by media including surface soil, upper fill soil, lower fill/natural soil, groundwater, and soil gas/indoor air.

2.2.2.1 Surface Soil

The surface of the site is covered with 15-story apartment buildings, grass and landscaped areas, asphalt roads and walkways, concrete, cobblestones, playgrounds, and tennis and basketball courts. As noted in the SCS and observed in the RI, the surface soil appears generally distinct from the MGP-impacted lower fill and soil material. Based on historical site information and other physical evidence, the surface soils are believed to have been imported to the site after the MGP operations ceased, possibly for final grading purposes during the construction of Peter Cooper Village. It is considered likely that the elevated concentrations of semivolatile organic compounds (SVOCs), polycyclic

aromatic hydrocarbons (PAHs), and metals observed in the background study surface soils (conducted as part of the SCS) and in the site surface soils are attributable to the imported fill quality, anthropogenic sources, and/or naturally occurring sources that are not related to the former MGP operations.

2.2.2.2 Upper Fill Soil

The upper fill soil is considered to be 0.2 to 5 ft bgs and, as noted in the SCS and observed in the RI, is generally distinct from the deeper, lower, MGP-impacted fills and natural soils. The distinction is based on the general absence of construction-type debris, the limited observation of MGP or other impacts, and the absence of elevated PID readings. The upper fill was noted across the site and appears to represent imported fill material brought to the site after closure of MGP operations. During the 2006 and 2007, water valve replacement activities, MGP-related discontinuous stain and slight to moderate MGP-odor were noted in seven excavations in fill material shallower than 5 ft bgs, but appeared to be related to prior disturbance of deeper soil associated with utility line construction/maintenance. Analytical results for the upper fill soil samples were compared to the NYSDEC 6NYCRR Part 375 Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) and are presented in Appendix A of this report.

2.2.2.3 Lower Fill/Natural Soil

The lower fill/natural soil unit includes fill below 5 ft bgs and natural soils underlying the fill unit. Visible impacts and analytical results indicate that the lower fill/natural soil unit has been impacted by former MGP operations. Analytical results for the lower fill/natural soil samples were compared to the NYSDEC 6NYCRR Part 375 Restricted Residential Use Soil Cleanup Objectives (RRUSCOs) and are presented in Appendix A of this report. For purposes of the alternative analysis, the analytical results have been divided into tables for lower fill/natural soil samples collected from the vadose zone (between 5 ft bgs and 9 ft bgs (Table A-1), the saturated zone from 9 ft bgs to 20 ft bgs (Table A-2), and the deeper saturated zone greater than 20 ft bgs (Table A-3). Based on the analytical results and conclusions from the RI, the main MGP-related compounds detected in the lower fill/natural soils at the site are volatile organic compounds (VOCs) and SVOCs. The predominant VOCs that exceeded their respective RRUSCOs were the benzene, toluene, ethylbenzene, and xylene (BTEX) compounds and the predominant SVOCs that exceeded their respective RRUSCOs were PAHs which is common at MGP sites.

Figure 2-2 illustrates the limits of lower fill/natural soil impacts in OU1 by depth interval based on visible impacts and the locations and depths of soil samples that contained at least one compound at a concentration exceeding the RRUSCOs. The depth intervals coincide with the division of the analytical results and include the vadose zone (5 to 9 ft bgs illustrated by the red hatch pattern), the saturated zone from 9 ft bgs to 20 ft bgs (illustrated by the black stipple pattern), and the deeper saturated zone (greater than 20 ft bgs illustrated by the green shaded pattern). Figure 2-2 also illustrates by depth, where potentially mobile non-aqueous phase liquid (NAPL) was observed in soil samples or measured in monitoring wells. The purple line indicates that saturated oil-like material (OLM), tar-like material (TLM), product, or NAPL was noted in the boring log between 9 and 20 ft bgs for the location(s) encircled and the aqua blue line indicates that saturated OLM, TLM, product, or NAPL was noted in the boring log below 20 ft bgs for the locations encircled. The distribution of visible and analytical impacts in OU1 lower fill/natural soil is also illustrated on a series of cross sections. The cross section locations are illustrated on Figure 2-3 and the distribution of visible and analytical lower fill/natural soil impacts are illustrated on cross sections A-A' through H-H' provided as Figures 2-4A through 2-4H.

As illustrated on Figure 2-2, there are several discontinuous areas across the southern two-thirds of OU1 where visible or analytical impacts were observed in vadose zone fill soils. NAPL was not encountered in the vadose zone (5 to 9 ft bgs) during investigations.

Visible and analytical soil impacts were noted across the majority of the southern two-thirds of OU1 in the saturated zone above 20 ft bgs. Two limited areas of NAPL were noted between 9 and 20 ft bgs in the western portion of the site and were associated with former holders. The largest NAPL area observed between 9 and 20 ft bgs is situated along the eastern property boundary in the central portion of OU1 and is associated with the former tar separators, tank and retort structures. A smaller NAPL area between 9 and 20 ft bgs is situated in the southeastern corner of OU1 and is associated with former oil tanks.

Visible and analytical impacts were noted deeper than 20 ft bgs across the eastern half of OU1 as well as in the southern two-thirds of the western portion of OU1. NAPL was observed deeper than 20 ft bgs at three limited areas in the western half of the site, generally associated with former holders. A relatively large area of NAPL was noted in soils deeper than 20 ft bgs in the north and eastern portions of OU1 and is likely associated with the former MGP retort, tar separator, and tank areas. An area of NAPL greater than 20 ft bgs was also noted in the southeast corner of OU1 in the vicinity of the former oil tanks.

As presented in detail in the OU1 RIR (AECOM 2008), the impacts in the lower fill/natural soils appear to migrate horizontally and vertically along pathways of greater permeability relative to surrounding material. Lower fill/natural soil impacts in the western portion of OU1 generally did not extend to depths greater than approximately 20 to 40 ft bgs. Lower fill/natural soil impacts in the eastern portion of OU1 were observed as deep as 47 ft bgs. The vertical extent of the lower fill/natural soil impacts has been defined in OU1. The horizontal extent of lower fill/natural soil impacts extends to the eastern boundary of OU1 along Avenue C, to the northeastern boundary of OU1 along the eastern portion of East 23rd Street, and to the southeastern OU1 boundary along the eastern portion of East 20th Street.

2.2.2.4 Groundwater

One unconfined, unconsolidated overburden aquifer is present beneath the site. Groundwater occurs at depths ranging from approximately 4 to 12 ft bgs. Shallow (5 to 15 ft bgs), intermediate (25 to 35 ft bgs) and deep (50 to 70 ft bgs) zones within the overburden aquifer were evaluated during the investigations. The groundwater flow direction in all of the depth zones is to the east-northeast towards the East River. A summary of the groundwater analytical results for the monitoring wells situated within OU1 is presented in Appendix B. Table B-1 provides a comparison of the analytical results to the NYSDEC Ambient Water Quality Standards or Guidance Values (AWQSGVs) listed in Technical and Operations Guidance Series (TOGs) 1.1.1. Based on the analytical results and conclusions from the RI, the main MGP-related compounds detected in the groundwater were the BTEX compounds and occasionally PAHs, which is common at MGP sites.

The analytical data and comparison with AWQSGVs were used to generate Figure 2-5 which illustrates the general limits of groundwater impacts within the shallow, intermediate, and deep zones of the overburden aquifer in OU1. As illustrated in this figure, groundwater impacts, or groundwater containing at least one MGP-related compound at a concentration exceeding its respective AWQSGVs, are present over the majority of OU1 in all of the depth zones investigated. Groundwater impacts extend to the downgradient eastern OU1 boundary in all three aquifer zones and along portions of the northern and southern OU1 boundaries. Groundwater impacts were not detected in the

shallow and intermediate zones of the overburden along the western site boundary. The top of bedrock along the majority of the western boundary is within 40 feet of ground surface so deep overburden soils are not present along the majority of the western OU1 boundary and therefore were not evaluated with a deep well (50-70 ft bgs). Most of the areas of highest groundwater concentrations are in the vicinity of or downgradient of former MGP-structures and/or observed lower fill/natural soil impacts.

2.2.2.5 Indoor Air and Soil Gas

Soil gas and indoor air samples were obtained from and around all buildings in OU1 during the investigations of the site. A summary of the soil gas/indoor air data is provided in Appendix C as Table C-1 and C-2, respectively. The soil gas data indicates the presence of chlorinated organic compounds, alkanes, and several aromatic hydrocarbons. The results suggest that subsurface impacts are associated with cleaning solvents (chlorinated compounds), petroleum (aromatic compounds, alkanes) and potential MGP residuals (aromatic compounds). Associated indoor air samples demonstrated that elevated constituent levels, i.e. concentrations greater than established background levels (90th percentile) were largely limited to aromatic hydrocarbons and chlorinated compounds. Note that several compounds likely to be specific to MGP residuals (indane, indene and thiophene) were not detected in either the soil gas or indoor air samples. Although some VOCs were detected in indoor air samples, it was determined that indoor sources, including paint and mothballs in basement storage areas, were responsible for the presence of the VOCs.

2.3 Qualitative Human Health Assessment

A qualitative human health assessment was performed for OU1 following guidelines specified in the NYSDEC DER-10 Draft Technical Guidance for Site Investigation and Remediation, and is provided in the OU1 RIR (AECOM 2008). An exposure pathway analysis for receptors in OU1 was developed and included the identification of each potential receptor group, a listing of each potential exposure media and potential pathway, and a rationale for inclusion or exclusion of each potential receptor in the consideration of remedial actions for the alternatives analysis. A summary of the assessment is provided below.

Potential receptors to MGP-related impacts in OU1 include apartment building residents, commercial building occupants, maintenance workers, subsurface outdoor maintenance or utility workers, and site visitors or pedestrians. As indicated in Subsection 2.2 above, it is believed that surface soil and the upper 5 ft of subsurface soil in OU1 were imported to the site following cessation of the MPG operations. Sampling and analysis of these media indicate that the concentrations of VOCs and SVOCs are low and similar to background concentrations. Surface soils in OU1 are grass-covered or landscaped and the potential for people to come into contact with surface soils is low. For these reasons, the potential for receptors to be exposed to contaminants of concern (COCs) in these soils is considered to be low.

2.3.1 Potential Exposure to Impacted Surface Soil and Subsurface Soil

As discussed above, the potential for exposure to MGP impacts in surface and upper fill soils (0-5 ft bgs) is considered to be low.

However, subsurface maintenance or utility workers may be exposed to impacted soil containing COC and NAPL via direct contact (i.e., incidental ingestion, dermal contact, and inhalation of volatiles or particulates) while performing subsurface utility work or structure repair. Only properly trained personnel should complete subsurface work in lower fill at the site using methods specified in the

Interim Site Management Plan (ISMP) until the area has been cleared of impacted materials. Note that the ISMP, which is discussed further in Section 2.4, includes an example Health and Safety Plan (HASP). This exposure pathway will be addressed in the alternatives analysis for OU1. The potential for inhalation of VOCs originating from impacted soil is addressed in Subsection 2.3.3.

2.3.2 Potential Exposure to Impacted Groundwater

Groundwater is not extracted for drinking or other purposes in the vicinity of the site. The potential for apartment building residents, commercial building occupants, site visitors and pedestrians, and maintenance workers to be exposed to impacted groundwater via direct contact is not likely and is not considered a complete exposure pathway.

Subsurface outdoor maintenance and utility workers may be exposed to COC or NAPL in groundwater via incidental ingestion, dermal contact, and inhalation of volatiles or particulates during subsurface activities. Only properly trained personnel should complete subsurface work at the site using methods specified in the ISMP until the area has been cleared of impacted material. This exposure pathway will be addressed in the alternatives analysis for OU1. The potential for inhalation of VOCs originating from impacted groundwater is addressed in Subsection 2.3.3.

2.3.3 Potential Exposure to Impacted Air

Apartment building residents, commercial building occupants, maintenance workers, and site visitors could potentially be exposed to unacceptable levels of MGP-related constituents if the vapor intrusion route into the basement/crawlspace areas of the buildings was present. The results of the soil vapor intrusion and indoor air quality evaluation performed in each of the buildings at the site indicate that the concentrations of VOCs in indoor air were attributable to sources within the buildings rather than MGP residuals. The existing, intact basement floor structures in the apartment buildings in OU1 have proven to be effective barriers to stop the migration of subsurface vapors into buildings. Therefore, the potential to be exposed to air impacted by MGP-related COC is considered to be low under standard conditions. However, there may be unique considerations when working inside buildings in OU1 during planned and emergency utility work that involve cutting or drilling into concrete slabs in the basements of the site buildings. There is the possibility for workers to temporarily come into contact with impacted soil and groundwater under the sub-grade concrete slab in the basements of the buildings, and provide a potential pathway for subsurface vapors into these buildings. The potential for a resident, occupant, maintenance worker, or visitor to be exposed to air impacted by MGP-related COC during sub-slab activities is considered to be low and any potential exposure would be limited in duration and preventive measures would be used. However, the inhalation of VOCs by these receptors is considered to be a potentially complete pathway and will be addressed in the alternatives analysis for OU1.

Subsurface outdoor maintenance and utility workers could potentially be exposed to MGP-related COC by the inhalation of volatiles or particulates resulting from the disturbance of MGP-impacted soil or groundwater during subsurface activities. Therefore, the inhalation of VOCs by these receptors is considered to be a potentially complete pathway and will be addressed in the alternatives analysis for OU1.

2.4 Interim Site Management Plan

ConEdison has developed an ISMP to ensure that procedures are in place to address potential exposure risks from MGP residuals that could be encountered during routine property management

activities. Discussions of on-going activities related to indoor air monitoring and NAPL recovery are provided below.

2.4.1 Indoor Air Monitoring

Monitoring is being conducted on an annual basis in the basement/crawlspace areas of the site buildings to confirm that indoor air has not been impacted by MGP residuals identified on the site. The initial round of sampling was conducted during several days in February and March 2009. A total of 64 indoor air samples and 8 ambient air samples were collected using laboratory certified, six-liter volume Summa canisters. The sampling locations were consistent with those used in a previous sampling event in 2004. VOCs were detected in all of the indoor air and ambient air samples at concentrations ranging from 0.8 to 170 µg/m³. Summaries of the results from the program are provided in Appendix C. (Table C-3 2009 Results, Table C-4 2010 Results.)

A comparison of these results with the 2003/2004 data indicates that background levels were exceeded at fewer locations in 2009 (8 locations versus 21) and 2010 (13 locations versus 21), with a limited set of constituents (aromatic hydrocarbons and chlorinated solvents) common to both events. The general range of concentrations for these constituents in the 2009/2010 program was also observed to be approximately an order of magnitude less than in 2003/2004. The results demonstrate that indoor air concentrations of VOCs are generally consistent with background levels established by NYSDOH and do not indicate a complete vapor intrusion pathway. Concentrations of VOCs that were greater than established background levels, generally common aromatic VOCs (BTEX) and chlorinated solvents are believed to be associated with the use/storage of cleaning materials and paints in basement areas.

2.4.2 NAPL Recovery

NAPL has been observed in monitoring wells within OU1 during the investigations. Con Edison is currently performing an interim program in which the presence and thickness of NAPL is monitored on a quarterly basis in all of the monitoring wells associated with the site and, when present, the NAPL is removed and disposed.

The results from the 2009 events are summarized in Appendix D as Table D-1. Note that although the monitoring wells have not been specifically designed for product recovery, the data provides a general indication of the location and characteristics of mobile MGP residuals at the site. Product has been observed in only 6 of the 24 wells within OU1. Of these locations, only two wells have exhibited measurable levels of product during all of the monitoring events. These wells (21MWD04 and 21MWDD04) are located in the eastern portion of the site, approximately 40 feet from Avenue C. The quantity of product recovered from these wells has ranged from less than 1 to 6 gallons, with a recharge rate that has been estimated to be approximately 0.5 gallons/day. The product has demonstrated a significant variability in density and viscosity across the site. LNAPL has been observed in one location (21MWS10) in the center of the site, and DNAPL from other locations has ranged in viscosity from 46 to 67,000 centipoises at 70 degrees Fahrenheit.

3.0 Remedial Action Goals and Objectives

3.1 Remedial Goal

The goal for OU1 remedial activities is to eliminate or mitigate the potential risk posed by MGP residuals, and to removal the source of MGP contamination to the extent feasible.

3.2 Remedial Action Objectives

Achieving the Remedial Goal for the site will require that the remediation activities result in the elimination of the potential exposure pathways to media that exceed the standards, criteria, and guidance (SCGs) as identified in the Qualitative Human Health Assessment, and remove sources of MGP contamination to the extent feasible. Therefore, the following media-specific Remedial Action Objectives (RAOs) have been developed:

3.2.1 Soil

- Eliminate the potential for direct contact with MGP residuals for media having constituent concentrations that exceed Part 375 soil criteria for restricted residential use;
- Reduce MGP impacts that are adversely impacting groundwater quality to the extent feasible; and
- Control the migration of remaining impacts that have the potential to be mobile as separate-phase product.

3.2.2 Groundwater

- Eliminate the potential for direct contact/ingestion for media having constituent concentrations that exceed AWQSGVs.

Note that source material affecting groundwater quality has been identified at off-site locations that are downgradient of OU1. As a result, activities to reduce the amount of dissolved-phase concentrations of MGP constituents that could potentially impact surface water in the East River will be evaluated in the AAR for OU2 as part of a site-wide approach.

3.2.3 Soil Gas

- Eliminate the potential for vapor intrusion that affects indoor air quality for residents of site buildings.

The RAOs will be used in the subsequent phases of the alternative analysis to facilitate the evaluation of general response actions and associated remedial technologies. When evaluating the ability of a response actions or technology to achieve the RAOs, the physical limitations imposed by the site setting and potential effects for the current property use will also be considered.

4.0 Identification and Screening of General Response Actions

The results from the investigation activities discussed in Section 2 of this document have identified MGP impacts in soil and groundwater at the site. The following section provides an evaluation to identify a set of general response actions available to treat the contaminants of concern in site media and determine if they are generally appropriate for use in OU1 of the East 21st Street Works Site. The response actions have been grouped by the media (soil, groundwater and soil gas) that they are designed to treat, and are evaluated using the following criteria: Site-Specific Appropriateness (implementability given the current site conditions/use) and Protectiveness (ability to limit risk/reduce contamination). A summary of the evaluation results is provided in Table 4-1. A subsequent evaluation of specific technologies for those response actions determined to be appropriate for use in OU1 will be conducted in Section 5 of the document.

4.1 Soil

The investigation results indicate that MGP impacts are broadly distributed across the site at general depths of 5 ft to 50 ft bgs. To facilitate the evaluation of response actions/technologies, the quantities of impacted soil have been grouped in the following depth intervals:

- Vadose Zone – the general upper limit of MGP impacts (5 ft bgs, based on historical information and physical evidence) to the nominal depth of the water table (9 ft bgs)
- Shallow Saturated Zone – the nominal depth of the water table (9 ft bgs) to a practical depth of excavation (20 ft bgs)
- Deep Saturated Zone – below the practical depth of excavation (20 ft bgs) in an urban setting to the known depth of impacts (up to approximately 50 ft bgs)

Given the current multi-unit residential use of the site, the areas of impacted soil were further classified as inaccessible (located beneath/immediately adjacent to buildings, utility corridors, and public roadways) or accessible (located in open areas). The areal and vertical distribution of impacts are illustrated in Figures 2-2 (plan view) and 2-4A through 2-4H (cross-sections), with the calculated quantities of impacted media in each depth interval presented in Table 4-2. As indicated, only approximately one-half of the impacted soil is located in accessible areas, with approximately 50% of this material located in the deep saturated zone below 20 ft bgs. A review of the general response actions associated with the removal/treatment of contaminated soil is provided below.

4.1.1 Excavation and Disposal

Excavation and off-site disposal is a physical process that would permanently remove the contaminated soil. Note that on-site treatment of excavated material has not been included in the evaluation due to the logistical impracticalities of permitting and siting treatment facilities given the site location and surrounding property uses.

4.1.1.1 Site-Specific Appropriateness

Excavation of the accessible areas of the site are only capable of addressing impacts to a depth of 20 ft bgs, due to the need to support the excavation to protect adjacent structures. Therefore, from a

practical standpoint, excavation of accessible areas can only address approximately 27% of the impacted soil at the site. Removing the existing site structures would allow excavation of all impacts above 20 feet bgs (approximately 52% of the impacts). Excavation of the accessible areas would be highly disruptive to residents and owners of the property since it would limit access to open areas of the property for extended periods of time.

4.1.1.2 Protectiveness

Excavation and disposal can reduce the level of soil contamination at the site and could significantly reduce the potential risk to construction workers who would generally work in accessible areas of the site and at relatively shallow depths. However, 48% of the impacts are below 20 feet bgs and cannot be reached by excavation. Impacted soils in accessible areas above 20 feet bgs are spread over approximately 360,000 square feet making focused excavation unlikely to achieve meaningful reduction in soil contamination. Additionally, the use of heavy equipment, as well as the associated noise dust and odor, could pose a potential risk to the large number of residents of the property.

4.1.2 In situ Treatment

In situ treatment of contaminated soils is designed to mitigate soil impacts with minimal disturbance to the soil or subsurface features.

4.1.2.1 Site-Specific Appropriateness

Although the general application of *in situ* treatment would also be limited to the accessible areas of the site, it could be used to reach all depths of impacted soil at the site. As a result, *in situ* treatment has the potential to access approximately 55% of the impacted soil. Note however, that depending on the specific technology, application in shallow areas could be limited by consideration of the physical effect of reagents on utility lines or surface effects of treatment, e.g. reagent or treatment artifacts breaching the surface of the soil. Also, due to the varying permeability of the site soil, the contact of reagents with contaminated media would be uncertain.

4.1.2.2 Protectiveness

In situ treatment may not be applicable to the shallow impacts associated with the potential risk to construction workers. Additionally, although *in situ* treatment would reduce the levels of contamination in the saturated zone, the quantity of untreated material (approximately 45% of total) will not eliminate the potential site-wide risk. As with excavation, the implementation of in-situ treatment for soil impacts would be highly disruptive and provide a potential risk to the large number of residents of the site.

4.1.3 Containment (Separate Phase Impacts)

For the purpose of this evaluation, DNAPL is considered a highly concentrated form of soil impact. Containment is designed to prevent the separate phase liquids from migrating into less contaminated areas of the site. Containment can be achieved through the use of vertically oriented barriers, or extraction/points/areas that are optimally keyed into a confining layer.

4.1.3.1 Site-Specific Appropriateness

The appropriate placement of containment barriers/extraction points may not be possible at the site due to the large number of structures and sub-surface utilities that must be accommodated. Furthermore, most barrier processes have a practical limited installation depth, and may not provide

the capability to reach the confining layer (bedrock at approximately 130-140 ft bgs) on the deepest part of the site.

4.1.3.2 Protectiveness

Containment processes will not reduce contamination or eliminate risk unless implemented in conjunction with a removal process, e.g. pumping from the upgradient side of the barrier (Section 4.1.4).

4.1.4 Extraction and Disposal (Separate Phase Impacts)

Extraction of DNAPL can be achieved through the use of recovery wells or trenches, with the recovered product pumped to the surface for off-site disposal.

4.1.4.1 Site-Specific Appropriateness

Extraction and disposal of separate phase product is currently being conducted on a limited basis at the site with some success. As stated above, access restrictions may limit optimal positioning of extraction points. An extraction approach would have to address varying consistencies of product and decreasing recovery efficiencies over time. Additionally, on-going product recovery operations on the residential property would need to accommodate areas associated with permanent infrastructure, waste storage, and waste management activities.

4.1.4.2 Protectiveness

Although the extraction of separate phase impacts will permanently remove concentrated soil impacts, NAPL represents only a small portion of the soil contamination (10%) at the site. Since 90% of the DNAPL is present at depths greater than 20 ft bgs, removal would have no effect on the potential risk to construction workers.

4.2 Groundwater

The results from the site investigation indicate that groundwater is impacted fairly broadly across the site (Figure 2-5). Groundwater impacts can be addressed through two means: the treatment/removal of source material (i.e. impacted soil that, through contact with groundwater or infiltrating storm water can cause increased constituent concentrations in the aquifer), or specific treatment of the dissolved phase to reduce constituent levels. Response actions for each of these approaches are evaluated below.

4.2.1 Source Material

The most significant improvement in groundwater quality is expected to come from the removal or treatment of MGP impacts in "soil", as discussed previously in Section 4.1. A review of excavation and *in situ* treatment as related to soil impacts in the saturated zone is provided below. As discussed previously, these activities with their associated use of heavy equipment and need to manage impacted media on the site property would be highly disruptive to and provide potential risk to site residents. .

4.2.1.1 Excavation and Disposal

Excavation and disposal is a physical process that would permanently remove source material from the site, with subsequent disposal of material off-site.

Site-Specific Appropriateness

Excavation of source material would be limited to the accessible areas of the site and can only address impacts to a depth of 20 ft bgs due to the need for structural support of the excavation. Therefore, excavation can only address approximately 27% of the source material at the site, and would further restrict access to the open areas of the property with the additional requirement for equipment/space for significant dewatering/treatment activities for work in the saturated zone.

Protectiveness

Excavation and disposal of source material can reduce the level of contamination in the saturated zone, but the approach is not likely to have a significant effect on the majority of impacts, including DNAPL which has been observed to be generally present at depths below the practical limits of this approach. As a result, it is likely that the removal of this relatively small quantity of source material would have little effect on groundwater quality at the site.

4.2.1.2 *In situ* Treatment

In situ treatment is designed to reduce the “strength” of source material to limit the continuing contamination of groundwater flowing through the site.

Site-Specific Appropriateness

Although the general application of *in situ* treatment would also be limited to the accessible areas of the site, it could be used to reach all depths of the saturated zone at the site. However, even with this capability, *in situ* treatment would be limited to addressing only about one-half of the source material at the site. Also, due to the varying permeability of the site soil, the contact of reagents with contaminated media would be uncertain.

Protectiveness

In situ treatment would result in a reduction in strength of only a portion of source material and therefore, is not likely to provide a significant benefit to groundwater quality.

4.2.2 Dissolved Phase

The following general response actions are intended to specifically address dissolved phase impacts in on-site areas and would likely be used in conjunction with the source material remedies described in the previous section. Note that, as defined in the RAO for groundwater (Section 3.2), source material extends beyond the limits of OU-1 and activities to reduce dissolved-phase impacts leaving the site will be addressed in the AAR for OU-2 of the site as part of a site-wide remedy.

4.2.2.1 *In Situ* Treatment

In situ treatment of groundwater is intended to reduce dissolved-phase constituent levels using relatively passive means, i.e. without extraction.

Site-Specific appropriateness

MGP constituents are readily amenable to *in situ* treatment. However, treatment is most effective when applied at the downgradient limit of the source material. Since source material extends into areas downgradient of OU-1, it may not be possible to locate appropriate treatment points in OU1. Placement would be further complicated by the access issues posed by the existing site structures. As a result, “treated” groundwater is likely to become re-contaminated, potentially to similar levels.

Protectiveness

Given the difficulty in placement of treatment points and likely effect of residual source material, it is unlikely that treatment would result in a significant decrease in dissolved-phase constituent levels. As a result, *in situ* treatment of the dissolved phase impacts is unlikely to reduce levels of contamination or reduce risk.

4.2.2.2 Extraction and Treatment

Extraction and treatment of contaminated groundwater (pump and treat) is a source reduction process that uses well points/pumps to remove contaminated groundwater for treatment on the surface with subsequent management at a publicly owned treatment works (POTW).

Site-Specific Appropriateness

The effectiveness of groundwater extraction and treatment would be limited by the limited areas where the extraction wells could be placed and would be affected by the hydraulic conductivity of the soil. As a result, it is unlikely that a meaningful quantity of groundwater could be captured by a site-wide extraction system. Given the potential for a broad distribution of residual soil impacts, it is likely that remaining groundwater would continue to exhibit constituent concentrations that exceed regulatory criteria.

Protectiveness

Extraction of contaminated groundwater will reduce dissolved-phase contamination at the site, but it will not eliminate risk. Even though some quantity of contaminated groundwater could be removed and treated, it is likely that residual source material will provide a continuing source of contamination.

4.3 Soil Gas

Data collected during several indoor air monitoring programs in recent years has documented that the vapor intrusion pathway is not complete at the site. However, soil gas remains a potential media of concern in the event that a future change in conditions, e.g. deterioration of the building foundation, would result in an increase in indoor air concentrations of MGP constituents to levels that exceed NYSDOH guidelines.

4.3.1 Continued Monitoring

Indoor air monitoring could be conducted on a continuing basis in the basement/crawlspace areas of site buildings to document that site conditions have not changed and that the vapor intrusion pathway is not complete..

4.3.1.1 Site-Specific Appropriateness

Indoor air monitoring is currently being conducted at the site on a scheduled basis, and is appropriate given the current and future use of the site as a residential property.

4.3.1.2 Protectiveness

Monitoring is an effective means of identifying a significant change in conditions and evaluating the associated effect on the vapor intrusion pathway. The use of monitoring as a response action would be re-evaluated in locations where the vapor intrusion pathway is demonstrated to be complete.

4.3.2 Source Removal or Treatment

The most direct method of eliminating the vapor intrusion pathway would be to remove/treat the impacted soil or groundwater that is providing the source of contamination to the soil gas.

4.3.2.1 Site-Specific Appropriateness

Source removal or treatment is not feasible since the impacted material potentially associated with the vapor intrusion pathway is located directly below the site buildings and is therefore not accessible.

4.3.2.2 Protectiveness

Due to its technical infeasibility, source removal/ treatment cannot reduce contamination, or protect against future risk as a result of changing conditions.

4.3.3 Engineering Controls

Engineering controls such as vapor barriers, sub-slab venting and heating, modification of ventilation and air conditioning (HVAC) systems can prevent soil vapor from concentrating in indoor areas.

4.3.3.1 Site-specific Appropriateness

Engineering controls would require significant physical modification to existing buildings with underlying MGP impacts, including the installation of sub-surface piping/vacuum system, or separate heating/ventilation systems for basement and crawl space areas.

4.3.3.2 Protectiveness

Engineering controls will eliminate the potential risk to occupants of the buildings, but will not reduce levels of contamination at the site.

4.4 Institutional Controls

Institutional controls may include the following requirements: implementing soil management and health and safety plans for any subsurface excavation work, restrictions on the use of groundwater, and requirements for on-going monitoring, inspection/maintenance of engineering.

4.4.1 Site-specific Appropriateness

Institutional controls would be readily implementable, but would require an agreement with site owners, and restrictions to the deeds that will apply to current and future owners of the site.

4.4.2 Protectiveness

Institutional controls will not reduce the contamination levels at the site, but would eliminate risk to construction workers, residents and the general public by controlling potential exposure pathways.

5.0 Technology/Approach Screening

The following discussion provides a review of specific treatment processes/approaches associated with those general response actions that have the potential to provide remedial benefit at the site. The technologies/approaches are grouped according to the media that they are designed to treat, and reviewed based on their site-specific applicability and ability to achieve the RAOs that have been developed for OU1. Based on the results from the evaluation, preferred technologies/approaches are identified for each grouping and will be used in the subsequent development of remedial alternatives in Section 6. The results from the technology/approach evaluation are summarized in Table 5-1.

5.1 Soil

The previous review of general response actions for soil indicates that excavation, *in situ* treatment, containment/removal of separate phase product, and institutional controls could be applied in OU1 and provide some level of benefit. Discussions of these specific technologies/approaches are provided below.

5.1.1 Excavation and Disposal

Excavation and disposal/treatment of impacted soils is a physical process that removes the contaminated soil for ex-situ management. Excavation and off-site disposal would consist of the following basic elements: site preparation, excavation shoring, dewatering, excavation of impacted soils, treatment prior to shipment (if required), loading, transport, and disposal, backfilling, and site restoration. Each of these elements is discussed below.

Site preparation activities would include erecting security fencing, relocation of utilities, installation of erosion controls, delineation of soil stockpile/loading areas and construction of decontamination pads/facilities.

Trench boxes could be used to support small, shallow excavations in the vadose zone. More extensive and deeper excavations (up to 20 ft bgs) would require the use of additional shoring, e.g. sheet pile, to support the excavation and protect nearby structures.

Dewatering would be required for excavation below the water table. Sumps would be dug at various locations within the excavation area and submersible pumps installed. The dewatering rate is expected to be relatively high (possibly several hundred gallons per minute), with water pumped into an on-site treatment system. The treatment system would consist of settling tanks (typically 20,000 gallon), a filtration unit to remove silt, and a contaminant treatment unit, likely activated carbon. Treated water would be discharged to the POTW under permit.

Excavation using traditional construction equipment would proceed after the groundwater is drawn down. Excavated soil would be placed in lined and covered stockpile areas on site or loaded directly into trucks. Excavated soil that exhibits residual free liquid would require additional treatment using drying/stabilization agents prior to shipment. Waste characterization sampling would be conducted either pre- or post-excavation for acceptance at the selected disposal facility, e.g. permitted landfill or thermal desorption facility. Material would be shipped by truck using appropriate

procedures/documentation (waste profile sheets/manifests). Trucks would be inspected, decontaminated as necessary, and covered prior to leaving the site.

Once the excavation depth is reached, confirmation samples would be collected and the excavation would be backfilled using common borrow from a clean off-site source and graded. Remediation support equipment (water treatment system, soil stockpile areas, decontamination area, and site trailers) would be removed. Paved roads, walkways, grass areas, trees, and other site features would be restored.

5.1.1.1 Site Applicability

The continued use of the property for multi-residential buildings limits the extent of excavation to contaminated areas outside of the building and utility setbacks (approximately 50% of the surface area of the site). In addition, the practical depth of excavation (20 ft bgs in an urban setting) would further limit access to approximately 27% of the total impacted soil volume, and 6% of the DNAPL at the site.

Excavation would place significant constraints on the property owners and residents since the excavation area and adjacent locations for the stockpiling, transfer of impacted media and backfill would not be available for public use during excavation. Excavation activities will also provide the potential for odor, dust and noise. Although measures to mitigate the potential risks from these conditions would be employed, they would pose a significant inconvenience and potential risk to residents and owners of the property and to adjacent properties.

5.1.1.2 Ability to Meet Remedial Action Objectives

Excavation and disposal could be used to eliminate direct contact risk to the potential receptors, i.e. construction workers, by removing impacted soil from shallow locations. However, excavation would not significantly reduce the level of contamination in OU1 since only a small quantity of the impacted soil is located in accessible locations.

5.1.2 In-Situ Treatment

The review of *in situ* treatment indicates that the principal benefit of the approach lies in its ability to access impacted soil to a greater depth than excavation. The following discussion provides a review of several specific technologies including chemical oxidation and solidification.

5.1.2.1 Chemical Oxidation

In situ chemical oxidation (ISCO) is a source reduction process that injects a chemical oxidant into the pore space of the contaminated soils. An appropriate reagent would be selected to react with the constituents of interest and oxidize them into non-toxic reaction products. Conventional ISCO treatment requires the installation of multiple vertical injection wells in the treatment area. Liquid chemical mixtures would be prepared and injected using pumps, hoses, and tanks. The effectiveness of ISCO is highly dependent on subsurface soil conditions and nature of the contaminants present. Several injection events are typically required to overcome both the effect of naturally occurring organic carbon, metals, and minerals present in the subsurface and the potential for uneven distribution of reagents. Additionally, although research is ongoing with several commercial companies, ISCO has not been demonstrated to be effective on DNAPL at MGP sites.

Site Applicability

ISCO is not generally applicable to shallow impacts since the reaction of the oxidant with the impacted soil may generate excessive heat and steam at the ground surface, and may damage utility lines. However, ISCO may be appropriate to treat impacts in the saturated zone and has the potential to reach impacts located below the practical depth of excavation (20 ft. bgs), providing access to approximately 52% of the total soil impacts. ISCO may also provide limited treatment underneath buildings through subsurface transport of the reagent in groundwater. The vapors produced by the typically exothermic reactions may cause effects that require installation of a vapor extraction system to assure that the ISCO process does not release vapors into the buildings.

Ability to Meet Remedial Action Objectives

ISCO is not generally applicable to shallow soil impacts and therefore cannot eliminate direct contact risk to construction workers. Although ISCO can access the entire depths of impacts in the saturated zone, the inability to completely treat areas under the buildings/utility lines would limit the reduction of contamination to less than 50%.

5.1.2.2 *In situ* solidification

In situ solidification (ISS) is a source containment process that uses cement slurry to immobilize the constituents of interest in the soil by decreasing the relative permeability of the impacted media. Augers or jet grout rigs are typically used to introduce cement slurry in overlapping columns producing a monolithic solidified mass to “isolate” the areas of contamination from groundwater flow.

ISS would occur in three phases. In the preparation phase, utilities would be relocated and major subsurface obstructions such as concrete debris and foundations would be removed by conventional excavation. In the second phase, impacted soils in the accessible areas would be mixed with the cement slurry and allowed to cure to a solidified mass. The solidification process results in an increase in soil volume, typically ranging from 10 to 30%, with the excess material, or “spoils”, typically transported off-site for disposal at a permitted landfill. The third phase would be site restoration including final grading, addition of 2 ft. of clean soil, and seeding or other appropriate surfacing. The paved areas, lighting, trees, and grass areas would be restored. A notice would be placed in the property deed describing the location and characteristics of the solidified material.

Site Applicability

Solidification has the ability to reach the entire depth of impacts at the site and the physical delivery system (injection mechanism and overlapping areas of application) reduces the potential effect of preferential pathways and variability of soil type that can adversely affect ISCO treatment. However, ISS can only be used in accessible areas of the site, limiting its application to approximately 52% of the total soil. Given the use of large construction equipment, solidification poses the same constraints of limited property use to residents/property owners as excavation.

Ability to Meet Remedial Action Objectives

Solidification would not affect the potential direct contact risk to construction workers since, given the low permeability nature of the solidified mass, it is not appropriate for use in areas such as utility line corridors where routine construction activities could be required. Additionally, ISS treatment does not result in a decrease in constituent concentration so it would have minimal effect on site-wide levels of soil contamination.

5.1.2.3 Bio-Remediation

Enhanced bio-remediation is a source treatment process where nutrients or other additives are injected into the subsurface environment in order to encourage natural biodegradation of low molecular weight constituents such as BTEX and naphthalene. Nutrients can be injected up-gradient from inaccessible areas in the saturated zone to treat contamination that may not be able to be reached using other technologies. However, the effectiveness of treatment in those areas is uncertain due to the potential for non-uniform distribution of nutrients due to variations in the permeability of subsurface media. Bio-remediation is not effective in areas of highly concentrated impacts due to potential toxicity to the microbial population.

Site Applicability

Nutrient injection could be applied fairly broadly at the site with a minimum of disturbance to site residents. However, reductions in constituent concentrations would only occur over an extended period of time and are not likely to be dramatic. Bioremediation would not have a measurable effect on high molecular weight constituents such as PAHs or in areas with NAPL.

Ability to Meet Remedial Action Objectives

Bio-remediation has the potential to provide some reduction in constituent concentrations, however it is unlikely that treatment rate or endpoint would be appropriate to address the risk to construction workers or provide a significant reduction in site-wide levels of contamination.

5.1.2.4 Soil Vapor Extraction

Soil vapor extraction is a technology process that uses vacuum pumps connected to extraction wells screened in the vadose zone to remove contaminated soil vapor for on-site ex-situ treatment. The flowing air also draws un-contaminated air past the contaminated soil driving the preferential partitioning of VOCs into the vapor phase. The wells are generally spaced relatively closely together, and are connected through piping to a central vacuum and treatment system.

Site Applicability

Soil vapor extraction provides the potential for reducing concentrations of low molecular weight constituents in the vadose zone. However, the significant surface infrastructure (wells, power/steam supply, vapor extraction/treatment system) and long-term nature of treatment make its use impractical since it would preclude the use of public areas of the property for extended periods of time. Also, since soil vapor extraction would treat only the vadose zone, 95% of impacts would remain in place.

Ability to Meet Remedial Action Objectives

Since vapor extraction is not practical for use at the site, it cannot meet the site-specific RAOs.

5.1.2.5 *In situ* Thermal Treatment

In situ thermal treatment is a process where subsurface media are heated in-place to reduce levels of contamination. Typically, heat is applied through a series of tightly-spaced wells (15 foot spacing or less). There are three basic means of heating: steam injection, electrical resistance, and thermal conductance. With steam injection, steam is generated above ground and injected into the subsurface. Electrical resistance heating involves installation of electrodes and creating an electrical current between the electrodes, with the resulting increase in the temperature of the impacted media. Typically, the maximum temperature achieved with steam injection and electrical inductance heating

is 212°F. Treatment is often used in conjunction with NAPL recovery wells to improve product recovery, and a vapor extraction system is generally used to control vapors and excess steam. Thermal conductance heating provides a means to achieve more elevated media temperatures (up to 600°F) utilizing heater elements in wells to directly heat subsurface soils. Buffer zones are required around buildings to prevent migration of contaminated vapors into the structures, and around utilities to prevent damage to sub-surface utilities.

Site Applicability

In situ thermal treatment would only be considered for use in the vadose zone of the site since the energy requirements to heat saturated media would be prohibitive, and therefore could not address 95% of impacts. Additionally, the significant surface infrastructure (wells, power/steam supply, vapor extractions system) and long-term nature of treatment make the use of thermal treatment impractical since it would preclude the use of public areas of the property for extended periods of time.

Ability to Meet Remedial Action Objectives

Since *in situ* thermal treatment is not practical for use at the site, it cannot meet the site-specific RAOs.

5.1.3 Containment/Removal of Separate Phase Impacts

Several technologies are available to contain DNAPL. These processes include barrier walls and/or recovery areas. Common types of barrier walls include sheet pile walls, soil mix walls, or jet grout barriers. Sheet piling can be used to contain NAPL by driving sheet pile into a confining layer around the NAPL impacted soil. The sheet pile is interlocked and grouted between the interlocks to form a barrier that is largely impenetrable to the flow of water and/or NAPL. Underground utilities must be disconnected where they would cross the barrier wall, and re-routed. Soil mixing creates a barrier using overlapping vertical columns of soil and grout. The columns are installed using an auger (typically 8 -12 ft. in diameter) and keyed into the confining layer. The depth that sheet piles or soil mix walls can be placed is usually limited to 30 ft bgs. Jet grouting is a process where grout is injected into the subsurface at high pressures to create overlapping grout columns (typically 3 - 6 ft. in diameter) to create the barrier wall. Jet grout can reach greater depths than sheet piling or soil mix walls. Jet grout barriers may have unknown weaknesses where preferential pathways in the subsurface result in uneven mixing of grout.

NAPL recovery can be accomplished through the use of a collection trench/sump or recovery points. At sites with relatively open access to the subsurface and NAPL depths of less than approximately 20 ft bgs, a horizontal trench is excavated below the water table to or slightly below the deepest elevation of the NAPL. Gravel and a perforated pipe would be installed at the bottom of the trench above a continuous low permeability base. The bottom of the trench and the collection pipes would be sloped towards collection points.

Recovery points would be used for sites with limited access or where NAPL was present at depths greater than approximately 20 ft bgs. Boreholes would be drilled to the appropriate depth of the impact or confining layer. After the borehole is completed, bentonite or another sealant would be installed to create an impermeable bottom. The well screen and casing material would then be installed.

NAPL extraction could be conducted using either intermittent, continuous, or passive approaches. Intermittent extraction is a process that uses mobile equipment (vacuum source and storage tank) to recover NAPL that has collected in recovery wells over an extended period of time. Intermittent

extraction allows the well to recharge in between removal events to accommodate NAPL that does not have a sufficient flow velocity to sustain active recovery. Intermittent extraction also provides flexibility in removal schedule, eliminating the need for on-site infrastructure.

Continuous (or active) extraction uses permanent infrastructure to steadily remove NAPL from the subsurface. For efficient operation, continuous extraction requires: a NAPL volume with low viscosity and sufficient size/coherence to sustain recovery efficiencies that justify permanent extraction and storage infrastructure, and soils with a high hydraulic conductivity to sustain removal.

Passive extraction is a recovery process that uses NAPL absorbent hydrophobic fabric to absorb the NAPL in the recovery point, with periodic collection, disposal and replacement. Passive recovery is appropriate for very low viscosity NAPL that cannot be removed using mechanical means. No on-site infrastructure is required other than the recovery wells.

5.1.3.1 Site Applicability

The optimum placement of continuous barrier walls at the site would be precluded by the physical limitations posed by existing buildings and utilities. As a result, recovery points provide the best approach for extracting NAPL from the subsurface.

Continuous recovery of NAPL may only be practical in areas along the eastern edge of the property where the largest areas of NAPL have been identified. However, continuous recovery would require permanent connective piping and waste storage facilities, and it is not clear from existing data whether the quantity of recoverable material would support this level of infrastructure. Intermittent and passive recovery combined could be used to provide sufficient flexibility in collection methods/schedule to match site requirements, and could be upgraded to continuous recovery if warranted.

5.1.3.2 Ability to Meet Remedial Action Objectives

Since the vast majority of NAPL is located in areas that would not be encountered during routine facility maintenance, NAPL removal would not eliminate the potential direct contact risk to construction workers. Additionally, since NAPL represents approximately 10% of the site-wide contamination, its removal would not provide a significant reduction in contamination.

5.1.4 Institutional Controls

Institutional controls could be used to place restrictions on activities where there was a reasonable potential for direct contact with impacted media, e.g. the repair of subsurface utility lines. The controls would require the use of established practices to ensure the safe handling and proper on-site management/off-site disposal of impacted soil. The implementation of the controls would be ensured through the use of deed restrictions for current and future owners of the property.

5.1.4.1 Site Applicability

Institutional Controls related to soil management would be readily implementable as evidenced by the existing Interim SMP that owners have agreed to follow during activities where impacted site soils could be encountered.

5.1.4.2 Ability to Meet Remedial Action Objectives

Institutional controls provide the ability to effectively limit the direct exposure pathway for impacted soil encountered in an excavation or brought to the ground surface as part of routine maintenance activities at the site. However, they will not reduce soil contamination levels at the site.

5.1.5 Preferred Approaches for Soil

The review of options for managing impacted soil indicates that the following approaches provide the best opportunity for achieving the RAOs given the restrictions and physical limitations of the site.

5.1.5.1 Elimination of Risk

Institutional Controls – provide the most comprehensive means for eliminating the direct contact pathway by controlling site activities

Excavation and Disposal – can mitigate the direct contact risk for the primary risk receptors (construction workers) by removing impacted soil from areas where construction could take place, e.g. utility corridors in open and accessible site areas.

5.1.5.2 Contaminant Reduction

In-Situ Chemical Oxidation – provides the ability to reach the greatest quantity of impacted media below the practical depth of excavation

Containment/Removal of Separate-Phase Products – provides the best means of reducing the quantity of NAPL at the site, with extraction through well points providing the highest degree of access to deep impacts and intermittent pumping conducted initially to determine if the use of a continuous removal system is practical.

5.2 Groundwater

The evaluation of general response actions for groundwater demonstrated that the most significant benefit would come from the treatment or removal of source material and that little additional benefit would be gained from the subsequent treatment of dissolved-phase impacts. Accordingly, technologies specifically related to dissolved-phase treatment have not been carried through in the analysis of alternatives. Evaluations of specific approaches for addressing source material including excavation and disposal, *in situ* treatment, and institutional controls are provided below.

5.2.1 Excavation and Disposal

Excavation of soil could be used to permanently remove source material located in accessible areas of the site to a depth of approximately 20 ft bgs. The process has been described generally in Section 5.1.1.

5.2.1.1 Site Applicability

As described previously, excavation provides the potential to address only approximately 27% of the source material at the site and would severely limit site access for residents and the owners of the property.

5.2.1.2 Ability to Meet Remedial Action Objectives

Excavation and disposal would permanently remove contaminants from the saturated zone in limited areas of the site. However it is likely that the quantity of remaining source material in inaccessible areas would continue to contaminate groundwater to current constituent levels.

5.2.2 *In Situ* Treatment

The review of *in situ* treatment indicates that the principal benefits of the approach lies in its ability to access impacted soil to a greater depth than excavation and to minimize inconvenience and disruption for the residents/owners of the property. The following discussion provides a review of two specific technologies including chemical oxidation and solidification.

5.2.2.1 Chemical Oxidation

The ISCO process was described previously in Section 5.1.2.1. The following section provides an evaluation of site-specific applicability and benefits when applied to source material.

Site Applicability

ISCO could be applied in accessible areas of the site to the depth of impacts. As a result, it has the potential to address approximately 55% of the contaminated media in the saturated zone. Disruption of normal site activities would be limited to the specific injection periods, although multiple injection cycles would likely be required to reach an endpoint of treatment. ISCO has not been demonstrated to be effective on DNAPL from MGP sites although recent technologies that combine surfactant with the oxidant are currently being evaluated in field demonstration tests in New York State.

Ability to Meet Remedial Action Objectives

ISCO would reduce contaminant levels in the saturated zone within the accessible areas of the site. However it is likely that the quantity of remaining inaccessible source material would continue to contaminate groundwater to current constituent levels.

5.2.2.2 *In situ* solidification

Site Applicability

Solidification has the ability to reach the entire depth of impacts at the site and the physical delivery system (injection mechanism and overlapping areas of application) reduces the potential effect of preferential pathways and variability of soil type. However, ISS could only be used in accessible areas of the site, limiting its application to approximately 55% of the source material at the site. Given the use of large construction equipment, solidification poses the same constraints of limited property use to residents/property owners as exaction.

Ability to Meet Remedial Action Objectives

ISS would not reduce contaminant levels in the saturated zone, but would isolate impacts from contact with groundwater within the accessible areas of the site. However, it is likely that the significant quantity of source material remaining in inaccessible areas would continue to contaminate groundwater, potentially to current levels of impact.

5.2.3 Institutional Controls

Institutional controls could be used to place restrictions on the use of groundwater to eliminate the direct contact and ingestion risk. The controls would prohibit the installation of wells on the property and require the use of established practices to protect site construction workers. The implementation of the controls would be ensured through the use of deed restrictions for current and future owners of the property.

5.2.3.1 Site Applicability

Institutional Controls related to water use would be readily implementable as evidenced by the existing agreement with site owners.

5.2.3.2 Ability to Meet Remedial Action Objectives

Institutional controls provide the ability to effectively limit the ingestion/direct exposure pathway for impacted groundwater. However, they will not reduce contaminant levels in groundwater.

5.2.4 Preferred Approaches for Groundwater

The review of options for managing source material indicates that the following approaches provide the best opportunity for achieving the RAOs for groundwater given the restrictions and physical limitations of the site.

5.2.4.1 Elimination of Risk

Institutional Controls – provide the most comprehensive means for eliminating the ingestion/direct contact pathways by controlling site activities.

5.2.4.2 Contaminant Reduction

In-Situ Chemical Oxidation – provides the ability to reach the greatest quantity of impacted media below the practical depth of excavation and provide some level of contaminant reduction.

5.3 Soil Gas

Indoor air monitoring assessment activities at the site indicate that indoor air quality within the buildings is not currently being impacted by subsurface MGP-related impacts. However, the potential for future indoor air quality concerns exists because MGP constituents have been found in soils and soil gas beneath several of the site buildings. The following approaches are evaluated to address the vapor intrusion pathway.

5.3.1 Continued Monitoring

Indoor air monitoring could be conducted on a continuing basis in the basement/crawlspace areas of site buildings to document site conditions. Monitoring is an effective means of identifying a significant change in conditions and evaluating the associated effect on the vapor intrusion pathway.

5.3.1.1 Site Applicability

Indoor air monitoring is currently being conducted at the site on a scheduled basis, and is appropriate given the current and future use of the site as a residential property.

5.3.1.2 Ability to Meet Remedial Action Objectives

Monitoring by itself would not meet the RAOs for the site, but in the event of a change in site conditions, would provide the basis for identifying locations where additional engineering controls were required.

5.3.2 Engineering Controls

5.3.2.1 Sub-slab Venting

Sub-slab venting is an approach that reduces indoor air contaminant concentrations by providing preferential pathways for the contaminated soil gas to travel from beneath the building to the outside. Sub-slab venting can be either passive or active.

Passive venting is an indoor air mitigation technique used to prevent soil vapors that lie beneath a building from impacting the indoor air quality in the building. Passive venting is effective when a pressure differential exists between the building and beneath the building. The venting system relieves this pressure and provides a preferential pathway for vapors to be released. If conditions exist where air pressure beneath the building is greater than local atmospheric pressure, soil vapors will be pushed through the venting systems, thereby depressurizing the soil vapors beneath the building.

Active venting has a similar function, but incorporates the use of a blower in the exhaust pipe network to create sub-slab depressurization conditions. The blower conveys the soil vapors from the intake to the exhaust, thereby depressurizing the soil vapors beneath the building.

Both passive and active venting are employed after the bottom concrete slab of each building in question has been inspected and any defects sealed. They include the installation of a slotted pipe directly beneath the concrete slab, either vertically or horizontally into the plume of soil vapor contamination. The pipe is then plumbed to discharge above roof level of the building. The number of installation and discharge points necessary for this venting to be effective is determined on a site-specific basis. The piping network used to vent soil vapors from the building would be designed and installed to be as unobtrusive as site conditions permit.

Site Applicability

The operation of a sub slab venting system could be seriously compromised by the close proximity of the water table to the base of the building foundations (observed to be within approximately 18 inches [in.]) at the Peter Cooper Village complex. Additionally, the potential disruption/risk to building residents posed by the fugitive emissions associated with the excavation/drilling required to install the system make the use of a sub-slab remedy impractical.

Ability to Meet Remedial Action Objectives

Sub-slab venting has the potential to reduce constituent concentrations in areas immediately below the building foundations. However, the venting system would not function reliably during periods when the water table rises to the depth of the building foundations.

5.3.2.2 HVAC Improvement

HVAC improvement can be used to isolate the airflow in the below ground floors of the building. The HVAC system would be modified to maintain positive pressure, increase the air exchange rate, or treat re-circulated air to remove VOCs. Modifying the HVAC system to maintain positive pressure would prevent contaminated soil gas from being drawn into the building. Increasing the air exchange

rate would reduce contaminant concentrations in the air by mixing contaminated soil gas with large volumes of clean outside air. Treating the re-circulated air using a filtration or thermal treatment system would treat VOCs from all sources (solvents, cleaning products) as well as soil gas.

Site Applicability

HVAC improvement could be accomplished with minimal disruption to building residents, as the below ground floors are used only for storage.

Ability to Meet Remedial Action Objectives

HVAC improvement would reduce contaminant concentrations in the indoor air for all constituents, reducing direct contact risk. Overall site soil-gas contamination would not be reduced, since HVAC improvement would not treat the source of soil gas contamination.

5.3.3 Preferred Approaches for Soil Gas

The review of options for managing source material indicates that the following approaches provide the best opportunity for achieving the RAOs for indoor air given the restrictions and physical limitations of the site.

5.3.3.1 Elimination of Risk

Continued Monitoring to identify buildings where additional controls are required.

5.3.3.2 Contaminant Reduction

HVAC Modification— provides the most reliable approach to mitigate concentrations of constituents of interest (regardless of source) in the basement/crawlspace areas of the buildings.

6.0 Alternatives Evaluation

The preferred technologies/approaches from the previous section have been assembled into a set of five remedial alternatives for OU1. As required by DER-10 guidance, the alternatives cover the range of activities from no action to complete site restoration and include the following:

- Alternative 1 – No Action
- Alternative 2 – Institutional Controls
- Alternative 3 – Institutional Controls and Soil Removal
- Alternative 4 – Institutional Controls, Soil Removal and Source Material Control
- Alternative 5 – Complete Site Restoration

This section reviews these alternatives on their ability to meet the site-specific Remedial Goals and Remedial Action Objectives (RAOs) as well as the following criteria:

- Overall protection of human health and the environment - considers how the remedial alternative prevents or mitigates potential risks under current and likely future conditions. Alternatives that maintain the current condition of no significant risk or that permanently reduce or eliminate exposure pathways under any reasonable future site use without causing significant risks during implementation, are rated as "Good." A "Fair" rating is applied to alternatives that provide adequate protection of human health and the environment but have one or more potential drawbacks, such as reliance on long-term maintenance or institutional controls, and uncertainty regarding the final levels of contamination. A "Poor" rating applies to alternatives that do not protect against reasonably foreseeable future exposures to site contaminants or may increase the likelihood of certain exposure scenarios (e.g., increased contaminant mobility or toxicity). A rating of "Unacceptable" is given to alternatives that, on balance, pose more risks to human health and the environment than no action.
- Compliance with standards, criteria and guidance values (SCGs) - addresses whether the remedy will meet the remedial goals and SCGs presented in Section 3. For the purpose of this evaluation, the principal applicable standards/criteria have been assumed to be the Part 375 soil criteria for restricted residential use and the Ambient Water Quality SCGs for groundwater. A rating of "Good" is given to alternatives that are expected to achieve all the remedial goals and either achieves the SCGs or is expected to result in significant reductions (90% or more) in current concentrations. A rating of "Fair" is given if an alternative will achieve the remedial goals but is not expected to achieve the SCGs. A rating of "Poor" is given if an alternative is not expected to achieve most of the remedial goals and SCGs.
- Long-term effectiveness and permanence - evaluates the magnitude of remaining risks and the adequacy and reliability of controls. Alternatives received a rating of "Good" if there is a reasonable expectation that the primary objectives can be met and maintained. Alternatives that do not require maintenance of any on-going site controls generally were rated higher than alternatives that required on-going maintenance activities. Alternatives that completely remove or completely destroy contaminants received a better rating than alternatives that change the chemical composition or rely on containment. If an alternative has been

successfully implemented at another MGP site under similar conditions and demonstrated long-term effectiveness, the remedial action generally receives a rating of "Good". A rating of "Fair" was given to alternatives that had a reasonable expectation of providing a permanent remedy. Alternatives with a "Fair" rating may result in contaminants remaining in place and may require long-term maintenance of controls. A "Poor" rating was given to alternatives that do not remove or treat contaminants, do not provide adequate controls to prevent future exposure scenarios, or rely on on-going maintenance of controls that will be difficult to assure. A rating of "Unacceptable" is given to technologies that have been tested under similar conditions and were found to be ineffective.

- Reduction in toxicity, mobility, and volume (TMV) - considers the quantity of contaminants that are permanently destroyed, immobilized, or otherwise treated. The degree to which the treatment may be irreversible, and the nature and amount of treatment residuals are considered. Alternatives that remove contaminants from the site or that fully treat (i.e. mineralize) contaminants received a rating of "Good." A rating of "Fair" was provided to alternatives that immobilize contaminants, reduce contaminants to less toxic forms, or provide only partial treatment. Treatment alternatives that are reversible or provide no significant reduction in toxicity, mobility, or volume received a rating of "Poor." A rating of "Unacceptable" was given to technologies which under similar circumstances increased the toxicity, mobility, or volume of contaminants.
- Short-term effectiveness - evaluates potential risks to the public, remediation workers, and the environment during implementation of the remedy. The duration of remedial activities is also considered. Alternatives with minimal intrusive site work received a rating of "Good" for short-term effectiveness. Alternatives that pose short-term risks that can be effectively managed received a rating of "Fair." Alternatives received a rating of "Poor" if they present significant short-term risks and the ability to fully control these risks is uncertain. In general, alternatives that include bringing partially treated or untreated contaminants to the surface received a rating of "Fair" if potential exposures are short and easily controlled. If contaminants are brought to the surface over a long period of time and exposures are difficult to control, a rating of "Poor" was given to the alternative. A rating of "Unacceptable" is given to technologies that, despite implementation of control technologies, would still present unacceptable risks to receptors.
- Implementability - considers potential obstacles to construction of the remedy at the site. The availability of personnel and equipment to implement the remedy is considered as is the need for permits and the likelihood of obtaining regulatory approvals. Site owner acceptance of the alternative is also a key issue. The expected effectiveness and ability to monitor the effectiveness of the alternative are also considered. Alternatives that are known to have been successfully implemented at similar sites receive a rating of "Good." Alternatives that are likely to be implemented successfully but where uncertainty exists in terms of effectiveness, ability to confirm treatment, or require extensive permitting received a rating of "Fair." A "Poor" rating was given to alternatives that are expected to be difficult to implement. A rating of "Unacceptable" is given to alternatives that are not possible to implement.
- Cost – provides an estimate of the capital and operational costs for the alternatives for reference and comparison. Summary sheets providing the basis for the cost estimates are included in Appendix E of this document.

The final criterion, community acceptance, will be evaluated at a later time as part of the public hearings which are part of the Citizen Participation Plan.

Each of the proposed alternatives is described below, and evaluated in terms of the above criteria and the site-specific RAOs, i.e. eliminating potential exposure pathways for users of the property, and removing sources of MGP contamination to the extent feasible. As required in DER-10, the description of each alternative includes a discussion of its size/configuration, schedule, disposal options, permit requirements and other factors required for evaluation. A summary of the findings from the evaluation is presented in Table 6-1.

6.1 Alternative 1 – No Action

The evaluation of No Action is a requirement of DER- 10 to provide a baseline for the comparison of the other alternatives.

6.1.1 RAO Evaluation

6.1.1.1 Elimination of Potential Exposure Pathways

No Action would not change current conditions at the site and therefore, would not eliminate or manage the potential exposure pathways for soil, groundwater or soil gas.

6.1.1.2 Reduction/Mitigation of Contamination

No Action would have no effect on the levels of contamination at the site. The only means of contaminant reduction would be via natural attenuation processes. The timeframe for remediation with this alternative is estimated to be more than 100 years for natural processes to degrade constituent of interest at subsurface locations. This option would not have any spatial, disposal or permit requirements. There are also no limitations or other factors necessary to evaluate this alternative.

6.1.2 Criteria Evaluation

6.1.2.1 Overall protection of public health and the environment

No Action for soil, groundwater and soil gas is rated as “Poor” for overall protection of public health and the environment. Although current site conditions do not pose a significant risk to public health or the environment, No Action would not address the potential risk posed by changes in site conditions or activities.

6.1.2.2 Compliance with standards, criteria and guidance (SCGs)

No Action is rated as “Poor” for this criterion. This alternative does not achieve the RAOs and does not result in site-wide compliance with the SCGs. No Action would not result in the reduction of contaminant concentrations in soil, groundwater or soil gas other than from the potential effect of natural processes.

6.1.2.3 Long-term effectiveness and permanence

No Action is rated “Poor” for this criterion. Since no activity would be conducted to remediate site impacts, contaminants will remain in place with no means to control the potential exposure pathways.

6.1.2.4 Reduction in toxicity, mobility and volume

No Action is rated “Poor” for this criterion. No Action would not result in the reduction of contaminant concentrations or volumes in soil, groundwater or soil gas other than from the potential effect of

natural processes. Also, contaminants would remain in place with no means to control off-site migration.

6.1.2.5 Short-term effectiveness

No Action is rated “Good” for this criterion. This alternative poses no significant potential implementation risks to the public, remediation workers, or the environment as no intrusive site work is proposed. Also, no time is required for implementation.

6.1.2.6 Implementability

No Action is rated “Good” for this criterion since implementation would require no coordination with property owners and would provide no disruption to residents.

6.1.2.7 Cost

There would be no cost for this alternative.

6.2 Alternative 2 – Institutional Controls

This alternative includes the following:

- Institutional Controls as a legally binding mechanism to enforce the implementation of a finalized Site Management Plan (SMP);
- Installation of properly constructed product recovery wells in appropriate locations, with NAPL removal/off-site disposal conducted, as required, using intermittent and passive extraction processes on an appropriate schedule; and
- Continued monitoring of indoor air quality.

6.2.1 Description of Activities

6.2.1.1 Institutional Controls

The alternative will include the use of Institutional Controls to meet the NYSDEC requirement for Restricted Residential Use (Part 375-1.8 (g)(2)(i)), i.e. general prohibition of vegetable gardens, single family housing, and public recreation having a reasonable potential for contact with MGP impacted soil, prohibit the use of groundwater and installation of pumping wells, and ensure the implementation of the site management plan (SMP) in required situations to eliminate potential exposure pathways for construction workers, residents and the general public. The SMP will place restrictions and requirements on the methods used during excavation or management of soil and/or groundwater and soil gas during indoor work. The SMP will provide protection for the public, site workers, and the environment during invasive site work and is designed to eliminate the exposure pathway of soils, groundwater and associated soil gas. When invasive site work is conducted, the SMP will provide support and guidance for utility and maintenance workers that will conduct any utility repairs, fence repairs, tree planting, construction, etc., within the property boundaries below a depth of four feet or below a concrete foundation or slab in site buildings. Note that specific requirements of any Institutional Controls will require the review and approval of the property owner.

6.2.1.2 Optimization of Product Recovery Activities

The alternative would require the installation of up to 10 recovery wells (number defined by general spacing within accessible locations within the area where NAPL has been observed during historical

field investigations). Specific locations and well spacing will be determined during the design phase. The recovery wells would have a diameter of 4 to 12-inches to facilitate the collection of mobile product, and be installed to the depth of the expected impacts.

The monitoring wells of the existing NAPL removal program have accumulated both low viscosity and high viscosity product which can be removed using a variety of pumping methods. In the optimized program, the NAPL would be recovered initially with a combination of intermittent extraction and possibly passive extraction. Intermittent extraction is a process that uses a mobile vacuum pump and storage tank to recover NAPL from the recovery wells. Intermittent extraction provides sufficient flexibility to allow the well to recharge between removal events for NAPL that does not have a sufficient flow velocity to sustain active recovery. Passive extraction is a recovery process that uses NAPL absorbent hydrophobic fabric to absorb the NAPL in the recovery point. The fabric is periodically collected and replaced, with disposal at a permitted off-site facility. If warranted by the quantity of recoverable product and recharge rate, an active recovery, i.e. dedicated pumps and infrastructure, system would be installed in appropriate areas.

6.2.1.3 Monitoring of Indoor Air

Indoor air monitoring will continue to be conducted in the site buildings on a schedule negotiated with NYSDEC/NYSDOH and the property owner. The remedy would be re-evaluated if/when the data demonstrates that a change in conditions has occurred and the vapor intrusion pathway is complete. If required, engineering controls would likely consist of modifications to the building's HVAC system in the basement/crawlspace areas to either increase the air exchange rate or maintain positive pressure. Note that an increase in ventilation rate would provide the simplest option for reducing constituent concentrations in the basement and crawlspace areas of the buildings. A number of firms offer "Green" designs that utilize heat recovery ventilation systems that operate at 70 to 90% efficiency to minimize the effect on the heating/cooling systems of the buildings.

6.2.1.4 Summary of Remedial Processes

Optimized NAPL removal is the remedial process included in Alternative 2.

1. Size and configuration of process options: The design involves the installation of approximately 10 wells, with intermittent removal of product initially. Additional infrastructure, including dedicated pumps, piping and NAPL storage would be incorporated, if warranted.
2. Time for remediation: Installation of wells would require approximately 1 – 3 months. If warranted, the installation of the infrastructure and storage building for active product recovery would require up to one year. The timeframe is dependent upon the number of logistical issues. Inspection and removal of accumulated NAPL would continue to an appropriate endpoint as negotiated with NYSDEC.
3. Spatial requirements: Wells would be completed beneath the ground surface, where feasible. If required, the active well infrastructure would be completed beneath the ground surface, and associated NAPL storage building would require approximately 20 feet by 40 feet of space.
4. Options for disposal: Well tailings from construction would be characterized and disposed of at an appropriate off-site facility. NAPL accumulated in the recovery wells would also be sent to an off-site facility for disposal.

5. Permit requirements: No permits would be required.
6. Limitations or other factors necessary to evaluate the alternative: The number, design, and location of wells would be developed in more detail in the design phase and modified as appropriate during the initial period of intermittent/passive recovery. The amount of mobile NAPL in the potential source areas to be treated is not known with certainty.

6.2.2 RAO Evaluation

6.2.2.1 Elimination of Potential Exposure Pathways

Institutional controls will eliminate soil and groundwater exposure pathways, and will require the implementation of suitable engineering controls in buildings where the vapor intrusion pathway is demonstrated to be complete.

6.2.2.2 Reduction/Mitigation of Contamination

The Institutional Controls alternative would continue to reduce the volume of NAPL over time. However, since NAPL impacted soil represents only a small portion of the soil impacts (approximately 10%), there is likely to be little effect on the site-wide level of contamination. The timeframe for remediation with this alternative is estimated to be more than 100 years for natural processes to degrade constituents of interest at subsurface locations.

6.2.3 Criteria Evaluation

6.2.3.1 Overall protection of public health and the environment

The Institutional Controls alternative is rated "Fair" for the overall protection of public health and the environment. This alternative maintains the current condition of no significant risk by using appropriate practices for soil, groundwater and soil gas management during intrusive work as an institutional control.

6.2.3.2 Compliance with standards, criteria and guidance (SCGs)

Institutional Controls is rated "Fair" since it meets the majority of remedial goals and SCGs. Legally enforceable institutional controls would address the potentially complete risk pathways, and in, accordance with NYSDEC Part 375-6.5 (a)(1)(ii), would reduce the number of potential exceedances of criteria by eliminating the requirement to consider soil cleanup objectives for the protection of groundwater.

6.2.3.3 Long-term effectiveness and permanence

The Institutional Controls alternative is rated "Fair" for long-term effectiveness and permanence due to the legally binding nature of the deed restrictions.

6.2.3.4 Reduction in toxicity, mobility and volume

The Institutional Controls alternative is rated "Poor" for this criteria since the NAPL recovery system is likely to only remove a small percentage of the site impacts.

6.2.3.5 Short-term effectiveness

The Institutional Controls alternative is rated “Fair” for short-term effectiveness. This alternative poses limited short-term risks, which can be easily managed, to the public and remediation workers during installation of the recovery wells and associated infrastructure.

6.2.3.6 Implementability

The Institutional Controls alternative is rated “Good” for this criterion since it requires only modest modification to the approach that is currently being used at the site. Note that Institutional Controls would have to be reviewed and approved by the owners of the site.

6.2.3.7 Cost

The capital costs for the Institutional Controls alternative is estimated to be \$1,500,000 (Table E-1), including \$670,000 for the initial installation of the NAPL recovery system. The annual O&M cost for NAPL monitoring/disposal and annual indoor air monitoring cost is assumed to be \$255,000 per year based on the cost of the existing monitoring and recovery program. The net present value for 30 years of O & M at 3% interest is \$5,000,000. The total estimated cost for this alternative is \$6,500,000.

6.3 Alternative 3 – Institutional Controls and Soil Removal

This alternative includes the following:

- Removal of 9,000 cy of impacted soil in the vadose zone from 13 separate, accessible areas of the site (Figure 4-1) to minimize the direct contact risk to construction workers;
- Institutional Controls requiring the implementation of the SMP to eliminate potential exposure pathways related to groundwater and soil during construction work in the areas under and immediately adjacent to existing buildings;
- Installation of properly constructed product recovery wells in appropriate locations, with NAPL removal/off-site disposal conducted as required using intermittent and passive extraction; and
- Continued indoor air monitoring.

6.3.1 Description of Activities

6.3.1.1 Removal of Impacted Soil from the Vadose Zone

Excavation and off-site disposal (excavation) of vadose zone soil in accessible areas would consist of the following basic elements: site preparation; excavation shoring (trench boxes); excavation of impacted soils, loading, transport, and disposal of impacted soil, backfilling, and site restoration. Each of these elements is discussed in the paragraphs that follow.

The evaluation of excavation considers the removal of the soil from the initial level of MGP impacts (5 ft bgs) to the water table (approximately 9 ft bgs) in accessible areas of the site to address the potential direct contact risk to construction workers. As indicated in Section 2.2.2.2, there is the potential to encounter MGP impacts in shallower soil in limited areas of the site. Where and if subsurface soil MGP-impacted soils are noted at depths shallower than 5 ft bgs they will be addressed in the same fashion as the impacted subsurface soil (lower fill/natural soil) at depths greater than 5 ft bgs. Site preparation activities would include erecting fencing, setting up site trailers, erosion controls, soil stockpile areas, soil loading areas, decontamination stations, and baseline air

monitoring. Soil removal in open areas would be conducted using conventional excavation equipment, while soil immediately adjacent to utility lines would be removed using an air knife and vacuum truck. Areas undergoing excavation would not be available for public use during excavation, resulting in a significant disruption to site residents.

Measures to mitigate odor, noise, and dust during excavation would be deployed, and a fence line monitoring program would be used to identify any potential vapor impacts to the public, so controls could be employed. Contaminated soil would be placed in lined and covered stockpile areas on site or loaded directly into trucks for subsequent transport off-site.

Excavated soils would be sent to a permitted off-site landfill or thermal desorption facility. Waste characterization sampling would be conducted. Documentation would include waste profile sheets and waste manifests. Soils would be loaded on site into trucks. Trucks would be inspected, decontaminated as necessary, and covered prior to leaving the site.

Once the excavation depth is reached, the excavation would be backfilled using common borrow from a clean off-site source. Site restoration would begin with final grading of the site, removal of remediation support equipment/facilities (water /soil stockpile areas, decontamination area, and site trailers), and restoration of paved roads, walkways, grass areas, trees, and other site features.

6.3.1.2 Optimization of Product Recovery Activities

The approach for optimizing product recovery activities was described previously in Section 6.2.1.2.

6.3.1.3 Monitoring of Indoor Air

The approach for indoor air monitoring was described previously in Section 6.2.1.3.

6.3.1.4 Summary of Remedial Processes

Excavation and optimized NAPL removal are the remedial processes included in Alternative 3. The excavation summary is provided below. See Section 6.2.1.4 for the summary of the optimized NAPL removal.

1. Size and configuration of process options: Approximately 9,000 cy of soil would be removed from 13 separate areas of the site. Shoring would use trench boxes, fencing, site trailers, erosion controls and soil stockpile areas would require placement. Soil stockpile and equipment decontamination areas would be needed. Approximately 450 truckloads of soil would be removed.
2. Time for remediation: Excavation and site restoration would require approximately one year to complete.
3. Spatial requirements: The estimated excavation area is approximately 62,500 square feet (1.4 acres). Additional space would be necessary for soil stockpiles, heavy equipment staging, etc.
4. Options for disposal: On-site treatment of the excavated soil would not be feasible. Off-site disposal would primarily be at a thermal desorption facility. Wastes that do not meet the size requirements (greater than 3 in. diameter) would be disposed at a landfill permitted to handle MGP wastes.

5. Permit requirements: The excavation would require construction permits.
6. Limitations or other factors necessary to evaluate the alternative: The demolition and excavation work will have significant impacts to the community (noise, odors, dust, vibrations, and truck traffic containing hazardous materials). These conditions may not be acceptable to the site residents and surrounding community.

6.3.2 RAO Evaluation

6.3.2.1 Elimination of Potential Exposure Pathways

The Institutional Controls and Soil Removal alternative would address the potential risk through active remediation (removal of impacted soil from accessible areas of the vadose zone), and Institutional Controls restricting the use of groundwater and ensuring safe work practices for construction work conducted beneath / immediately adjacent to site buildings.

6.3.2.2 Reduction/Mitigation of Contamination

The alternative would remove impacts from the vadose zone and continue to reduce the volume of NAPL over time. However, since these represent only a small portion of the soil impacts (10%), there is likely to be little effect on the site-wide level of contamination. The timeframe for remediation with this alternative is estimated to be more than 100 years for natural processes to degrade constituents of interest at subsurface locations.

6.3.3 Criteria Evaluation

6.3.3.1 Overall protection of public health and the environment

The Institutional Controls and Soil Removal alternative is rated as "Fair" for overall protection of public health and the environment. This alternative maintains the current condition of no significant risk by restricting the use of groundwater and ensuring safe work practices for construction work conducted beneath site buildings. The use of engineering controls in site buildings, if required, would ensure a condition of no significant risk for indoor air.

6.3.3.2 Compliance with SCGs

The alternative is rated "Fair" for compliance with the SCGs. Soil removal in the vadose zone would increase compliance with direct contact criteria for soil. Legally enforceable institutional controls would address the potentially complete risk pathways and eliminate the requirement to consider soil cleanup objectives for the protection of groundwater when evaluating soil impacts.

6.3.3.3 Long-term effectiveness and permanence

The Institutional Controls and Soil Removal alternative is rated as "Fair" for this criterion due to the legally binding nature of the deed restrictions and the removal of vadose zone impacts in accessible areas.

6.3.3.4 Reduction of toxicity, mobility, or volume with treatment

Institutional Controls and Soil Removal is rated as "Poor" for this criterion. This alternative would result in limited removal of contamination (less than 10%).

6.3.3.5 Short-term effectiveness

The Institutional Controls and Soil Removal alternative is rated as “Poor” for this criterion. This alternative poses potential risks to the public and remediation workers during excavation activities. Impacted soils will be stockpiled at the surface and this, including general excavation activities, would result in fugitive emissions (i.e., dust and odor). The product recovery would only result in the short-term potential for risks to the public and remediation workers which could be easily managed.

6.3.3.6 Implementability

The Institutional Controls and Soil Removal alternative is rated as “Poor” for this criterion. This alternative would result in significant disruption to the public.

6.3.3.7 Cost

The capital cost for the Institutional Controls and Soil Removal alternative is estimated to be \$15,600,000 (Table E-2). This includes: \$14,100,000 for the excavation and disposal of 21,300 cy including 9,000 cy of MGP-impacted soil and 12,300 cy of overburden from the vadose zone; and \$1,500,000 for the initial installation of the NAPL recovery system. The annual O&M cost for NAPL monitoring/disposal and indoor air monitoring is assumed to be \$225,000 per year based on the cost of the existing monitoring and recovery program. The net present value for 30 years of O & M at 3% interest is \$5,00,000. The total estimated cost for this alternative is \$20,600,000.

6.4 Alternative 4 – Remediation to Affect Contaminant Reduction

This alternative includes the following:

- Removal of approximately 129,000 cy of impacted soil in 16 accessible areas of the site (Figure 4-1) to the practical depth of excavation and chemical oxidation of an additional 310,000 cy of underlying impacts;
- The use of Institutional Controls requiring the implementation of the SMP to eliminate potential exposure pathways related to groundwater and construction work in the areas under/immediately adjacent to existing buildings
- Installation of properly constructed product recovery wells in appropriate locations, with NAPL removal/off-site disposal conducted as required using intermittent and passive extraction; and
- Continued indoor air monitoring.

6.4.1 Description of Activities

6.4.1.1 Excavation of Impacted Soil in Accessible Areas of the Site

Excavation and off-site disposal (excavation) of soil in the accessible areas of the site would address the potential direct exposure for construction workers (except for the immediate area adjacent to and beneath site buildings) as well as any soil that has the potential to be brought to the surface because of routine site activities. In addition to the activities described previously in Section 6.3.1.1, removal to the practical depth of excavation (20 ft bgs) would require shoring and dewatering of the excavation.

Site preparation activities would include erecting fencing, setting up site trailers, erosion controls, soil stockpile areas, soil loading areas, decontamination stations, and baseline air monitoring. Buried and overhead utilities would also have to be relocated. Areas undergoing excavation would not be available for public use during excavation, resulting in significant disruption to site residents.

Shoring would need to be installed around the excavation areas prior to excavation. The construction method of choice would be sheet piling. Dewatering of the excavation area would be conducted throughout the excavation and backfilling work. Sump wells would be dug at various locations within the excavation area and submersible pumps installed. Water would be pumped into an on-site treatment system, with treated water discharged to the POTW. The dewatering rate is expected to be high (possibly several hundred gallons per minute).

Excavation would proceed after the groundwater is drawn down. Measures to mitigate odor, noise, and dust during excavation would be deployed, and a fence-line monitoring program would be used to identify any potential vapor and dust impacts to the public. Contaminated soil would be placed in lined and covered stockpile areas on site or directly loaded into trucks. Excavated soil that exhibits free liquid would require the addition of drying/stabilization agents prior to shipment.

Excavated soils would be transported to a permitted landfill or thermal desorption facility for disposal. Waste characterization sampling would be conducted. Documentation would include waste profile sheets and waste manifests. Soils would be loaded on site into trucks. Trucks would be inspected, decontaminated as necessary, and covered prior to leaving the site. An estimated 129,000 cubic yards of soil would be removed.

The process of excavation would be conducted on an area by area basis until all accessible material to 20 ft bgs was removed. Upon completion of excavation of an accessible area, it would be filled to the required grade and surface soils would be stabilized. Site restoration activities that would occur upon completion of excavation would include removal of all remediation support equipment (water treatment system, soil stockpile areas, decontamination area, and site trailers) and restoration of all paved roads, walkways, grass areas, trees, and other site features that require restoration.

6.4.1.2 Chemical Oxidation of Impacted Soil

Impacted soil at depths below the practical depth of excavation (20 – 45 ft bgs) would be treated using ISCO. The ISCO process is a source reduction process in which a chemical oxidant is injected into the subsurface to react with contaminants. ISCO can be useful in treating contaminated areas that are not directly accessible from the surface, including contaminants at the bedrock surface. A wide variety of oxidants, additives, and delivery methods are available. Ideally, the chemical oxidant reacts with the contaminants and oxidizes them to non-toxic constituents (i.e., carbon dioxide and water).

Treatment requires the installation of multiple vertical injection wells through the clean backfill of the excavation to the depth of impacts. Oxidant would be applied to approximately 310,000 cy of impacted media. Liquid chemical mixtures would be prepared and injected using pumps, hoses, and tanks. The injected material can migrate in groundwater and treat downgradient contamination, which may be under the site buildings.

The effectiveness of ISCO is highly dependent on subsurface soil conditions and nature of the contaminants present. As a result, several injection events may be required. The injection wells would be in place for the duration of the treatment, which may be for an extended period of time of one to two years. Disruption to residents would be limited to the injection periods. Injection of the treatment chemical would most likely not result in the generation of heat or steam generation from exothermic reactions due to the depth that the treatment would occur. Once ISCO treatment is complete, site restoration activities would include abandonment of injection wells and landscaping.

6.4.1.3 Optimization of Product Recovery Activities

Since ISCO is not likely to be effective in destroying DNAPL, product recovery activities would be initiated after ISCO treatment is concluded and the excavations are backfilled. The product recovery activities have been described previously in Section 6.2.1.2.

6.4.1.4 Engineering Controls for Indoor Air

Indoor air monitoring activities have been described previously in Section 6.2.1.3.

6.4.1.5 Summary of Remedial Processes

Excavation, ISCO, and optimized NAPL removal are the remedial processes included in Alternative 4. See Sections 6.2.1.4 and 6.3.1.4 for the summaries for the optimized NAPL removal and excavation, respectively. A summary of the remedial processes for ISCO treatment is presented below:

1. Size and configuration of process options: Installation of vertical injection and extraction wells in areas to be treated. Drums, storage tanks, or tanker trucks would be on site during injection events. Additional above ground equipment would include vapor treatment (carbon vessels or thermal oxidizer) and water treatment facilities (storage tanks, pumps, carbon vessels).
2. Time for remediation: One to two years for construction and injection events
3. Spatial requirements: Vertical wells would be placed in each accessible excavation area which is approximately 300,000 square feet (7 acres). Minor space would be required for storage of the injection equipment and chemicals.
4. Options for disposal: Spent activated carbon from vapor treatment would be sent to an off-site regeneration facility. Recovered NAPL and groundwater would be sent for off-site treatment and disposal. Several thousand pounds of spent carbon would be generated. Well tailings and construction waste would be characterized and sent to an appropriate off site facility for proper disposal.
5. Permit requirements: An Underground Injection Control (UIC) permit may be required. Also, any air treatment equipment would be required to meet substantive permit requirements. Notification to residents and the local fire department for the chemicals to be used is recommended.
6. Limitations or other factors necessary to evaluate the alternative: A bench-top study using soil and NAPL from the site is suggested. An on-site pilot study is also recommended.

6.4.2 RAO Evaluation

6.4.2.1 Elimination of Potential Exposure Pathways

The alternative would address the potential risk pathways through active remediation (removal/treatment of impacted soil from accessible areas of the site) and Institutional Controls restricting the use of groundwater and ensuring safe work practices for construction work conducted beneath/immediately adjacent to site buildings.

6.4.2.2 Reduction/Mitigation of Contaminants

Excavation has the potential to permanently remove impacted media from accessible areas of the site to a depth of 20 ft bgs. This area is expected to contain 27% of the site-wide soil impacts. ISCO would be used to reduce contaminant concentrations in accessible areas from depths of 20 to 45 ft bgs, providing the potential to address up to 55% of the soil impacts at the site. The associated product recovery would not provide a significant additional reduction in site impacts.

6.4.3 Criteria Evaluation

6.4.3.1 Overall protection of public health and the environment

The Institutional Controls, Soil Removal and Source Material Control alternative is rated as “Fair” for Overall Protection of Public Health and the Environment. This alternative would maintain the current site condition of no significant risk by restricting the use of groundwater and ensuring safe work practices for construction work conducted beneath and immediately adjacent to site buildings. The use of engineering controls in the site buildings would ensure a condition of no significant risk for indoor air. The excavation from 5 – 20 ft bgs would remove risk in accessible areas of the site.

6.4.3.2 Compliance with standards, criteria and guidance (SCGs)

The alternative is rated “Fair” for compliance with the SCGs. Soil removal/treatment would increase compliance with direct contact criteria for soil. Legally enforceable institutional controls would address the potentially complete risk pathways and eliminate the requirement to consider soil cleanup objectives for the protection of groundwater when evaluating soil impacts. This alternative would meet the RAOs associated with exposure pathways, but it would provide for limited reduction of site-wide contaminant (up to 50%).

6.4.3.3 Long-term effectiveness and permanence

The Institutional Controls, Soil Removal and Source Material Control alternative is rated as “Fair” for this criterion due to the legally binding nature of the deed restrictions and the permanent nature of excavation/treatment.

6.4.3.4 Reduction of toxicity, mobility, or volume with treatment

The Institutional Controls, Soil Removal and Source Material Control alternative is rated as “Fair” for this criterion. This alternative would result in limited to moderate removal of contamination (up to 55%).

6.4.3.5 Short-term effectiveness

The Institutional Controls, Soil Removal and Source Material Control alternative is rated as “Poor” for this criterion. This alternative provides the potential to pose risks to the public and remediation workers during excavation and ISCO activities. Impacted soils will be stockpiled at the surface and this, including general excavation activities, may result in fugitive emissions (i.e., dust and odor). ISCO will involve use of strong chemicals. The product recovery would only result in short-term risks to the public and remediation workers which could be easily managed.

6.4.3.6 Implementability

The Institutional Controls, Soil Removal and Source Material Control alternative is rated as “poor” for this criterion. The excavation activities in courtyard/open spaces would provide an unacceptable burden for site residents.

6.4.3.7 Cost

The capital costs for the Institutional Controls, Soil Removal and Source Material Control alternative are estimated to be \$168,700,000 (Table E-3). They include: \$159,700,000 for the excavation and disposal of 226,200 cy including 129,00 cy of MGP-impacted soil and 97,000 cy of overburden down to 20 ft bgs, \$9,000,000 for in-situ chemical oxidation of 120,000 cy of impacted soil below 20 ft bgs, and \$1,500,000 for the initial installation of the NAPL recovery system. The annual O&M cost for NAPL monitoring/disposal and indoor air monitoring is estimated at \$225,000 per year based on current NAPL recovery costs. The net present value for 30 years of O & M at 3% interest is \$5,000,000. The total estimated cost for this alternative is \$173,700,000.

6.5 Alternative 5 – Complete Site Restoration

This alternative evaluates an approach to remediate/restore the site for unrestricted use. The alternative includes the following:

- Resident relocation
- Demolition of existing site structures (21 residential apartment buildings)
- Installation of a jet grout wall around the perimeter of OU1
- Excavation and disposal of approximately 810,000 cy of impacted soil
- Backfilling of the excavation with clean soil and site restoration

6.5.1 Description of Activities

Complete site restoration includes the demolition of all site structures and excavation to up to 60 feet across the entire property to remove impacted media.

Demolition, excavation and off-site disposal (excavation) would consist of the following elements: resident relocation, demolition and removal of all site structures, removal or rerouting of utilities, excavation shoring, dewatering, excavation, transport and disposal of impacted soil, backfilling, and site restoration. Each of these elements is discussed in the paragraphs that follow.

Twenty-one 15-story brick apartment buildings are located on site. Prior to any site work for this remedial alternative, all of the residents would need to be relocated. Once residents were relocated, site preparation activities would be initiated. These include erecting fencing and setting up site trailers, erosion controls, soil stockpile areas, soil loading areas, decontamination stations. Subsequently, demolition of all site structures and removal or rerouting of all utilities would be required.

The buildings would be demolished using traditional means with the debris managed at an off-site landfill. Shoring of the excavation would be conducted via jet grouting a cement-bentonite grout slurry wall to 65 ft bgs around the perimeter of the property. Excavation would proceed as the groundwater was being drawn down. Dewatering sump wells would be installed at various locations within the excavation area and submersible pumps installed. Water would be pumped into an on-site treatment

system. The treatment system would consist of settling tanks, filtration unit to remove silt, and treatment system to remove contaminants. Treated water would be discharged to the POTW.

A fence-line monitoring program would be used to identify any potential vapor, dust, and noise impacts to the public so that appropriate measures to mitigate odor, noise, and dust during excavation would be employed. Contaminated soil would be segregated and placed in lined and covered stockpile areas on site or directly loaded into trucks. Excavated soil that contains free liquid would require the addition of drying/stabilization agents prior to shipment to an off-site facility.

It is likely that the volume of impacted soil would require the uses of both landfill and thermal desorption facilities. Waste characterization sampling would be conducted. Documentation would include waste profile sheets and waste manifests. The soil haul trucks would be inspected, decontaminated as necessary, and covered prior to leaving the site. An estimated 810,000 cy of soil would be removed.

Once the excavation depth is reached, the excavation would be backfilled using "clean" site soil and common borrow from an off-site source. The slurry wall would remain in place. Site restoration would begin with filling to the required grade and stabilizing surface soils. Remediation support equipment (water treatment system, soil stockpile areas, decontamination area, and site trailers) would be removed. The site would be restored to conditions to be determined during the design phase.

6.5.1.1 Summary of Remedial Processes

Excavation/Demolition of the entire site is the remedial process for Alternative 5.

1. Size and configuration of process options: Approximately 137,000 square feet of vertical area would require jet grouting for shoring purposes. It is anticipated that a 100 gallon per minute or more groundwater treatment system would be needed. Soil stockpile and equipment decontamination areas would be needed. Approximately 24,000 truckloads of soil would be removed.
2. Time for remediation: Excavation and site restoration would require five years to complete.
3. Spatial requirements: The estimated excavation area is approximately 730,000 square feet (17 acres). Space would need to be designated for soil stockpiles, heavy equipment staging, etc.
4. Options for disposal: Off-site disposal would be at thermal desorption facilities or landfills. Spent activated carbon from groundwater treatment would be sent to an off-site regeneration facility. Several thousand pounds of spent carbon would be generated. An estimated 480,000 cy of soil would be sent to an off-site treatment facility.
5. Permit requirements: Demolition, construction and utility relocation permits would be required. A permit to discharge treated water to surface water or a POTW would be required.
6. Limitations or other factors necessary to evaluate the alternative: The relocation, demolition and excavation work will have significant impacts to the residents and community (noise, odors, dust, vibrations, and truck traffic containing hazardous materials). These conditions may not be acceptable to the site residents and surrounding community.

6.5.2 RAO Evaluation

6.5.2.1 Elimination of Exposure Pathways

The excavation of impacted site media will eliminate the potential exposure pathways for the site. The jet grout wall will minimize the subsequent infiltration of groundwater from off-site locations onto the property.

6.5.2.2 Reduction/Mitigation of Contaminants

Excavation of all impacted media within the limits of the property will eliminate contamination at the site.

6.5.3 Criteria Evaluation

6.5.3.1 Overall protection of public health and the environment

The complete site restoration alternative is rated as “Good” for overall protection of public health and the environment. This remedy provides for complete removal of site contaminants and permanently reduces or eliminates exposure pathways under any reasonable future scenario.

6.5.3.2 Compliance with standards, criteria and guidance (SCGs)

The complete site restoration alternative is rated as “Good” for compliance with SCGs as this remedy provides for site-wide compliance with SCGs. This remedy meets the RAOs.

6.5.3.3 Long-term effectiveness and permanence

The complete site restoration alternative is rated as “Good” for long-term effectiveness and permanence because it provides a permanent remedy, eliminating all risks. Long-term controls and/or maintenance would not be required.

6.5.3.4 Reduction in toxicity, mobility and volume

The complete site restoration alternative is rated as “Good” as it provides complete removal of site contaminants.

6.5.3.5 Short-term effectiveness

The complete site restoration practice is rated as “Fair” for short-term effectiveness. The work entails three to five years of intensive construction work in an urban area. Excavation work will bring large volumes of waste materials to the surface resulting in generation of fugitive emissions, i.e., odor and dust. Risks will be present for remediation workers and surrounding properties. Measures would be implemented to reduce risks. Control measures may include limiting the rate of excavation, applying water or foaming agents, covering soil stockpiles, truck inspections and decontamination before leaving the site and/or a fence-line air-monitoring program. The site would be cordoned off from the public.

6.5.3.6 Implementability

The complete site restoration practice is rated as “Poor” for this criterion. Site relocation of residents will be an unacceptable burden for site residents. Demolition of all 21 fifteen-story site buildings, removal or rerouting of all utilities on the site, installation of a slurry wall around the perimeter of the site, and excavation up to 60 ft bgs across 800,000 square feet will be difficult to implement.

6.5.3.7 Cost

The capital costs for Complete Site Restoration are estimated at \$480,000,000 (Table E-4). Costs include \$40,000,000 for demolition of all site structures and \$180,000,000 for excavation of 757,000 cy of MGP impacted soil and overburden within the limits of OU-1. Transportation and disposal of the approximately 1,000,000 tons of impacted soils will cost approximately \$190,000,000, though actual disposal rates may be lower due to the large quantities of soil involved. There are no anticipated O & M costs for this option.

7.0 Recommended Alternative

The use of Institutional Controls (Alternative 2) is the proposed remedial alternative for the site. This alternative includes:

- Installation of properly constructed product recovery wells in appropriate, accessible locations, with NAPL removal/off-site disposal conducted, as required.
- Continued monitoring of indoor air quality.

A detailed description of the proposed remedy and an analysis of the remedy's compliance with the seven evaluation criteria are discussed in Section 6.2. Alternative 2 was chosen because it meets the RAOs and provides sufficient flexibility to adjust to changes in site conditions. Installation activities would be implemented within a reasonable timeframe of up to 1 year and would not require large temporary or permanent spatial considerations. However, long-term maintenance would be required for the NAPL containment/recovery and HVAC systems. The implementation of Alternative 2 provides for intrusive site work only during required site maintenance activities, therefore reducing potential risks and resulting in minimal disruption to residents. This alternative does not significantly remove contamination and contaminants will remain in place, but engineering/Institutional Controls can be readily implemented. Although an on-going monitoring and inspection program will be required, it is expected that an appropriate frequency/schedule of events can be reached to ensure a continued condition of no risk with minimal disruption to site residents.

7.1 Alternatives Summary

A brief summary is provided below for Alternatives 1, 3, 4 and 5 providing reasons why these were not chosen as the recommended alternative.

Alternative 1 – No Action does not require any intrusive work however it does not address potential risks and does not meet the RAOs.

Alternative 3 – Institutional Controls and Soil Removal maintains the conditions of no significant risk and meets the RAOs, with limited contaminant removal. However, the removal of impacted soil from the vadose zone in anticipation of potential future utility/maintenance work would result in the loss of access to a number of open areas of the site over the course of a year. These activities could be unnecessarily disruptive to site residents since future utility work may not be required in all areas of the property and do not significantly reduce the level of containments.

Alternative 4 – Institutional Controls, Soil Removal and Source Material Control maintains the conditions of no significant risk and meets the RAOs, but with the added potential of mobilizing contaminants with ISCO with limited to moderate contaminant removal and extensive/disruptive remedial actions. This alternative is effective for the long-term due to the institutional controls. Alternative 4 would provide significant disruption to residents and would result in risks to the public and remediation workers (i.e., steam, odor, dust). Efforts would take up to 2 years to implement with a high cost.

Alternative 5 – Complete Site Restoration provides a permanent remedy for this site but is not considered to be implementable given the need to relocate residents.

7.2 Pre-Design Investigation

A pre-design investigation will be conducted to collect additional site data related to the proposed Alternative 2 activities in support of the preparation of a Remedial Action Work Plan (RAWP) for OU1 of the site. Overviews of the proposed investigation activities are provided below.

7.2.1 Product Recovery

Investigations to-date have identified areas of the site that have the potential to contain free product. However, a comprehensive evaluation of the potential mobility of the NAPL has not been conducted to identify areas of the site where product could be effectively recovered. Recoverability of separate phase product can depend on a number of factors including NAPL driving head, NAPL extent, site hydraulic gradient, and soil parameters. A pre-design investigation will be conducted to refine the appropriate placement of recovery wells and establish a practical endpoint for the removal of NAPL at the site.

The investigation will be used to develop information to supplement historical site data in support of the preparation of a NAPL site conceptual model (NSCM). Data will be collected from the installation and monitoring of recovery wells at 10 potential locations (Figure 7-1). These locations have been selected based on their position within the NAPL “plume”, and their accessibility, i.e. positions in open areas of the site that are expected to be free of subsurface utilities. Input to the NSCM will include: boring log data, laboratory data, long term fluid level data, and NAPL recovery data.

Fundamental to the evaluation of recoverability will be the measurement of NAPL transmissivity, as determined via baildown testing. As part of the testing, monthly fluid level measurements will be taken to document NAPL levels. Once the measurements have stabilized, baildown tests will be initiated by removing one effective NAPL volume. Subsequent, intermittent gauging of the fluid levels at increasing time intervals will document the recovery of the fluid level to its original thickness. The results will be used to calculate the transmissivity of the formation adjacent to the wells (ft^2/day) to identify locations where effective/sustained recovery is not likely (values near 0.3 to 0.8 ft^2/day represent a point where the majority of NAPL remaining in the subsurface exists in a residual state), and support estimates of recovery rates/volumes and radius of influence for recovery technologies in other areas. The results from the study will be used to refine the locations for free product recovery as part of the remediation and establish practical recovery metrics.

8.0 References

AECOM, 2008. Remedial Investigation Report Operable Unit 1 (OU1) Former East 21st Street Works, December 2008.

ENSR Corporation (2008d), "Interim Site Management Plan for Invasive Activities In and Around Peter Cooper Village and Stuyvesant Town, Manhattan, NY," prepared for Consolidated Edison Company of New York, Inc. August 2008.

Haley & Aldrich, Inc. 2004. Site Characterization Report Former East 21st Street Works Manufactured Gas Plant Site, Peter Cooper Village Housing Development, New York, New York, 2004.

Langan Engineering and Environmental Services, P.C. (Langan), 2001. Report of Geotechnical Study and Preliminary Environmental Evaluation, April 21, 2001.

Langan, 2002. MGP Research Report: East 21st Street Works, September 25, 2002.

New York State Department of Environmental Conservation. (2010). DER-10 Technical Guidelines for Site Investigation and Remediation. Division of Environmental Remediation, May, 2010.

New York State Department of Environmental Conservation. (2001). New York State Code of Rules and Regulations, 6NYCRR Title 6, Chapter 100, Part 700-705 and Part 925.6.

New York State Department of Health. (2006). Draft Guidance for Evaluating Soil Vapor Intrusion in the State of New York. Center for Environmental Health, Bureau of Environmental Exposure Investigation, October 2006.

NYSDOH Bureau of Environmental Exposure Investigation (BEEI) 2006, and NYSDEC's Program Policy, "Strategy for Evaluating the Potential for Vapor Intrusion at Remedial Sites in New York", October 2006.

The RETEC Group, Inc. (RETEC), 2004. East 21st Street Works Site Comprehensive Report of Evaluation of Indoor Air and Soil Gas Sampling for Sampling dates June 2003, August 2, 2003, and March-May 2004, November 2004.

RETEC, 2007. East 21st Street Works Former MGP Water Valve Replacement Report, 2007.

Tables



Table 4-1
East 21st Street Works - Operating Unit 1
Summary of General Response Actions

Media	General Response Actions	Site-Specific Appropriateness	Protectiveness/Ability to Achieve Remedial Goals for the Site ¹	
			Reduce Contamination	Eliminate Risk
Soil	Excavation and Disposal	- Limited areal extent for excavation (50% of surface area) due to the presence of buildings/utilities - Limited practical depth of excavation (20 ft bgs) due to access requirements for personnel and equipment - Significant dewatering/water management necessary	Yes - excavation can permanently remove contaminated soil	No - inability to access all of the impacted soil will limit the ability to meet the SCGs site-wide
	<i>In Situ</i> Treatment	- Limited areal extent for treatment (50% of surface area) due to the presence of buildings/utilities - Can access soil to depth of impacts (9 to 50 ft. bgs) - Uncertain contact of reagents with contaminated media with varying permeabilities of soil	Yes - treatment can reduce contaminant levels in soil, potentially reducing groundwater contaminant levels	No - inability to access all of the impacted soil will limit the ability to meet the SCGs site-wide
	Containment (Separate-Phase Impacts)	- Limited ability to place containment structures in required locations due buildings/utilities - Limited ability to construct containment structures at the identified depth of mobile product (majority from 25 to 35 ft bgs)	No - unless combined with extraction/disposal response (below)	No - containment would only control the migration of mobile MGP residuals
	Extraction and Disposal (Separate-Phase Impacts)	- Need to address varying consistencies of product (viscosities of 50 to 70,000 centipoise) - Uncertain ability to sustain recovery efficiencies over time - May require permanent infrastructure, waste storage and waste management on site	Yes - extraction of separate-phase product can permanently remove contaminants from the soil, potentially reducing groundwater contaminant levels	No - separate-phase impacts reflect only a small percentage of contaminated media (<10%)
	Institutional Controls	- Will require an agreement with site owners, but readily implementable	No - will not reduce contamination levels or reduce mobility of MGP residuals	Yes - will eliminate remaining exposure pathways
Groundwater ²	Excavation and Disposal (Source Material ³)	- Limited areal extent for excavation (50% of surface area) due to the presence of buildings/utilities - Limited practical depth of excavation (20 ft bgs) due to access requirements for personnel and equipment - Significant dewatering/water management necessary	Yes - excavation can permanently remove contaminated soil, potentially reducing groundwater contaminant levels	No - inability to access all of the impacted soil will limit the ability to meet the SCGs site-wide
	<i>In Situ</i> Treatment (Source Material)	- Limited areal extent for treatment (50% of surface area) due to the presence of buildings/utilities - Can access soil to depth of impacts (9 to 50 ft bgs) - Uncertain contact of reagents with contaminated media with varying permeabilities of soil	Yes - treatment can reduce contaminant levels in soil, potentially reducing groundwater contaminant levels	No - inability to access all of the impacted soil will limit the ability to meet the SCGs site-wide
	In Situ Treatment (Dissolved Phase)	- MGP constituents are amenable to treatment - Given the extent of source material, treated GW is likley to become recontaminated	Yes - treatment can permanently remove dissolved-phase contaminants	No - it is likely that residual soil impacts in the saturated zone will provide a continuing source of contaminations and prevent the attainment of SCGs
	Extraction and Treatment (Dissolved Phase)	- Will require permanent infrastructure, waste storage and waste management on site - Placement of extraction points in appropriate areas may not be practical - Given the extent of source material, remaining GW is likley to be continue to be conaminated to current levels	Yes - groundwater extraction can permanently remove dissolved-phase contaminants	No - it is likely that residual soil impacts in the saturated zone will provide a continuing source of contaminations and prevent the attainment of SCGs
	Institutional Controls	- Will require an agreement with site owners, but readily implementable	No - will not reduce contamination levels or reduce mobility of MGP residuals	Yes - will eliminate remaining exposure pathways
Soil Gas (immediate vicinity of buildings)	Source Removal or Treatment	- Not feasible. The presence of the buildings precludes the ability to effectively remove/treat the underlying soil impacts	No - due to technical infeasibility	Field data demonstrates that there is no risk from current conditions. Source removal/treatment is not feasible and therefore will not provide a benefit in the event of a future change in condition.
	Engineering Controls	- Will require modification to existing buildings/systems and long-term inspection and maintenance	No - will not reduce contaminant levels in soil underlying the buildings	Yes - could control constituent concentrations within the buildings in the event of a future change of conditions
	Institutional Controls	- Will require an agreement with site owners, but readily implementable	No - will not reduce contaminant levels in soil underlying the buildings	Yes - if the Institutional controls enforce the need for suitable engineering controls (above)

Notes:

¹ Remedial Goals:

- Eliminate/mitigate potential risk posed by MGP residuals associated with the continued use of the property for multi-residential use.
- Removal of the sources of MGP contamination to the extent feasible.

² Reduction in dissolved-phase contaminant concentrations leaving the site will be addressed in a site-wide approach as part of the OU-2 alternatives analysis.

³ Impacted soil that through contact with groundwater, or infiltrating storm water can cause increased constituent concentrations in the dissolved-phase.

Table 4-2
East 21st Street Works - Operating Unit 1
Estimated Quantities of Impacted Soil

Zone	Total				Inaccessible Areas ¹				Accessible Areas			
	Thickness (ft)	Area (sq. ft.)	Quantity (cu.yds.)	% of Total	Thickness (ft)	Area (sq. ft.)	Quantity (cu.yds.)	% of Total	Thickness (ft)	Area (sq. ft.)	Quantity (cu.yds.)	% of Total
Vadose Zone (5' - 9' bgs)												
Total impacted soil	4	130,994	19,000	4%	4	68,536	10,000	2%	4	62,458	9,000	2%
impacted by NAPL ²	0	0	0	0%	0	0	0	0%	0	0	0	0%
Water Table to 20' bgs												
Impacted Soil	11	561,120	230,000	48%	11	261,398	110,000	23%	11	299,722	120,000	25%
impacted by NAPL ²	4	40,801	6,000	13%	4	21,170	3,100	7%	4	19,631	2,900	6%
20' bgs to 50' bgs ³												
Impacted Soil	12	508,000	230,000	48%	12	232,472	100,000	21%	12	275,528	120,000	25%
impacted by NAPL ²	6.5	168,631	41,000	87%	7	83,495	20,000	43%	7	85,136	20,000	43%
Total Impacted Soil			479,000	100%			220,000	46%			249,000	52%
Total impacted by NAPL			47,000	100%			23,100	49%			22,900	49%

Notes:

- 1 Areas: beneath/immediately adjacent to buildings, utility corridors, public roadways
- 2 Areas where NAPL or TLM/OLM saturation observed. NAPL thickness is a weighted average of observed thickness's in each area.
- 3 Majority of impacts observed above 50' bgs. Impacted soil thickness based on weighted average of maximum depth of East 21st Works Soil Exceedances of Part 375 Unrestricted Criteria
bgs = below ground surface

Table 5-1
East 21st Street Works - Operating Unit 1
Summary of Technology Screening

Media	General Response Action/Technology	Site Applicability	Ability to Meet Remedial Action Objectives ¹		Preferred Technology
			Contaminant Reduction	Eliminate Risk	
Soil	Excavation and Disposal/Treatment - Excavation and Disposal/Treatment	- Could be used to remove contaminated soil in accessible areas of the site	Yes - Could be used to eliminate 27% of the contaminated soil at the site	Yes -could be used in selected areas of site, e.g utility trenches, to eliminate direct contact risk to potential receptors (construction workers)	Excavation with Off-Site Thermal Desorption - provides the best regulatory option and offers "final" disposal
	In-Situ Treatment - Chemical Oxidation	- May provide treatment to areas that are not accessible using excavation, e.g deeper areas and areas not directly accessible due to surface obstructions (buildings, utilities) - Delivery/uniform coverage uncertain due to low soil permeability or potential preferential pathways in subsurface media - May require multiple "rounds" of treatment, large quantity of oxidant - Surfactant may be used to improve treatment of NAPL - Subsurface reactions are exothermic and may cause surface effects (steam, odor, etc.) - Reagents may be damaging to subsurface utility lines	Yes - would reduce contamination levels in saturated soils	No - not applicable for use in shallow areas where soil would be contacted by construction workers due to potential surface effects (steam, odor) and potential damage to utility lines, would not achieve SCGs since the majority of impacted soil is not accessible	Chemical Oxidation - provides some ability to reduce contamination contamination at depth and underneath buildings
	- Solidification	- Will decrease the permeability of impacted soil in the saturated zone, reducing contaminant levels in groundwater - Provides ability to control uniform coverage of treatment areas	No - will not reduce soil contamination levels	No - not applicable for use in shallow areas where soil would be contacted by potential receptors since it would restrict access to utility lines, would not achieve SCGs since the	
	- Bio-Remediation	- May provide treatment to areas that are not accessible from the surface due to subsurface transport - Delivery/uniform coverage of nutrients, etc. uncertain due to potential preferential pathways in subsurface media - Unable to treat areas with NAPL or concentrations of PAHs	Yes - under optimized conditions, provides the potential to reduce the concentrations of some MGP constituents	No - would not significantly reduce concentrations of heavier molecular weight constituents such as PAHs	
	- Soil Vapor Extraction	- Can't impliment due to space requirements. - Not feasible since over 95% of the soil impacts are in the saturated zone (vapor extraction not feasible).	No - not feasible	No - not feasible	
	- Thermal Treatment	- Can't impliment due to space requirements. - Not feasible since over 95% of the soil impacts are in the saturated zone (excessive energy requirements).	No - not feasible	No - not feasible	
	Containment (Separate-Phase Impacts) - Sheet Piling - Soil Mix	- Proper placement of barrier wall complicated by obstructions (buildings/utilities) - Proper placement of barrier wall complicated by obstructions (buildings/utilities) - Not practical to access the depths where mobile product is present using a soil auger.	Yes - assumed to be used in conjunction with an extraction/disposal technology (below)	No - DNAPL does not represent the significant source of contamination (<1%) in the shallow areas likely to be encountered by construction workers	Recovery Points - provide greatest flexibility in placement
	- Jet Grouting	- Offers limited flexibility in addressing problems posed by surface obstructions - Provides means to access full range of depths where product is present - Provides ability to target selected depth intervals			
	- Recovery Trench	- Proper placement of trench complicated by obstructions (buildings/utilities) - Not practical to excavate trench to the depths where mobile product is present (25 to 50 ft. bgs)			
	- Recovery Points	- Provides flexibility in addressing problems posed by surface obstructions - Provides means to access full range of depths where product is present - Provides ability to target selected depth intervals			
	Extraction and Disposal (Separate-Phase Impacts) - Intermittent Removal - Continuous (Active)	- Appropriate for wide range of NAPL viscosities and recharge rates - Use of portable vacuum source (pump, truck) minimizes on-site infrastructure and provides flexibility in removal schedule - Uncertain ability to sustain recovery efficiencies over time - Will require permanent infrastructure, waste storage and waste management on site	Yes - would provide a minor reduction in contamination levels (up to 2%)	No - DNAPL does not represent the significant source of contamination (< 1%) in the shallow areas likely to be encountered by construction workers	Intermittent removal provides the greatest flexibility to address variations in viscosity and recharge rates
	- Passive	- Appropriate for low viscosity DNAPL with low recharge rates - Requires minimal on-site infrastructure and limited on-site waste management			
	Institutional Controls	- Deed restriction to require that the excavation/management of soil be conducted in accordance with an approved soil management plan	No - would not reduce contaminant levels	Yes - would eliminate the potnetial exposure pathway	Institutional Controls will be required on all alternatives to ensure that direct contact risk is eliminated.
Groundwater ²	Excavation and Disposal/Treatment (Source material ³)	- Could be used to remove contaminated soil in accessible areas of the site	Yes - would remove some contamination from the site. However, enough residual source material would remain to re-contaminate groundwater to current levels.	No - it is unlikely that treatment of source material (see soil above) would result in a sufficient decrease in constituent concentration to meet SCGs in groundwater site-wide or eliminate the direct contact risk to potential receptors	Chemical Oxidation of impacted soil provides the best opportunity to reduce constituent concetrations in groundwater
	In-Situ Treatment (Source Material) - Chemical Oxidation	- May provide treatment to areas that are not accessible using excavation, e.g deeper areas and areas not directly accessible due to surface obstructions (buildings, utilities) - Delivery/uniform coverage uncertain due to low soil permeability or potential preferential pathways in subsurface media - May require multiple "rounds" of treatment, large quantity of oxidant - Surfactant may be used to improve treatment of NAPL - Subsurface reactions are exothermic and may cause surface effects (steam, odor, etc.) - Reagents may be damaging to subsurface utility lines	Yes - would reduce contamination levels in saturated soils. However, enough residual source material would remain to re-contaminate groundwater to current levels.	No - not applicable for use in shallow areas where soil would be contacted by construction workers due to potential surface effects (steam, odor) and potential damage to utility lines, would not achieve SCGs since the majority of impacted soil is not accessible	Chemical Oxidation of impacted soil provides the best opportunity to reduce constituent concetrations in groundwater
	- Solidification	- Will decrease the permeability of impacted soil in the saturated zone, reducing contaminant levels in groundwater - Provides ability to control uniform coverage of treatment areas	No - will not reduce soil contamination levels	No - not applicable for use in shallow areas where soil would be contacted by potential receptors since it would restrict access to utility lines, would not achieve SCGs since the	
	Institutional Controls				
		- Deed restriction to prohibit the use of groundwater for any purpose	No - would not reduce contaminant levels	Yes - would eliminate the potnetial exposure pathway	Chemical Oxidation of impacted soil provides the best opportunity to reduce constituent concetrations in groundwater
Soil Gas	Engineering Controls - HVAC Modification	- Need to isolate air flow in "lower" floors of buildings - Modify/upgrade building systems to maintain positive pressure, increase air exchange rate or treat recirculated air to remove VOCs (all sources)	Yes - would reduce constituent concentrations from all sources in the basement and crawl space areas of the buildings	Yes - would mitigate potential risk arising from a change in site conditions	Continued Monitoring, with re-evaluation of remedy in instances where the vapor intrusion pathway is demonstrated to be complete
	- Subslab Venting	- Requires installation of subslab piping to maintain negative pressure beneath buildings - Operation of venting system may be complicated by shallow depth to water table beneath building - On-site treatment of off-gas may be required (carbon absorption, catalytic/thermal oxidation)	Yes - would reduce constituent concentrations in areas immediately below the building foundations	Yes - would prevent an increase in indoor air concentrations of MGP constituents arising from a change in site conditions	
	Monitoring - Monitoring	- Appropriate for use in residential setting	No- will not reduce contamination	Yes- will identify instances when engineering controls are required to control complete VI pathway	

Notes:
¹ Remedial Action Objectives
Soil: - Eliminate the potential for direct contact with MGP residuals by construction workers
- Reduce MGP impacts that are adversely impacting GW quality to the extent feasible
- Control the migration of remaining impacts that have the potential to be mobile as sepearate phase product
GW: - Eliminate the potential for direct contact by construction workers
Soil Gas - Eliminate the potential for vapor intrusion that affects indoor air quality for residents
² Reduction in dissolved-phase contaminant concentrations leaving the site will be addressed in a site-wide approach as part of the OU-2 alternatives analysis.
³ Impacted soil that through contact with groundwater, or infiltrating storm water can cause increased constituent concentrations in the dissolved-phase.

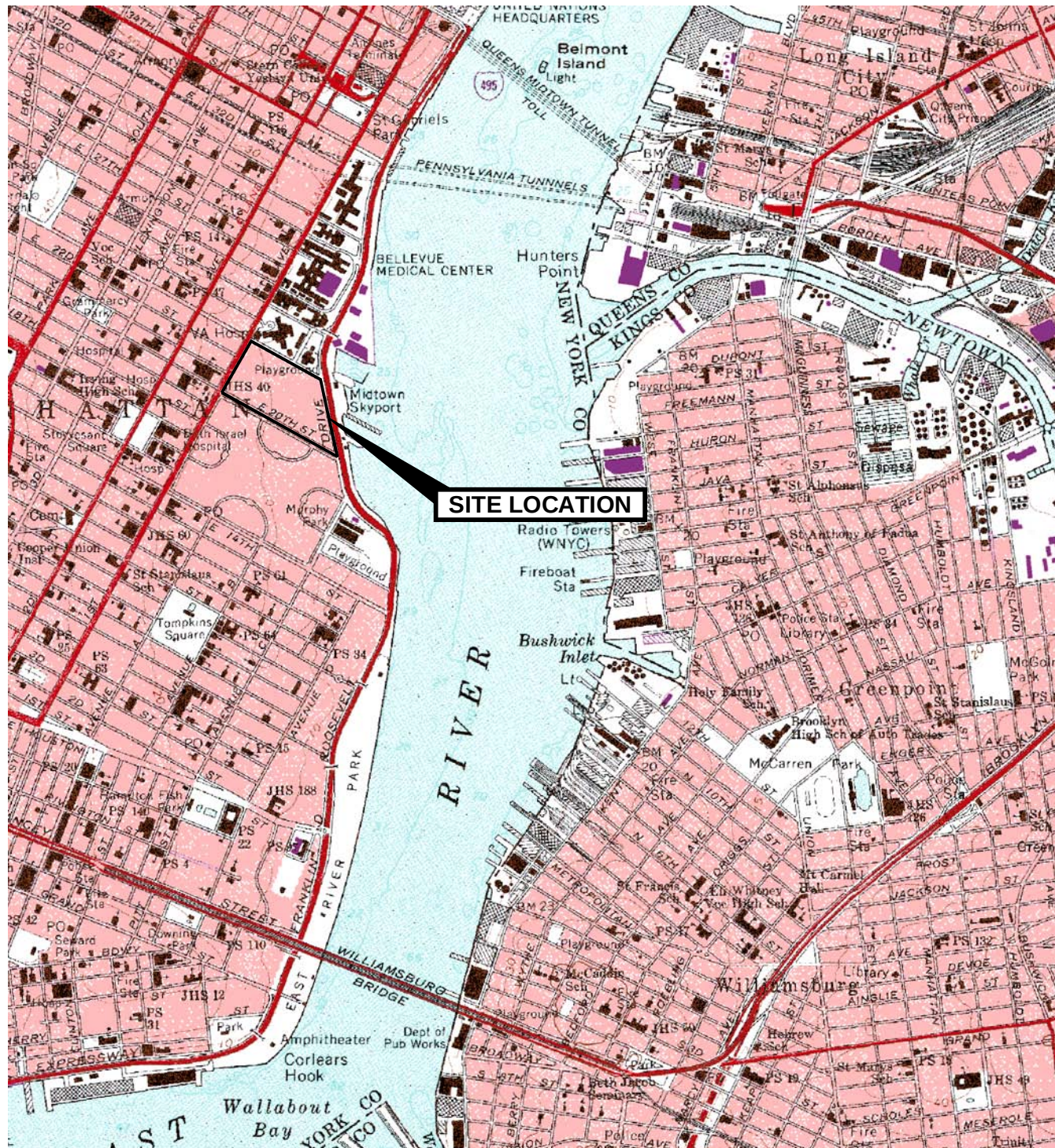


Table 6-1
East 21st Street Works - Operating Unit 1
Alternatives Evaluation

Objective/Media to be Addressed	Alternative				
	1 No Action	2 Institutional Controls	3 Institutional Controls and Soil Removal	4 Institutional Controls , Soil Removal and Source Material Control	5 Complete Site Restoration
Exposure Pathway Elimination	No Activity	Institutional Controls (excavation/GW use restrictions)	Institutional Controls (excavation/GW use restrictions)	Institutional Controls (excavation/GW use restrictions)	Excavation
Reduction of Contaminants					
Impacted Soil	No Activity	No Activity	Excavation (accessible areas vadose zone (5-9 ft. bgs))	Excavation (accessible areas 5-20 ft. bgs)	Excavation
Separate-phase product	No Activity	Containment/Product Recovery	Containment/Product Recovery	Containment/Product Recovery	Source Removal (see soil)
Groundwater	No Activity	No Activity	No Activity	Additional Source Reduction (Chem. Ox. accessible areas 20-45 ft. bgs)	Source Removal (see soil)
Soil Gas ¹	No Activity	Continued Monitoring	Continued Monitoring	Continued Monitoring	No Activity
Evaluation Criteria					
1 Overall Protection of Public Health and Environment	Poor - does not address potential risks	Fair - maintains current condition of no significant risk, but does not significantly remove contamination	Fair - maintains current condition of no significant risk, provides for limited removal of contamination (<7%)	Fair - maintains current condition of no significant risk and provides for adequate removal of contamination (10 to 70%).	Good - provides significant removal of contaminants and permanently reduces/eliminates exposure pathways.
2 Compliance with Standards, Criteria and Guidance	Poor - does not achieve the remedial action objectives and does not result in site-wide compliance with SCGs	Fair - achieves the remedial action objectives, GW use restrictions eliminate the need to consider Part 375 soil criteria for GW protection.	Fair - achieves the remedial action objectives, GW use restrictions eliminate the need to consider Part 375 soil criteria for GW protection.	Fair - achieves the remedial action objectives, GW use restrictions eliminate the need to consider Part 375 soil criteria for GW protection.	Good - will achieve site-wide compliance with SCGs
3 Long-term Effectiveness and Permanence	Poor - contaminants will remain in-place with no means to control the potential exposure pathway	Fair - contaminants will remain in-place, but long-term controls will be relatively easy to implement and assure compliance with through deed restrictions	Fair - contaminants will remain in-place, but long-term controls will be relatively easy to implement and assure compliance with deed restrictions. Excavation will provide limited removal of vadose zone soils reducing risk.	Fair - contaminants will remain in-place, but long-term controls will be relatively easy to implement and assure compliance with through deed restrictions. Excavation will provide limited removal of surface soils reducing risk.	Good - excavation will provide a permanent remedy, long-term controls not required
4 Reduction of Toxicity, Mobility or Volume	Poor - provides no significant reduction in contaminant levels	Poor - provides no significant reduction in contaminant levels	Poor - provides no significant reduction in contaminant levels	Fair - provides limited to moderate level of contaminant reduction	Good - provides complete removal of contaminants
5 Short-term Effectiveness	Good - no intrusive site work	Fair - minimal intrusive site work is required	Poor - provides the potential to generate fugitive emissions (odor and dust)	Poor - provides the potential to generate fugitive emissions (odor and dust), use of strong chemicals	Fair - provides the potential to generate fugitive emissions (odor and dust) causing risk to remediation workers and surrounding properties. Control measures will be implemented.
6 Implementability	Good - currently in place	Good - implementable without significant disruption to residents/property, institutional controls would require review/agreement by site owners.	Poor - excavation would provide a significant disruption to residents, institutional controls would require review/agreement by site owners	Poor - excavation in courtyards/open spaces would provide an unacceptable burden on residents, institutional controls would require review/agreement by site owners.	Poor - relocation of residents would provide significant disruption to residents and excavation would be difficult to implement.
Duration					
Implementation	NA	Up to 1 year	Up to 1 year	2 to 3 years	3 to 5 years
Monitoring	NA	30 years	30 years	30 years	NA
7 Estimated Cost (NPV)	No Cost	\$6,500,000	\$20,600,000	\$174,000,000	\$480,000,000
Capitol Costs	No Capitol Cost	\$1,500,000	\$15,600,000	\$169,000,000	\$480,000,000
Annual O & M Costs	No O&M Cost	\$255,000	\$255,000	\$255,000	No O&M Cost
O&M 30 Year NPV @ 3%	No O&M Cost	\$5,000,000	\$5,000,000	\$5,000,000	No O&M Cost

Notes:
1 Current data demonstrates that vapor intrusion does not provide a risk. Alternatives are evaluated in the context of a potential change of conditions

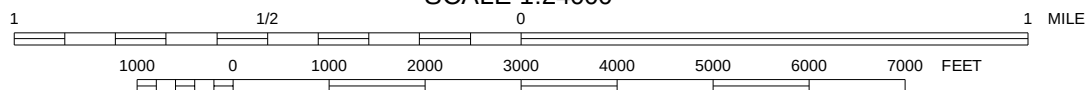
Figures



UNITED STATES GEOLOGIC SURVEY
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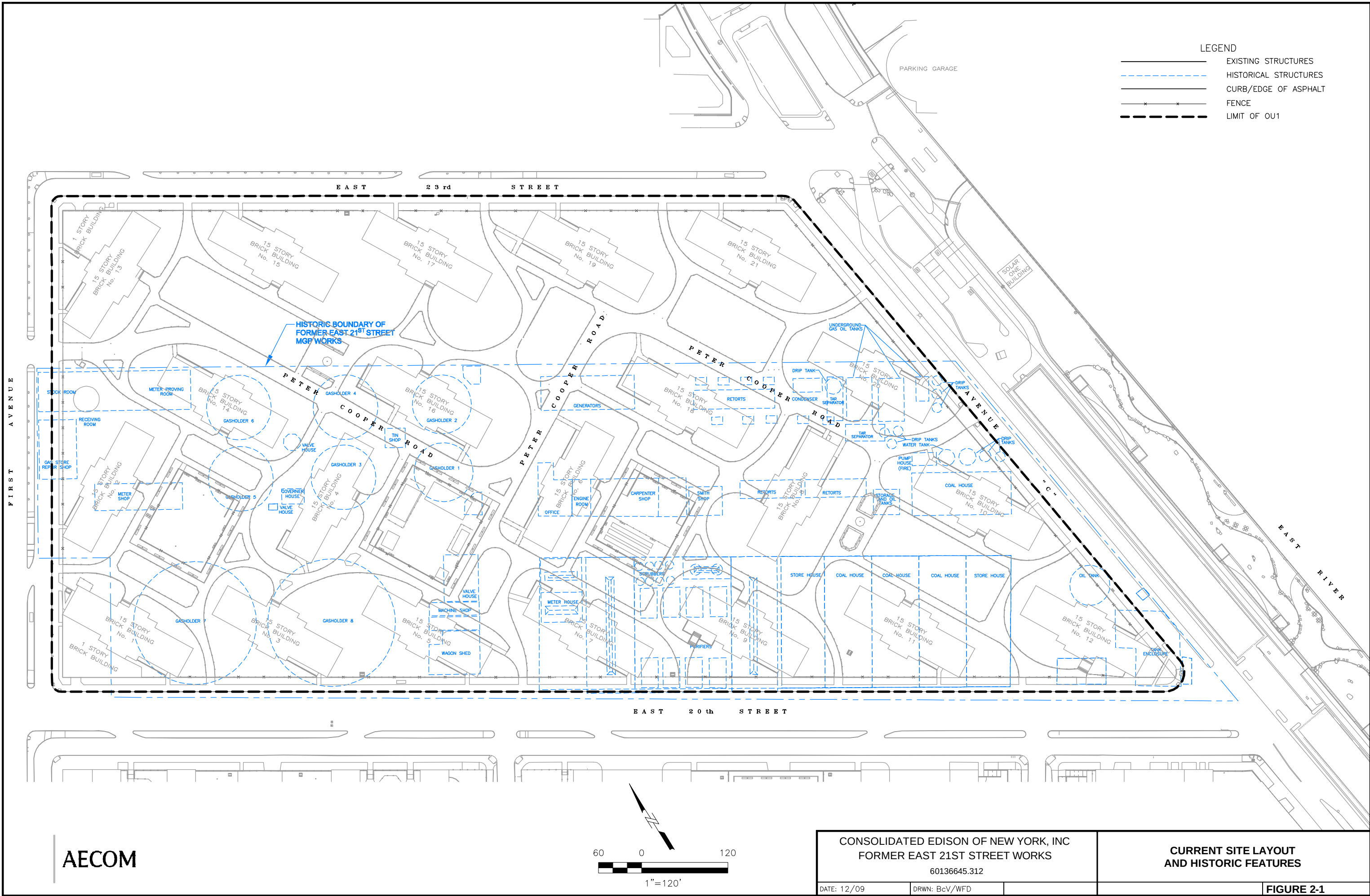
SITE LOCATION MAP

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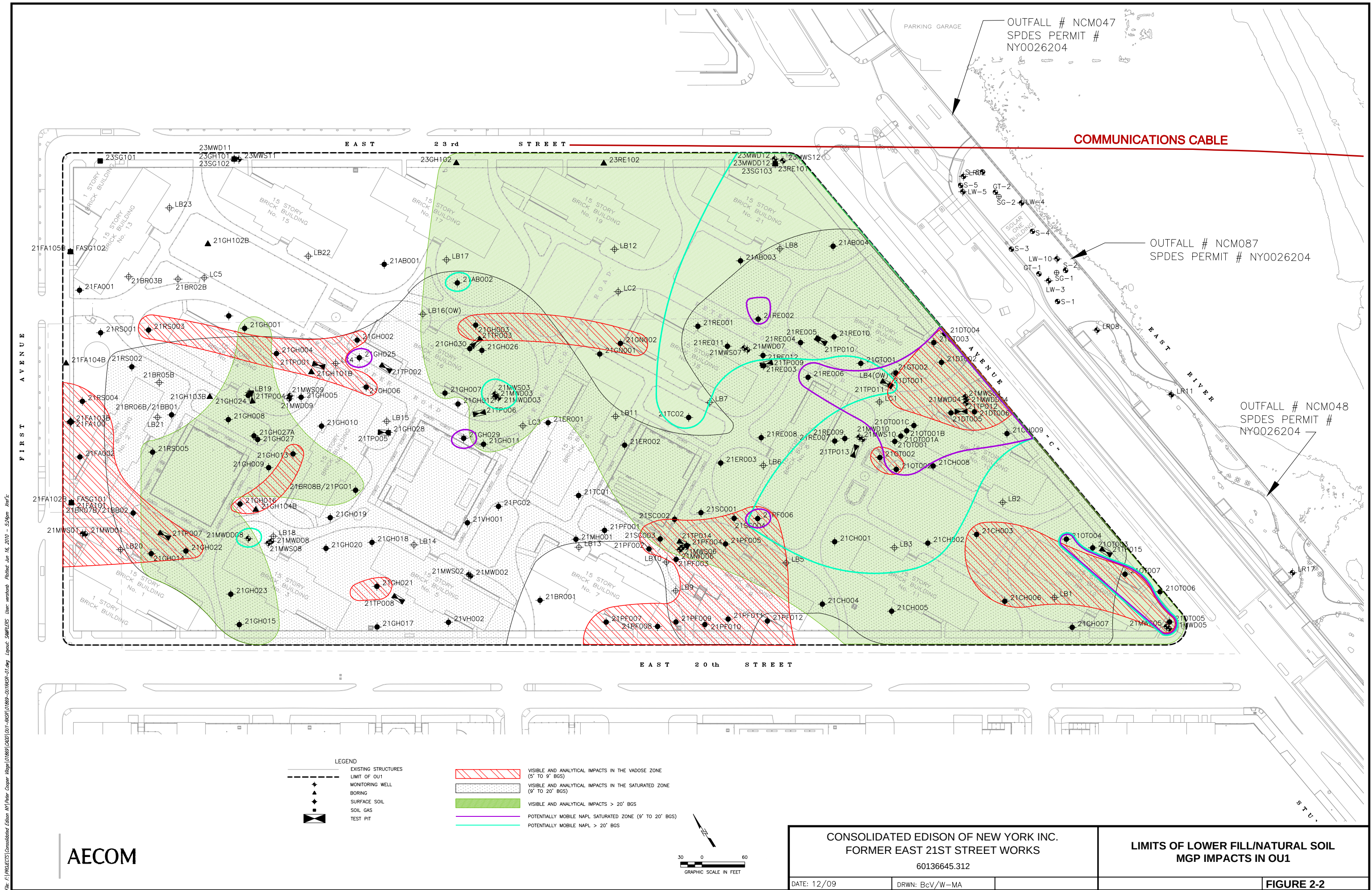
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FIGURE 1-1

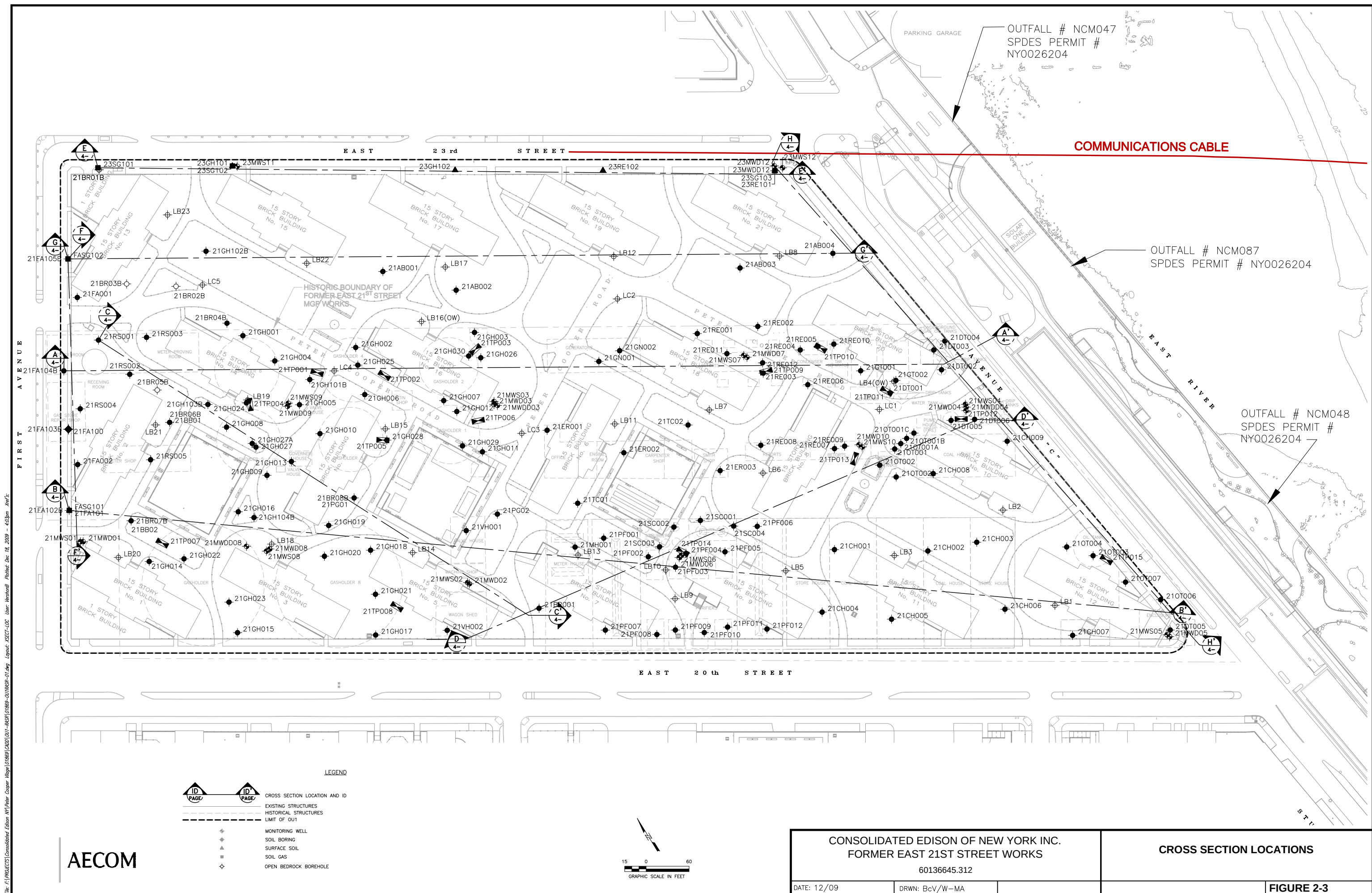
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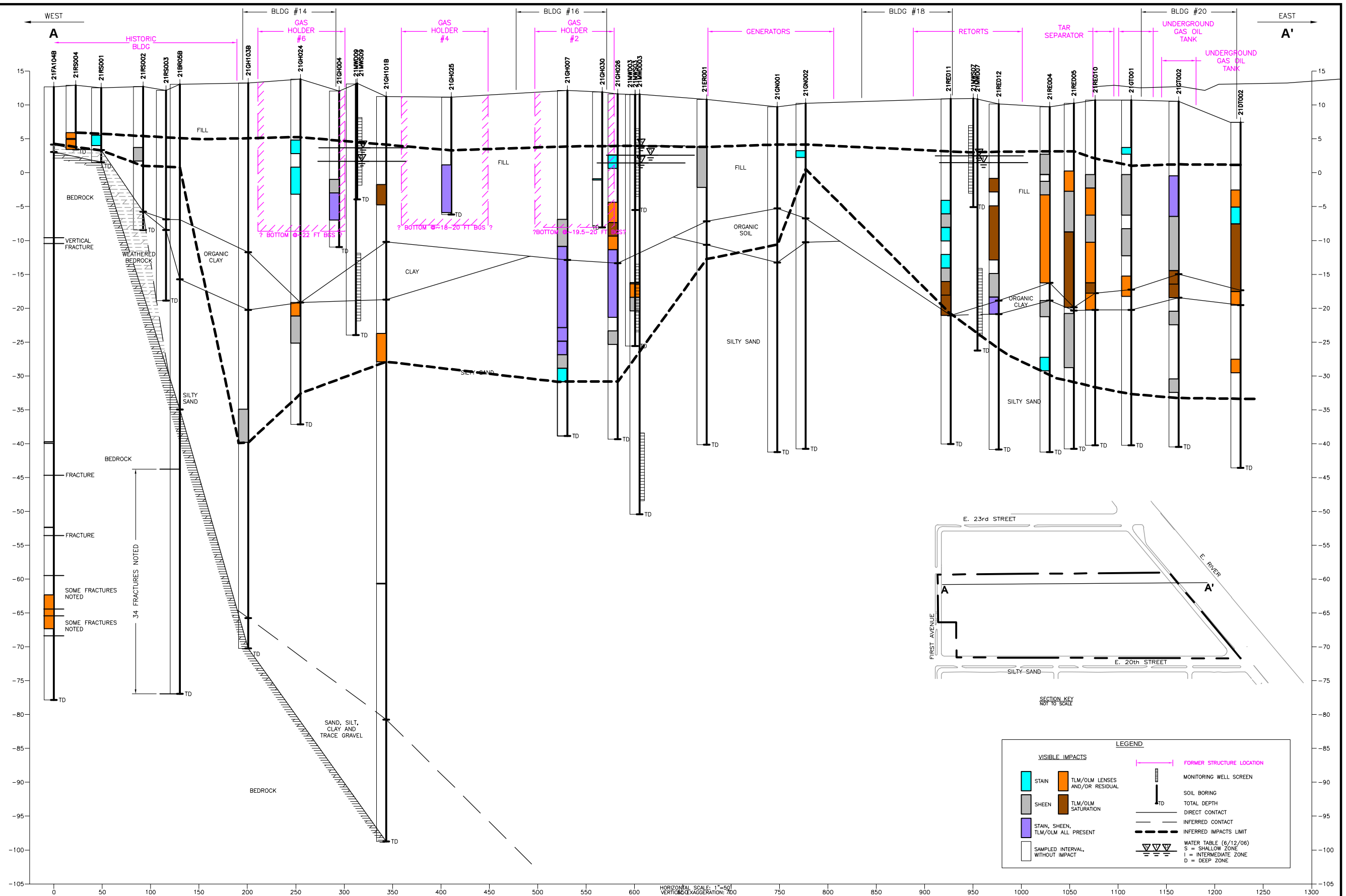
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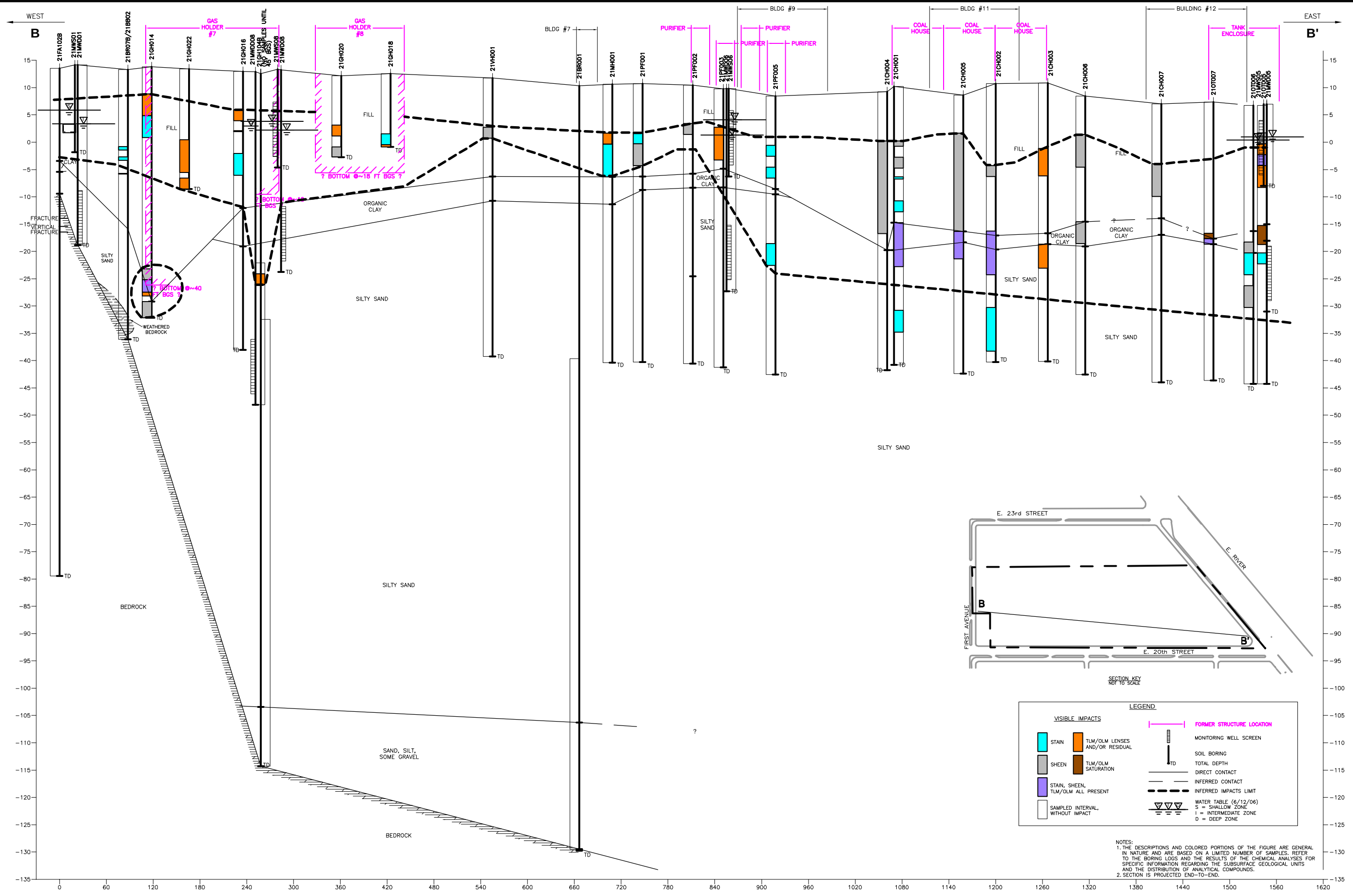
DATE: 12/09

DRWN: BcV/W-MA

CROSS SECTION A-A'
OPERABLE UNIT 1 (OU1)

FIGURE 2-4A

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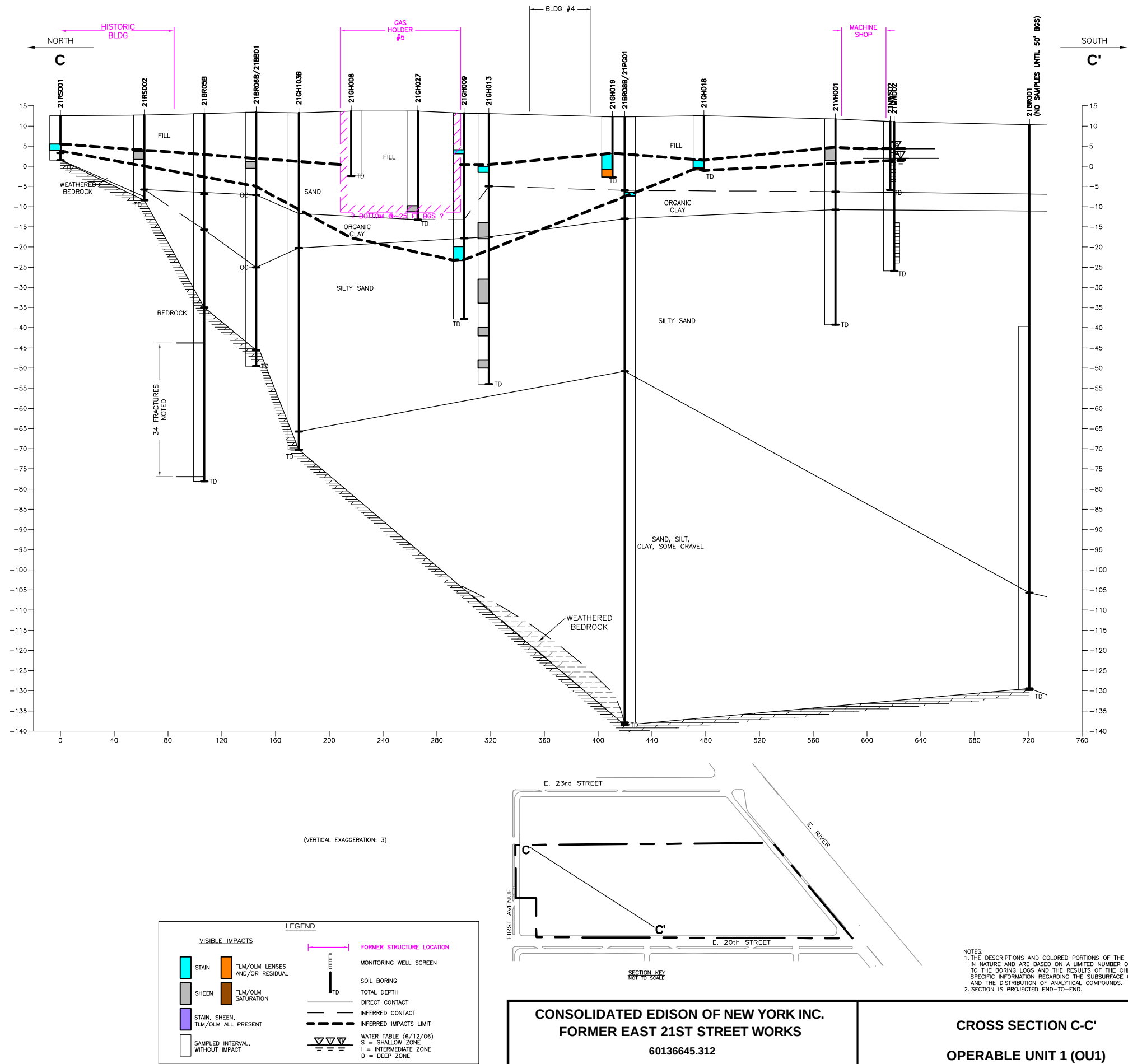


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CONSOLIDATED EDISON OF NEW YORK INC.		CROSS SECTION B-B'	
FORMER EAST 21ST STREET WORKS		OPERABLE UNIT 1 (OU1)	
60136645.312		FIGURE 2-4B	
DATE: 12/09	DRWN: BcV/W-MA		

File: F:\PROJECTS\Consolidated Edison NY\Peter Cooper Village 01869 CADD\011-RASR\KSECT_C-C.dwg Layout: C-C User: VershonB Plotted: Dec 18, 2009 - 4:12pm Xref's:

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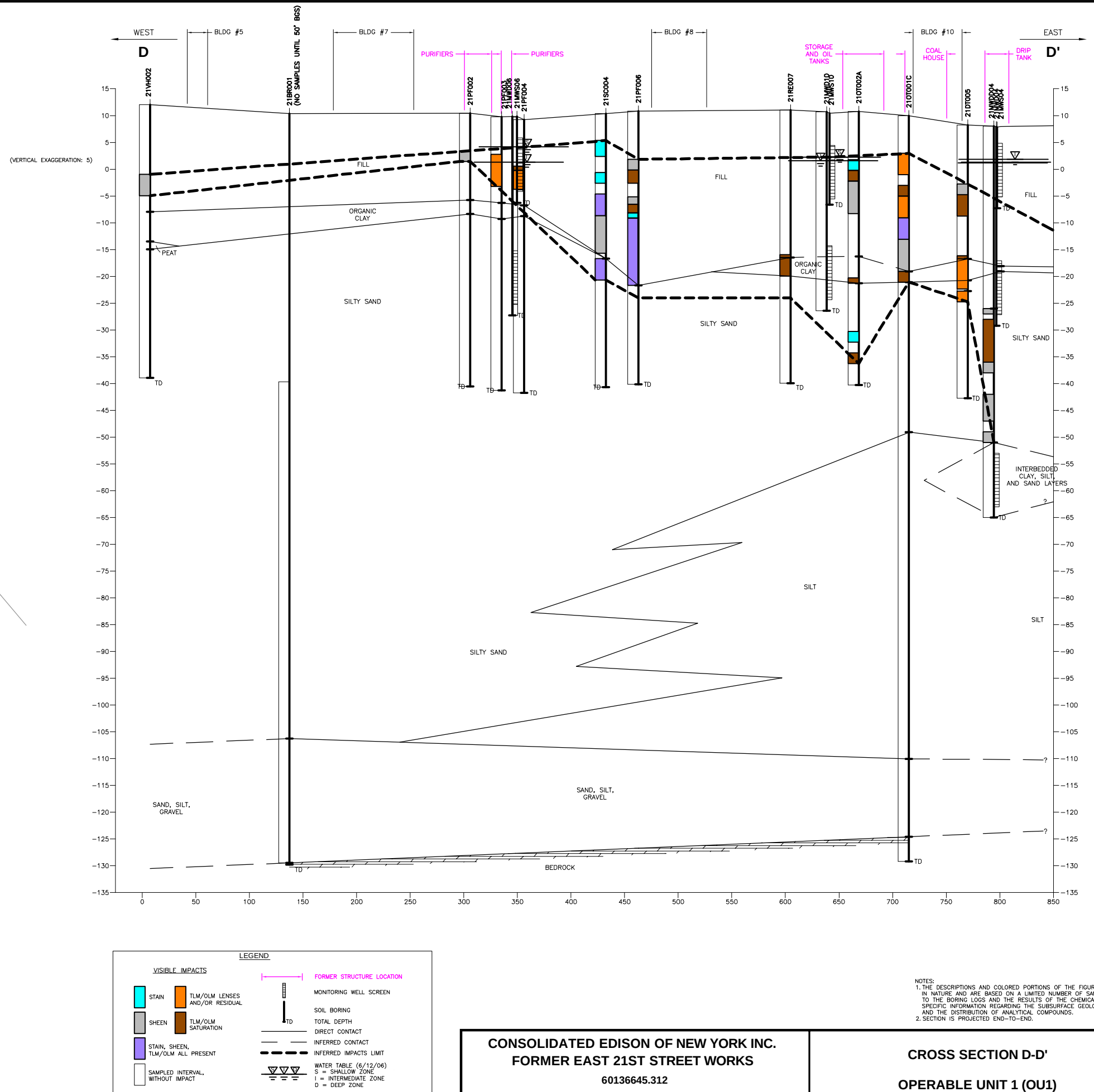
DATE: 12/09

DRWN: BcV/W-MA

CROSS SECTION C-C'

OPERABLE UNIT 1 (OU1)

FIGURE 2-4C



NOTES:
1. THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORING LOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGICAL UNITS AND THE DISTRIBUTION OF ANALYTICAL COMPOUNDS.
2. SECTION IS PROJECTED END-TO-END.

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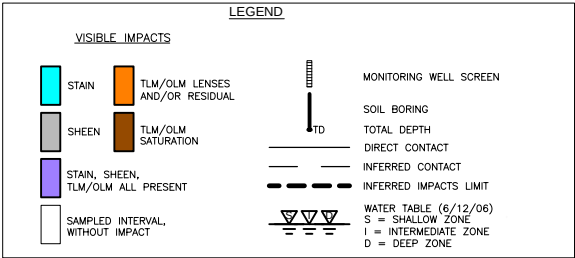
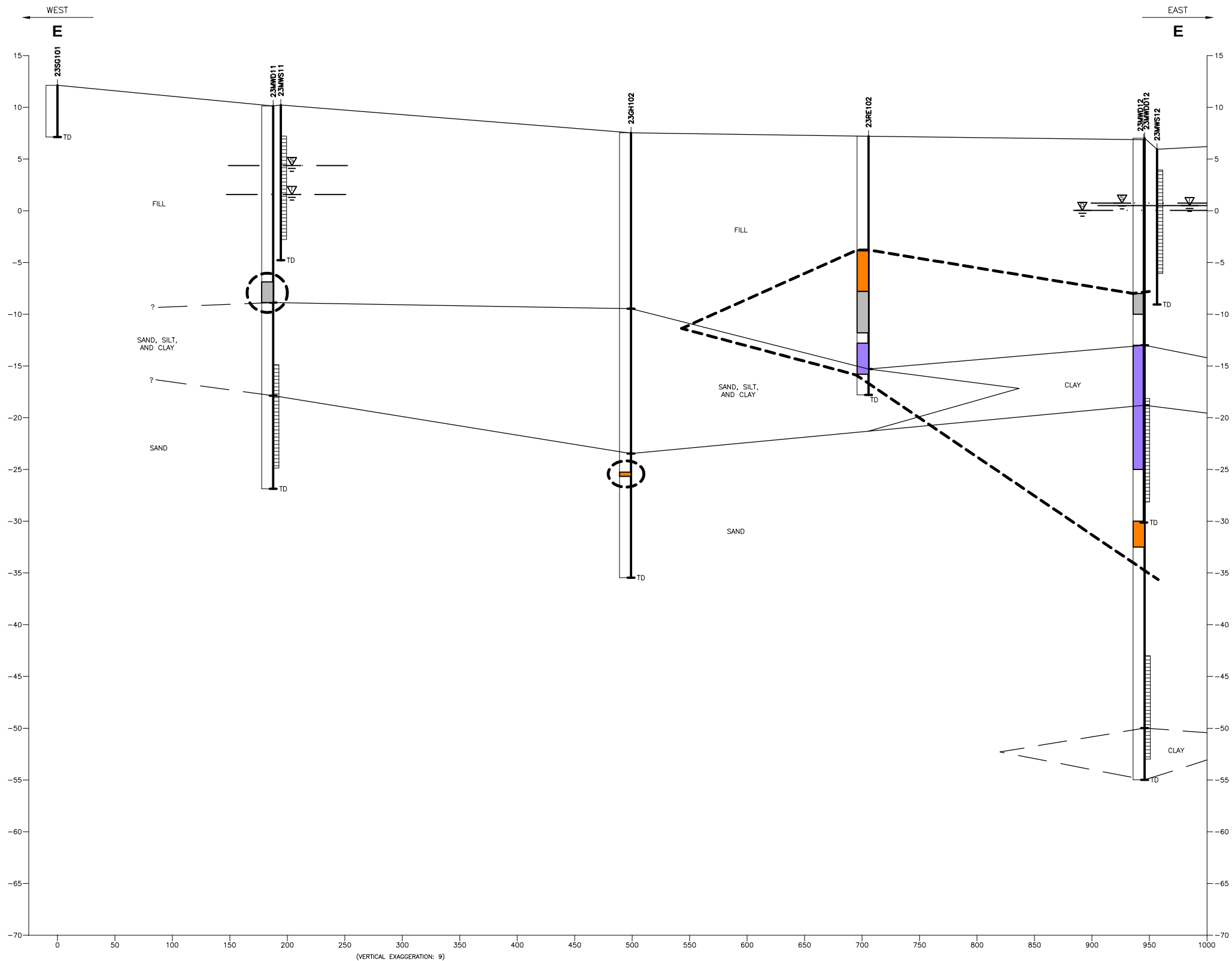
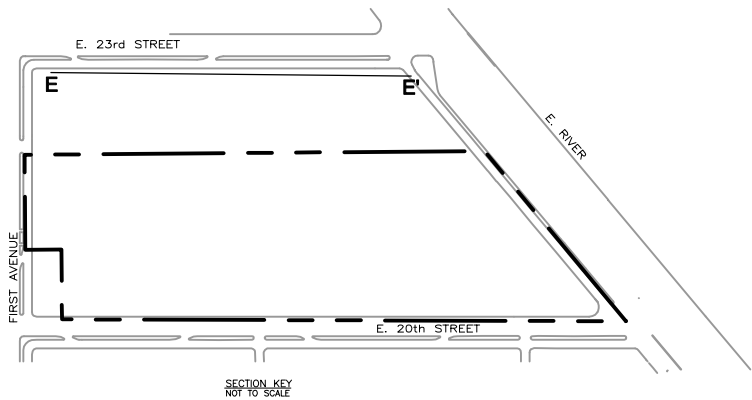
DRWN: BcV/W-MA

CROSS SECTION D-D'

OPERABLE UNIT 1 (OU1)

FIGURE 2-4D

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NOTES:
1. THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORING LOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGICAL UNITS AND THE DISTRIBUTION OF ANALYTICAL COMPOUNDS.
2. SECTION IS PROJECTED END-TO-END.

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DRWN: Bc/VW-MA

CROSS SECTION E-E'

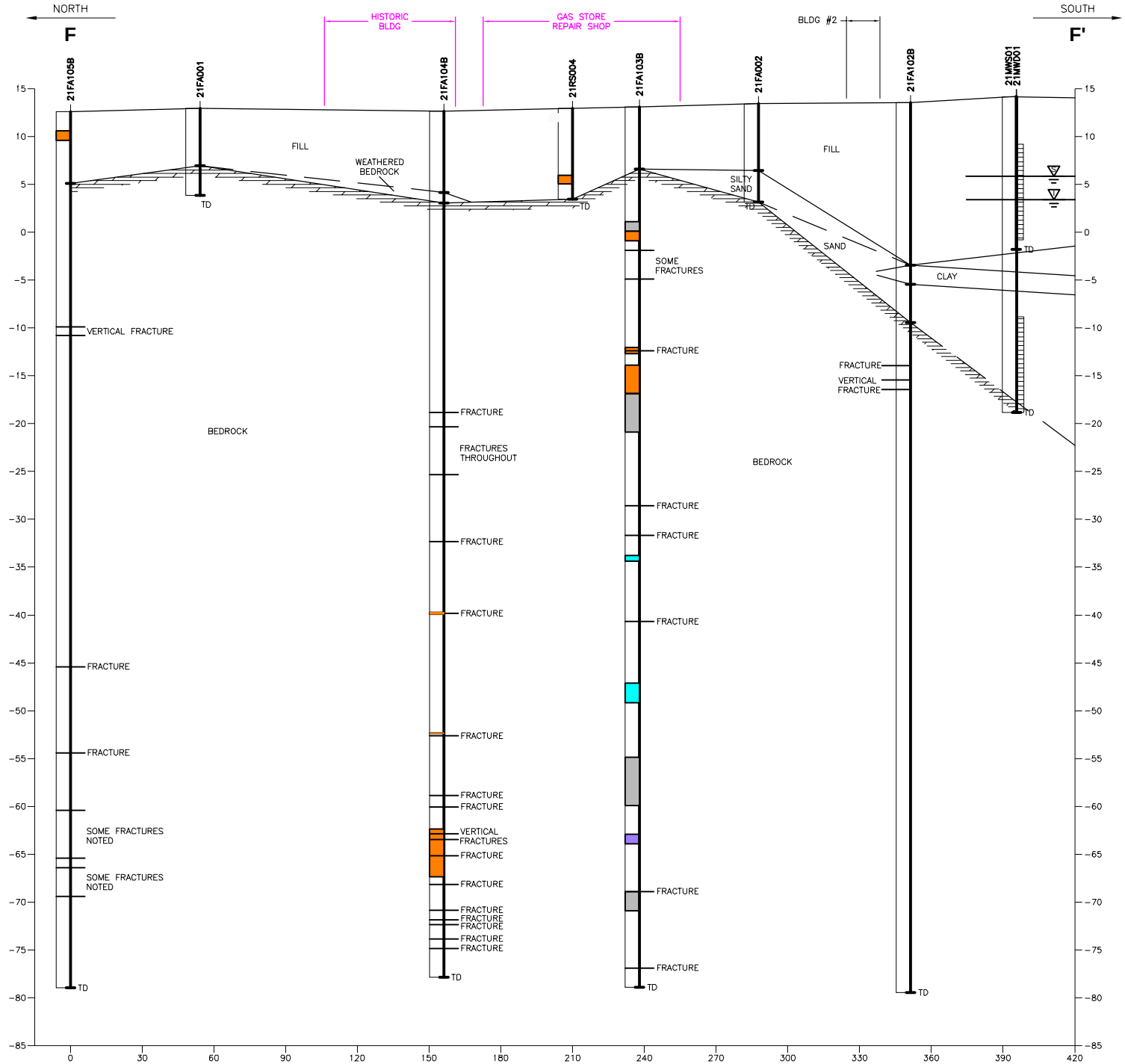
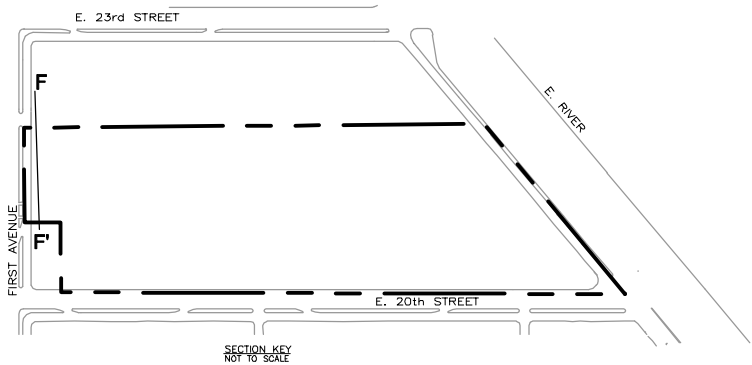
OPERABLE UNIT 1 (OU1)

FIGURE 2-4E

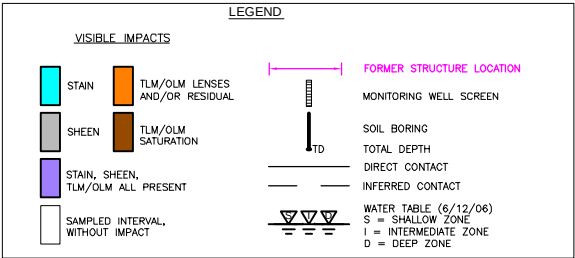
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AECOM



(VERTICAL EXAGGERATION: 4)



NOTES:
1. THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORING LOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGICAL UNITS AND THE DISTRIBUTION OF ANALYTICAL COMPOUNDS.
2. SECTION IS PROJECTED END-TO-END.

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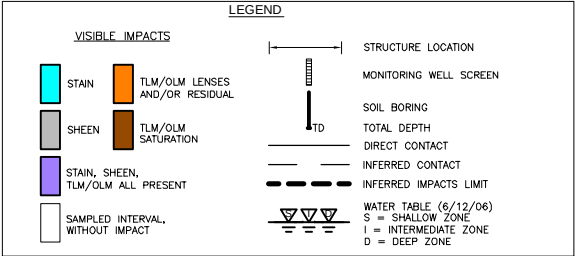
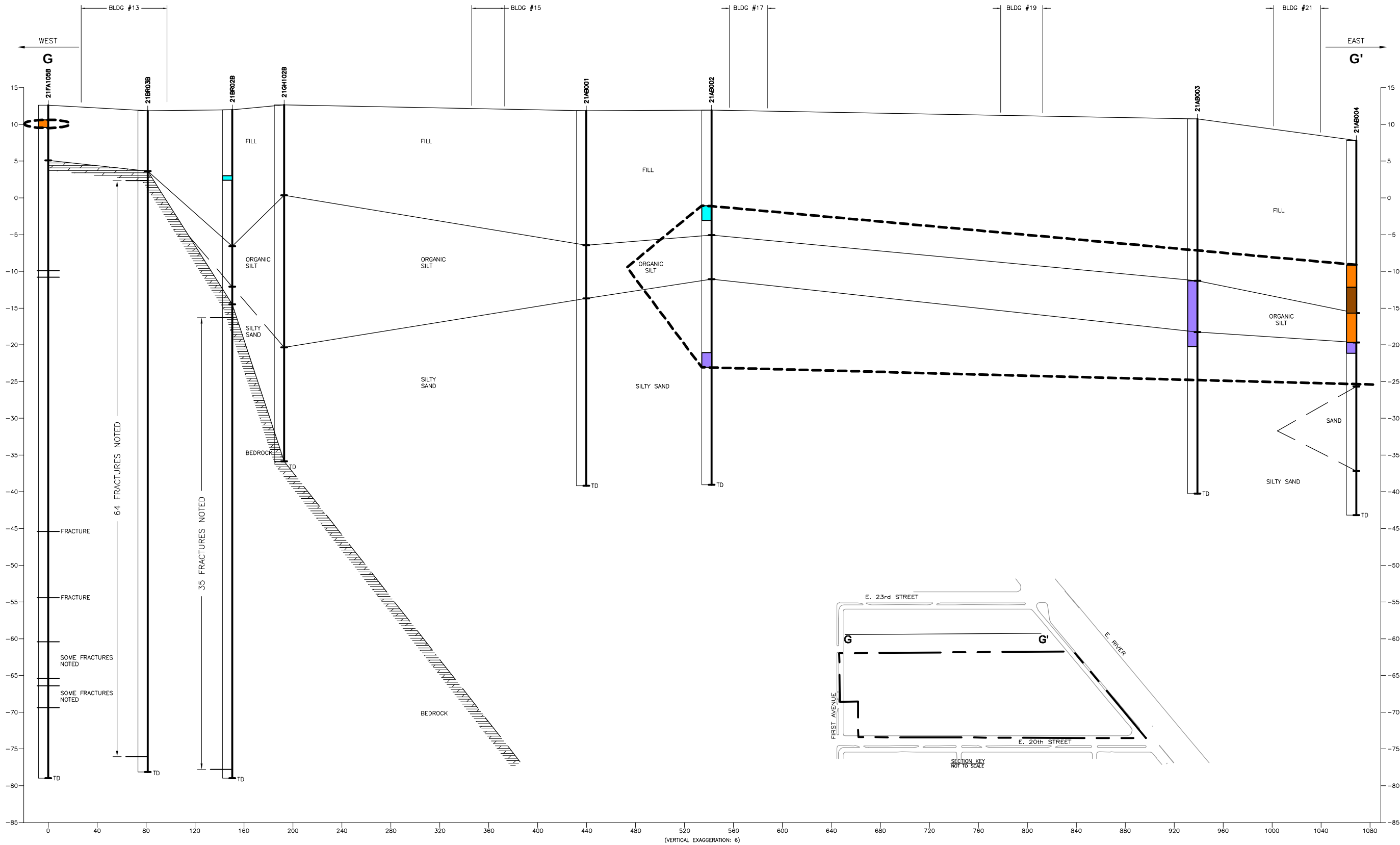
DRWN: BcV/W-MA

CROSS SECTION F-F'

OPERABLE UNIT 1 (OU1)

FIGURE 2-4F

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NOTES:

1. THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORING LOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGICAL UNITS AND THE DISTRIBUTION OF ANALYTICAL COMPOUNDS.

2. SECTION IS PROJECTED END-TO-END.

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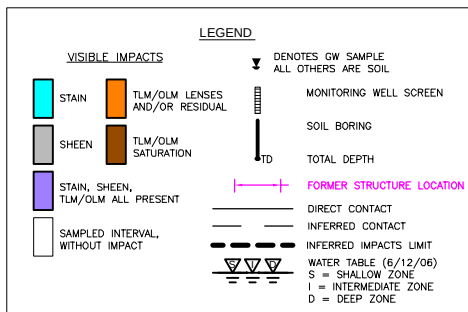
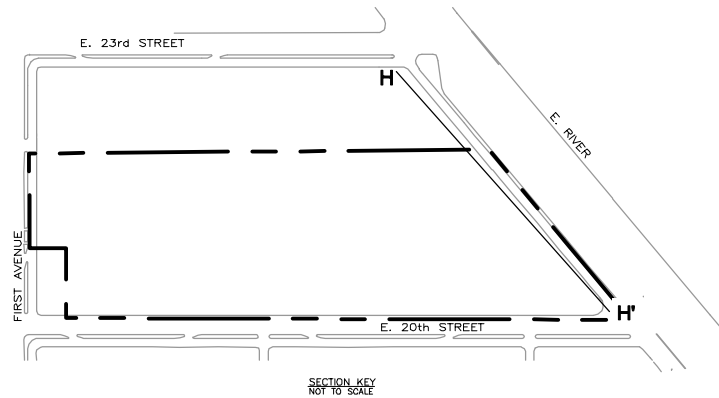
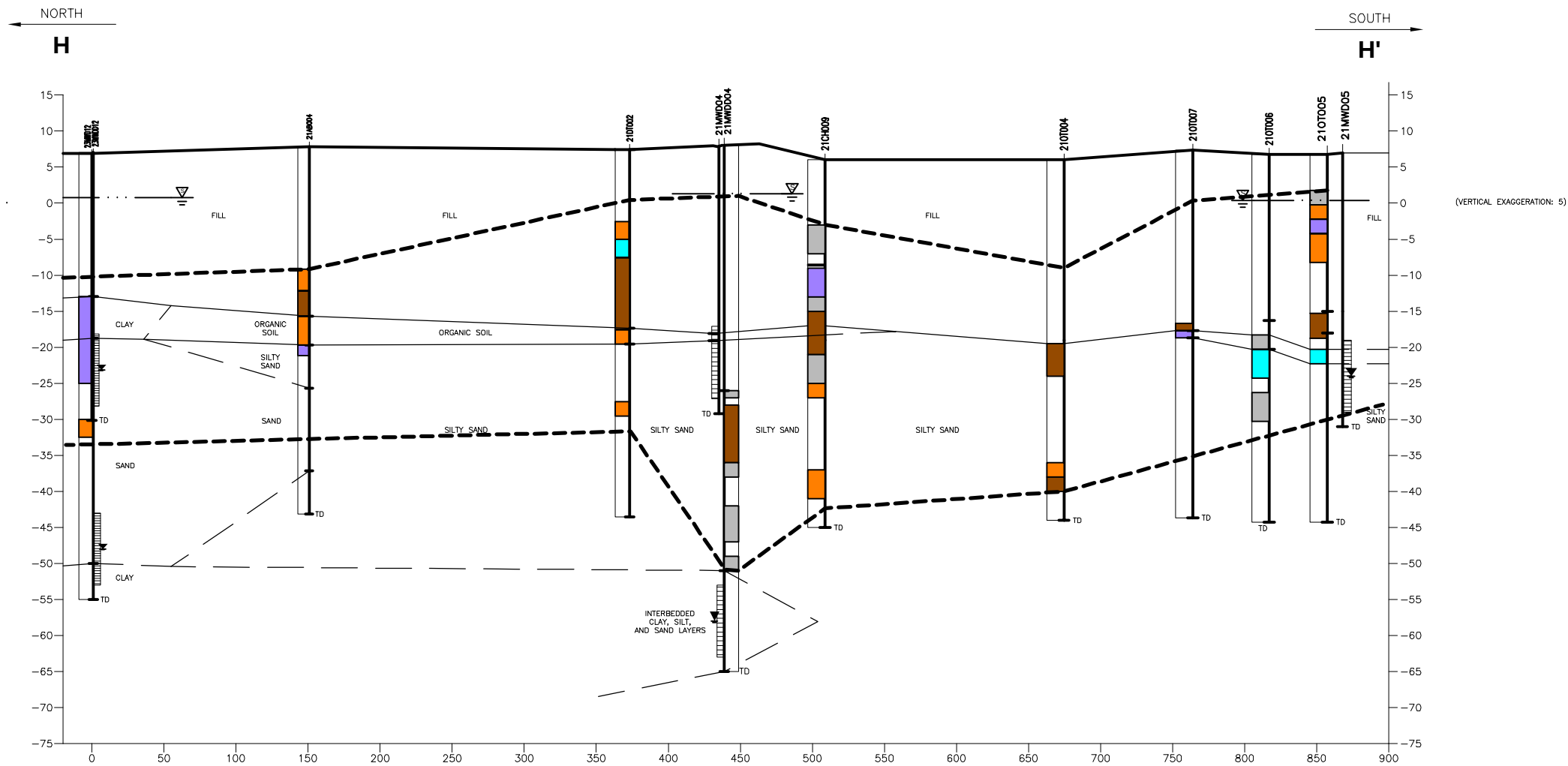
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CROSS SECTION G-G'

OPERABLE UNIT 1 (OU1)

FIGURE 2-4G

File: F:\PROJECTS\Consolidated Edison NY\Peter Cooper Village 01869 CADD\OU1-RASR\KSECT_H-H.dwg Layout: H-H User: VershorB Plotted: Dec 18, 2009 - 4:14pm Xref's:



NOTES:

1. THE DESCRIPTIONS AND COLORED PORTIONS OF THE FIGURE ARE GENERAL IN NATURE AND ARE BASED ON A LIMITED NUMBER OF SAMPLES. REFER TO THE BORING LOGS AND THE RESULTS OF THE CHEMICAL ANALYSES FOR SPECIFIC INFORMATION REGARDING THE SUBSURFACE GEOLOGICAL UNITS AND THE DISTRIBUTION OF ANALYTICAL COMPOUNDS.
2. SECTION IS PROJECTED END-TO-END.

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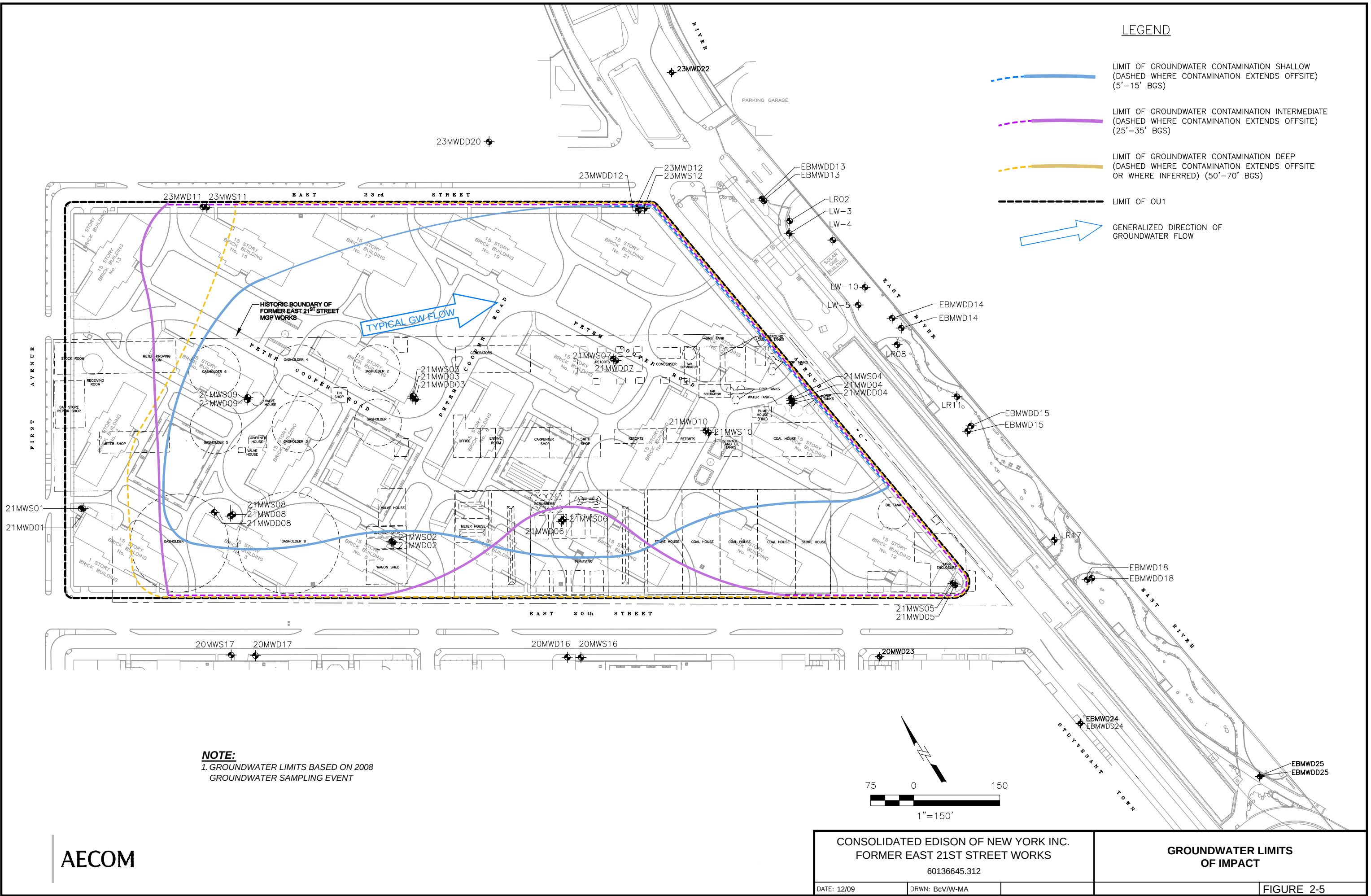
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CROSS SECTION H-H'

OPERABLE UNIT 1 (OU1)

FIGURE 2-4H

File: F:\PROJECTS\Consolidated Edison NY\Peter Cooper Village 01869 CADD\OU1-RASPGW-2008-QUALITY.dwg Layout: GW-2008-2 User: VershanB Plotted: Dec 18, 2009 - 4:28pm Xref's:



Appendix A

Summary of Soil Results



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21AB001												21DT002 3/3/2004 21DT002-09 7-9	21DT003 3/22/2004 21DT003-09 7-9	21DT004 3/30/2004 21DT004-07 5-7	21DT006 3/3/2004 21DT006-09 7-9	21FA001 2/20/2004 21FA001-07 5-7
		21AB001-09	21AB002-07	21AB003-07	21AB004-07	21CH001-07	21CH002-09	21CH003-09	21CH004-07	21CH005-07	21CH006-09	21CH008-07	21TP011-09					
BTEX (mg/Kg)																		
Benzene	4.8	0.00025 U	0.00025 U	0.00025 U	0.00028 U	NS	NS	NS	NS	NS	NS	NS	1.100	0.0010 J	0.750	6.9	71	0.0020
Ethylbenzene	41	0.00022 U	0.00023 U	0.00023 U	0.00023 U	NS	NS	NS	NS	NS	NS	NS	25.000	0.00023 U	2.100	220	470	0.00023 U
Toluene	100	0.00022 U	0.0009 J	0.00023 U	0.00023 U	NS	NS	NS	NS	NS	NS	NS	0.360 J	0.00023 U	0.400 J	28.000	4.200 J	0.0014 J
Xylene (Total)	100	0.00054 U	0.00055 U	0.00055 U	0.00056 U	NS	NS	NS	NS	NS	NS	NS	11.000	0.00055 U	2.200	500	170	0.00057 U
Total BTEX	N/A	ND	0.0009	ND	ND	NS	NS	NS	NS	NS	NS	NS	37.46	0.001	5.45	754.9	715.2	0.0034
VOC (mg/Kg)																		
1,2,4-Trichlorobenzene	N/A	0.029 U	0.029 U	0.029 U	0.029 U	0.027 U	0.029 U	0.028 U	0.026 U	0.029 U	0.140 U	0.027 U	0.560 U	0.029 UJ	0.280 U	2.900 U	0.730 U	0.029 U
2-Butanone (Methyl Ethyl Ketone)	100	0.0011 R	0.0011 R	0.0011 R	0.0011 R	NS	NS	NS	NS	NS	NS	NS	0.440 U	0.0011 R	0.210 R	4.800 R	9.500 R	0.0012 R
Acetone	100	0.017 J	0.020 J	0.0028 UJ	0.020 J	NS	NS	NS	NS	NS	NS	NS	0.420 U	0.0028 U	0.200 U	4.500 U	9.100 U	0.028 J
Carbon Disulfide	N/A	0.00034 U	0.0007 J	0.00034 U	0.00035 U	NS	NS	NS	NS	NS	NS	NS	0.056 U	0.00034 U	0.028 UJ	0.620 U	1.200 U	0.0043 J
Carbon Tetrachloride	2.4	0.00023 U	0.00024 U	0.00024 U	0.00024 U	NS	NS	NS	NS	NS	NS	NS	0.085 U	0.00024 U	0.042 U	0.910 U	1.800 U	0.00024 U
Chlorobenzene	100	0.00017 U	0.00017 U	0.00017 U	0.00017 U	NS	NS	NS	NS	NS	NS	NS	0.018 U	0.00017 U	0.0088 U	0.200 U	0.390 U	0.00018 U
Chloroform	49	0.00026 U	0.00026 U	0.00026 U	0.00027 U	NS	NS	NS	NS	NS	NS	NS	0.037 U	0.00026 U	0.018 U	0.400 U	0.810 U	0.00027 U
Methylene Chloride	100	0.019 B	0.00026 U	0.0013 U	0.0006 U	NS	NS	NS	NS	NS	NS	NS	0.028 U	0.00026 U	0.014 U	0.300 U	0.600 U	0.001 U
Styrene	N/A	0.00013 U	0.00014 U	0.00014 U	0.00014 U	NS	NS	NS	NS	NS	NS	NS	0.035 U	0.00014 U	0.077 J	0.390 U	0.770 U	0.00014 U
Tetrachloroethene	19	0.00019 U	0.00019 U	0.00019 U	0.00020 U	NS	NS	NS	NS	NS	NS	NS	0.074 U	0.00019 U	0.037 U	0.780 U	1.600 U	0.0021
Trichloroethene	21	0.00030 U	0.00030 U	0.00030 U	0.0009 J	NS	NS	NS	NS	NS	NS	NS	0.054 U	0.00030 U	0.027 U	0.570 U	1.200 U	0.00032 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.021 J	0.016 J	0.0082 J	0.022 J	0.010 J	0.130 J	0.690	0.028 J	0.052 J	0.380 J	0.047 J	87.000	0.260 J	9.700	200.000	110.000	0.068 J
Acenaphthene	100	0.010 J	0.0033 U	0.0034 U	0.075 J	0.014 J	0.023 J	0.650	0.300 J	0.130 J	10.000	0.081 J	30.000	2.200 J	13.000	110	46.000	0.030 J
Acenaphthylene	100	0.0034 U	0.012 J	0.0034 U	0.010 J	0.039 J	0.300 J	1.500	0.150 J	0.099 J	2.900	0.140 J	4.800 J	0.800 J	7.800	42.000	12.000	0.037 J
Anthracene	100	0.018 J	0.015 J	0.012 J	0.160 J	0.040 J	0.100 J	0.960	0.200 J	0.380 J	5.500	0.180 J	14.000	1.600 J	12.000	140	30.000	0.070 J
Benzo(a)anthracene	1	0.034 J	0.031 J	0.044	0.450	0.079	0.053	3.2	0.250	0.710	3.1	0.390	6.6	1.300 J	7.3	91	16	0.140
Benzo(a)pyrene	1	0.048	0.040	0.042	0.460	0.082	0.066	5.9	0.240	0.640	2.6	0.460	5	1.200 J	7.3	74	20	0.160
Benzo(b)fluoranthene	1	0.030 J	0.030 J	0.024 J	0.370	0.051	0.042	4.5	0.130	0.440	1.2	0.260	2.4	0.600 J	3.5	41	8	0.096
Benzo(ghi)perylene	100	0.033 J	0.038 J	0.030 J	0.310 J	0.062 J	0.270 J	4.700	0.140 J	0.380 J	1.500 J	0.390	0.980 J	0.550 J	3.700 J	40.000	11.000	0.120 J
Benzo(k)fluoranthene	3.9	0.043	0.034 J	0.051	0.470	0.071	0.0041 U	4.5	0.190	0.650	1.800	0.380	4.7	0.970 J	5.9	71	14	0.150
Chrysene	3.9	0.048 J	0.042 J	0.051 J	0.500	0.097 J	0.059 J	3.300	0.240 J	0.770	2.600	0.460	6.900 J	1.400 J	7.7	84	21	0.140 J
Dibenz(a,h)anthracene	0.33	0.0026 U	0.010 J	0.0026 U	0.093	0.0024 U	0.0026 U	2.4	0.0024 U	0.160	0.240	0.0024 U	0.051 U	0.0026 UJ	1.3	13	4.3	0.0026 U
Fluoranthene	100	0.056 J	0.062 J	0.078 J	0.930	0.170 J	0.068 J	3.000	0.570	1.600	6.200	0.760	12.000	2.000 J	16.000	240	32.000	0.230 J
Fluorene	100	0.015 J	0.0094 J	0.0028 U	0.062 J	0.033 J	0.042 J	0.610	0.240 J	0.160 J	4.900	0.094 J	16.000	1.000 J	15.000	120	27.000	0.0028 U
Indeno(1,2,3-cd)pyrene	0.5	0.025 J	0.030 J	0.026 J	0.280	0.047	0.120	4.6	0.110	0.320	0.93	0.310	1.2	0.450 J	3.1	35	9.4	0.100
Naphthalene	100	0.0035 U	0.026 J	0.022 J	0.046 J	0.023 J	0.310 J	1.900	0.068 J	0.095 J	1.000 J	0.098 J	140	1.100 J	32.000	600	190	0.360 J
Phenanthrene	100	0.068 J	0.054 J	0.064 J	0.650	0.170 J	0.170 J	2.600	1.100	1.500	17.000	0.730	49.000	2.800 J	43.000	420	110	0.270 J
Pyrene	100	0.054 J	0.063 J	0.082 J	0.850	0.200 J	0.140 J	4.600	0.680	1.500	9.200	0.720 J	24.000	3.000 J	21.000	220	39.000 J	0.250 J
Total PAH	N/A	0.503	0.5124	0.5342	5.738	1.188	1.893	49.61	4.636	9.586	71.05	5.5	404.58	21.23	209.3	2541	699.7	2.221

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21AB001												21DT002 3/3/2004	21DT003 3/22/2004	21DT004 3/30/2004	21DT006 3/3/2004	21FA001 2/20/2004
		21AB001-09	21AB002-07	21AB003-07	21AB004-07	21CH001-07	21CH002-09	21CH003-09	21CH004-07	21CH005-07	21CH006-09	21CH008-07	21TP011-09	21DT002-09 7-9	21DT003-09 7-9	21DT004-07 5-7	21DT006-09 7-9	21FA001-07 5-7
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.037 U	0.036 U	0.037 U	0.037 U	0.034 U	0.036 U	0.035 U	0.033 U	0.036 U	0.180 U	0.034 U	0.710 U	0.036 UJ	0.350 U	1.200 J	0.920 U	0.037 U
2-Methylphenol	100	0.036 U	0.035 U	0.036 U	0.036 U	0.034 U	0.035 U	0.011 J	0.033 U	0.035 U	0.170 U	0.034 U	0.700 U	0.035 UJ	0.340 U	3.500 U	0.900 U	0.036 U
4-Methylphenol	100	0.030 J	0.039 U	0.040 U	0.012 J	0.037 U	0.039 U	0.035 J	0.036 U	0.0088 J	0.190 U	0.037 U	0.760 U	0.0096 J	0.380 U	1.100 J	0.980 U	0.040 U
bis(2-Ethylhexyl) phthalate	N/A	0.100 U	0.110 J	0.210 J	0.150 J	0.120 J	0.024 U	0.023 U	0.270 J	0.350 J	0.120 U	0.260 J	0.470 U	0.086 J	0.230 U	2.400 U	0.600 U	0.098 J
Butyl benzyl phthalate	N/A	0.016 U	0.016 U	0.016 U	0.016 U	0.015 U	0.016 U	0.015 U	0.015 U	0.016 U	0.077 U	0.015 U	0.310 U	0.016 UJ	0.150 U	1.600 U	0.400 U	0.016 U
Carbazole	N/A	0.0029 U	0.0029 U	0.0029 U	0.079 J	0.015 J	0.0029 U	0.360 J	0.032 J	0.120 J	0.110 J	0.067 J	0.290 J	0.051 J	0.820 J	64.000	4.400 J	0.021 J
Dibenzofuran	59	0.0099 J	0.020 U	0.021 U	0.029 J	0.014 J	0.020 U	0.180 J	0.030 J	0.100 J	0.510 J	0.044 J	2.500 J	0.210 J	2.600 J	95	7.600 J	0.028 J
Di-n-butyl phthalate	N/A	0.012 U	0.011 U	0.012 U	0.012 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U	0.055 U	0.011 U	0.220 U	0.011 UJ	0.110 U	1.100 U	0.290 U	0.012 U
Isophorone	N/A	0.030 U	0.030 U	0.030 U	0.030 U	0.028 U	0.030 U	0.029 U	0.027 U	0.030 U	0.140 U	0.028 U	0.580 U	0.030 UJ	0.290 U	3.000 U	0.750 U	0.030 U
N-Nitrosodiphenylamine	N/A	0.018 U	0.018 U	0.018 U	0.018 U	0.017 U	0.018 U	0.018 U	0.016 U	0.018 U	0.088 U	0.017 U	0.350 U	0.018 UJ	0.180 U	1.800 U	0.460 U	0.018 U
Pentachlorophenol	6.7	0.073 U	0.073 U	0.073 U	0.073 U	0.069 U	0.073 U	0.069 U	0.064 U	0.073 U	0.350 U	0.069 U	1.400 U	0.073 UJ	0.690 U	7.300 U	1.800 U	0.073 U
Phenol	100	0.054 U	0.052 U	0.054 U	0.054 U	0.050 U	0.052 U	0.051 U	0.048 U	0.052 U	0.260 U	0.050 U	1.000 U	0.052 UJ	0.510 U	5.200 U	1.300 U	0.054 U
Metals (mg/Kg)																		
Aluminum	N/A	2830 J	6530	8090	6860	6480 J	6840 J	7730	6760	7570	915	6890	NS	NS	NS	NS	NS	9920 J
Antimony	N/A	0.99 J	1.4 UJ	0.94 U	1.4 UJ	0.87 UJ	1.4 UJ	0.89 U	0.85 U	0.91 U	0.90 U	1.3 U	NS	NS	NS	NS	NS	1.4 UJ
Arsenic	16	4.6 J	2.9	4.5 J	14.4	3.3 J	41.1 J	41.1	3.8 J	4.3 J	0.85 J	4.6	NS	NS	NS	NS	NS	7.4
Barium	400	87.6	41.4 J	45.3 J	47.3 J	46.8	62.5	74.8	51.6	59.0	28.6 J	71.8	NS	NS	NS	NS	NS	112
Beryllium	72	0.31 J	0.41 J	0.35 J	0.44 J	0.41 J	0.29 J	0.33 J	0.45	0.48	0.12 J	0.33 J	NS	NS	NS	NS	NS	0.48
Cadmium	4.3	0.13 J	0.094 U	0.097 U	0.17 J	0.089 U	0.094 U	0.091 U	0.087 U	0.22 J	0.092 U	0.24 J	NS	NS	NS	NS	NS	0.22 J
Calcium	N/A	32500	1300 J	1320	2490 J	2360	3400	3500	1840	2770	51800	7610	NS	NS	NS	NS	NS	13100
Chromium	180	7.0	16.9	17.2	30.8	28.8	16.6	20.6	28.9	32.0	1.8 J	25.3	NS	NS	NS	NS	NS	21.7
Cobalt	N/A	28.7 J	5.3 J	4.2 J	5.2 J	6.0 J	2.8 J	6.2 J	5.4 J	5.2 J	2.0 J	5.3 J	NS	NS	NS	NS	NS	9.8 J
Copper	270	39.8	20.5	19.1	44.6	25.6	31.6	92.8	21.6	27.0	7.8	28.0	NS	NS	NS	NS	NS	41.4
Iron	N/A	24800 J	12600 J	12800	13700 J	15000 J	24200 J	17800	18800	14200	68200	11700	NS	NS	NS	NS	NS	17700 J
Lead	400	126 J	24.9 J	76.5	74.4 J	25.9	91.8	73.0	21.8	64.4	60.0	96.7	NS	NS	NS	NS	NS	80.1
Magnesium	N/A	826 J	2150	1870	2010	2350	1730	2410	2410	2230	1060 J	2250	NS	NS	NS	NS	NS	4580
Manganese	2000	469	237 J	227	253 J	315	61.2	91.2	363	269	1130	362	NS	NS	NS	NS	NS	390 J
Mercury	0.81	0.56 J	0.05	0.21	0.11	0.04	0.20 J	0.27	0.15	0.35	0.22	0.73	NS	NS	NS	NS	NS	0.44 J
Nickel	310	39.9 J	11.3	10.5	12.4	13.6	8.7 J	16.1	12.9	13.2	4.4 J	20.0	NS	NS	NS	NS	NS	19.8
Potassium	N/A	336 J	763 J	570 J	628 J	828 J	638 J	1420	922 J	898 J	87.0 J	758 J	NS	NS	NS	NS	NS	2590
Selenium	180	1.7	0.99 U	0.94 U	1.00 U	0.87 U	0.98 U	0.89 U	0.85 U	0.91 U	0.90 U	0.93 U	NS	NS	NS	NS	NS	1.0 U
Silver	180	0.17 U	0.33 U	0.17 U	0.33 U	0.16 U	0.33 U	0.16 U	0.15 U	0.16 U	0.16 U	0.31 U	NS	NS	NS	NS	NS	0.34 U
Sodium	N/A	141 J	212 J	87.3 U	136 J	77.6 J	96.7 J	97.0 J	95.2 J	189 J	83.2 U	146 J	NS	NS	NS	NS	NS	151 J
Thallium	N/A	1.0 U	1.1 U	1.1 U	1.1 U	0.98 U	1.1 U	1.0 U	0.96 U	1.0 U	1.0 U	1.0 U	NS	NS	NS	NS	NS	1.1 U
Vanadium	N/A	17.9	23.4	19.1	31.9	31.7	19.9	21.4	28.8	31.4	4.1 J	22.0	NS	NS	NS	NS	NS	27.0
Zinc	10000	164	51.6	42.7	52.9	55.8	27.9 J	37.9	37.6	102	16.7	43.4	NS	NS	NS	NS	NS	92.6
Cyanide (mg/Kg)																		
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	NS	NS	NS	0.5 U	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
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J- = (Inorganics) The result is an estimated quantity, but the result may be biased low.
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Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21FA002 2/9/2004 21FA002-09 7-9	21GH001 1/29/2004 21GH001-09 7-9	21GH002 1/26/2004 21GH002-07 5-7	21GH003 2/13/2004 21GH003-09 7-9	21GH004 1/29/2004 21GH004-09 7-9	21GH004 1/29/2004 21GH004-09DUP 7-9	21GH006 2/23/2004 21GH006-07 5-7	21GH007 2/16/2004 21GH007-07 5-7	21GH009 2/5/2004 21GH009-07 5-7	21GH013 2/3/2004 21GH013-09 7-9	21GH014 2/18/2004 21GH014-09 7-9	21GH016 2/9/2004 21GH016-09 7-9	21GH017 3/12/2004 21GH017-07 5-7	21GH018 2/11/2004 21GH018-07 5-7	21GH019 2/11/2004 21GH019-07 5-7	21GH020 2/12/2004 21GH020-07 5-7	21GH021 2/12/2004 21GH021-09 7-9
BTEX (mg/Kg)																		
Benzene	4.8	2.500 U	0.017 J	0.017	0.0027	0.0043 J	0.0010 J	0.0070	0.0059	0.0036	0.082	0.0090	0.130	0.0007 J	0.014	0.0014	0.0018	0.0083
Ethylbenzene	41	14.000 J	0.0018 J	0.0066	0.0009 J	0.0064	0.0005 J	0.0005 J	0.00022 U	0.0028 J	0.0054	0.00023 U	0.0009 J	0.0014 J	0.00022 U	0.0012 J	0.0008 J	0.0019 J
Toluene	100	20.000 J	0.0058 J	0.018	0.0024 J	0.0064	0.0008 J	0.0020 J	0.0027 J	0.0048 J	0.018	0.0026 J	0.0099	0.00026 U	0.0051 J	0.0034 U	0.0062 U	0.0078
Xylene (Total)	100	68.000	0.0028 J	0.032	0.0033 J	0.021	0.0023 J	0.0016 J	0.00053 U	0.012	0.0097	0.00056 U	0.0026 J	0.010	0.00053 U	0.0030 J	0.0023 J	0.0046 J
Total BTEX	N/A	102	0.0274	0.0736	0.0093	0.0381	0.0046	0.0111	0.0086	0.0232	0.1151	0.0116	0.1434	0.0121	0.0191	0.0056	0.0049	0.0226
VOC (mg/Kg)																		
1,2,4-Trichlorobenzene	N/A	0.600 U	0.059 U	0.028 U	0.029 U	0.028 U	0.028 U	0.027 U	0.029 U	0.029 U	0.056 U	0.058 U	0.056 U	0.032 U	0.028 U	0.028 U	0.029 U	0.150 U
2-Butanone (Methyl Ethyl Ketone)	100	24.000 R	0.0012 U	0.0011 U	0.011	0.0011 U	0.0011 U	0.011	0.0011 U	0.0011 U	0.0011 R	0.0011 R	0.0011 R	0.0086 J	0.0011 U	0.0011 U	0.0036 J	0.0011 U
Acetone	100	23.000 U	0.014 J	0.0028 U	0.079 J	0.015	0.0027 U	0.056 J	0.046	0.120 J	0.0028 UJ	0.100	0.030 J	0.110	0.017 J	0.028 J	0.041	0.061 J
Carbon Disulfide	N/A	3.200 U	0.0014 J	0.0007 J	0.0017 J	0.0010 J	0.00034 U	0.0020 J	0.00033 U	0.00034 U	0.0041 J	0.0049 J	0.00034 UJ	0.00038 UJ	0.0058	0.0009 J	0.0018 J	0.0019 J
Carbon Tetrachloride	2.4	4.800 U	0.00025 U	0.00024 U	0.0016 J	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00024 U	0.00024 U	0.00023 U	0.00027 U	0.00023 U	0.00024 U	0.00025 U	0.00023 U
Chlorobenzene	100	1.000 U	0.00018 U	0.00017 U	0.00017 U	0.00016 U	0.00017 U	0.00016 U	0.00016 U	0.00017 U	0.00017 U	0.00017 U	0.00017 U	0.00019 U	0.00016 U	0.00017 U	0.00018 U	0.00017 U
Chloroform	49	2.100 U	0.00027 U	0.00026 U	0.0007 J	0.00025 U	0.00026 U	0.00025 U	0.00025 U	0.00026 U	0.00026 U	0.00027 U	0.00026 U	0.00029 U	0.00025 U	0.00027 U	0.00011 J	0.00026 U
Methylene Chloride	100	1.600 U	0.0065 U	0.024 B	0.0018 U	0.00024 U	0.00025 U	0.0008 U	0.003 U	0.00025 U	0.0089 U	0.0027 U	0.0011 U	0.052 U	0.00025 U	0.0013 U	0.0008 U	0.0012 U
Styrene	N/A	2.000 U	0.00014 U	0.0024 J	0.00014 U	0.0045 J	0.00013 U	0.00013 U	0.00013 U	0.0011 J	0.00014 U	0.00014 U	0.00013 U	0.00015 U	0.00013 U	0.00014 U	0.00014 U	0.0009 J
Tetrachloroethene	19	4.000 U	0.00020 U	0.00019 U	0.00020 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00020 U	0.00019 U	0.00022 U	0.00019 U	0.0009 J	0.0016	0.00019 U
Trichloroethene	21	3.000 U	0.00032 U	0.00030 U	0.00032 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00032 U	0.00030 U	0.00035 U	0.00030 U	0.00032 U	0.00032 U	0.00030 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	56.000	1.500	2.200	0.830	0.120 J	0.081 J	0.190 J	0.033 J	1.600	0.870	0.740 J	0.930	0.034 J	0.0094 J	0.051 J	0.020 J	1.200 J
Acenaphthene	100	2.800 J	1.900	0.380 J	0.700	0.120 J	0.100 J	0.220 J	0.012 J	0.210 J	0.410 J	1.700	0.360 J	0.068 J	0.035 J	0.053 J	0.014 J	1.300 J
Acenaphthylene	100	6.500 J	6.100	1.600	1.800	0.220 J	0.190 J	1.100	0.036 J	1.400	1.300	2.200	0.780	0.200 J	0.070 J	0.042 J	0.045 J	7.600
Anthracene	100	3.400 J	4.800	1.100	2.100	0.380	0.320 J	0.690	0.040 J	1.000	1.600	4.100	2.100	0.210 J	0.150 J	0.150 J	0.054 J	5.200
Benzo(a)anthracene	1	32	10	1.2	5	0.960	0.970	1.6	0.140	1.000	4.6	9.6	3.7	0.870	0.480	0.300	0.150	11
Benzo(a)pyrene	1	5.7	14	1.1	7.5	1.2	1.2	2	0.130	0.790	5.7	11	3	0.800	0.370	0.230	0.110	11
Benzo(b)fluoranthene	1	16	10	0.630	4.8	0.900	0.890	1.5	0.100	0.520	3.4	10	1.9	0.750	0.310	0.170	0.120	7.7
Benzo(ghi)perylene	100	26.000	4.700	0.780	2.400	1.600	0.880	1.200	0.074 J	0.340 J	5.400	4.300	1.600	0.500	0.270 J	0.140 J	0.094 J	7.200
Benzo(k)fluoranthene	3.9	25	12	0.880	5.1	0.890	0.990	1.800	0.130	0.730	4.6	10	2.800	0.890	0.480	0.270	0.130	8.7
Chrysene	3.9	35	12	1.300	5.5	1.100	1.200	1.900	0.150 J	0.830	4.8	10	3.100	1.100	0.530	0.270 J	0.170 J	10
Dibenz(a,h)anthracene	0.33	3.2	1.9	0.220	0.89	0.42	0.250	0.38	0.0026 U	0.0026 U	1.6	1.8	0.6	0.160	0.0025 UJ	0.0025 UJ	0.0026 U	0.75
Fluoranthene	100	51.000	11.000	2.200	6.400	1.600	1.700	2.500	0.250 J	2.400	6.100	15.000	4.800	1.700	0.980	0.630	0.270 J	11.000
Fluorene	100	2.600 J	1.500	1.400	0.710	0.140 J	0.120 J	0.220 J	0.0027 U	1.400	0.680 J	1.600	1.500	0.071 J	0.0026 U	0.090 J	0.043 J	1.700 J
Indeno(1,2,3-cd)pyrene	0.5	16	5.1	0.63	2.5	1.2	0.74	1.1	0.064	0.340	4	4.2	1.4	0.460	0.260	0.130	0.080	5.8
Naphthalene	100	140	3.600	3.000	1.600	0.170 J	0.140 J	0.530	0.170 J	4.800	3.100	2.100	3.000	0.068 J	0.026 J	0.290 J	0.028 J	3.900
Phenanthrene	100	130	9.900	5.600	5.600	1.400	1.200	2.000	0.170 J	4.300	5.500	12.000	7.200	0.860	0.480	0.630	0.280 J	9.500
Pyrene	100	83.000	15.000	4.000	8.200	2.800	2.000	2.800	0.250 J	2.100 J	11.000	18.000 J	5.400	1.600	0.900	0.550	0.280 J	16.000
Total PAH	N/A	634.2	125	28.22	61.63	15.22	12.971	21.73	1.749	23.76	64.66	118.34	44.17	10.341	5.3504	3.996	1.888	119.55

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
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U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
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Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21FA002 2/9/2004 21FA002-09 7-9	21GH001 1/29/2004 21GH001-09 7-9	21GH002 1/26/2004 21GH002-07 5-7	21GH003 2/13/2004 21GH003-09 7-9	21GH004 1/29/2004 21GH004-09 7-9	21GH004 1/29/2004 21GH004-09DUP 7-9	21GH006 2/23/2004 21GH006-07 5-7	21GH007 2/16/2004 21GH007-07 5-7	21GH009 2/5/2004 21GH009-07 5-7	21GH013 2/3/2004 21GH013-09 7-9	21GH014 2/18/2004 21GH014-09 7-9	21GH016 2/9/2004 21GH016-09 7-9	21GH017 3/12/2004 21GH017-07 5-7	21GH018 2/11/2004 21GH018-07 5-7	21GH019 2/11/2004 21GH019-07 5-7	21GH020 2/12/2004 21GH020-07 5-7	21GH021 2/12/2004 21GH021-09 7-9
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.760 U	0.074 U	0.035 U	0.027 J	0.035 U	0.035 U	0.034 U	0.036 U	0.036 U	0.071 U	0.073 U	0.088 J	0.041 U	0.035 U	0.035 U	0.037 U	0.180 U
2-Methylphenol	100	0.740 U	0.073 U	0.034 U	0.028 J	0.034 U	0.034 U	0.034 U	0.035 U	0.035 U	0.070 U	0.039 J	0.084 J	0.040 U	0.034 U	0.034 U	0.036 U	0.180 U
4-Methylphenol	100	0.810 U	0.044 J	0.038 U	0.070 J	0.038 U	0.038 U	0.024 J	0.039 U	0.029 J	0.021 J	0.110 J	0.250 J	0.0095 J	0.038 U	0.038 U	0.040 U	0.200 U
bis(2-Ethylhexyl) phthalate	N/A	0.500 U	0.320 J	0.230 J	0.180 U	0.760	0.580	3.400	0.270 J	0.230 U	0.560 J	0.340 U	0.430 J	0.630 U	0.470 U	0.370 U	0.210 J	1.000 J
Butyl benzyl phthalate	N/A	0.330 U	0.032 U	0.160 J	0.016 U	0.140 J	0.096 J	0.180 J	0.016 U	0.016 U	0.180 J	0.032 U	0.031 U	0.018 U	0.015 U	0.015 U	0.016 U	0.081 U
Carbazole	N/A	0.060 U	0.500 J	0.074 J	0.530	0.150 J	0.110 J	0.150 J	0.0029 U	0.580	0.380 J	1.400	1.300	0.082 J	0.025 J	0.035 J	0.015 J	0.350 J
Dibenzofuran	59	0.420 U	0.520 J	0.310 J	0.430	0.082 J	0.055 J	0.130 J	0.020 U	0.980	0.510 J	0.660 J	0.810	0.032 J	0.010 J	0.053 J	0.0095 J	0.950 J
Di-n-butyl phthalate	N/A	0.240 U	0.023 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.022 U	0.023 U	0.022 U	0.100 J	0.011 U	0.011 U	0.012 U	0.058 U
Isophorone	N/A	0.620 U	0.061 U	0.029 U	0.030 U	0.029 U	0.029 U	0.028 U	0.030 U	0.030 U	0.058 U	0.060 U	0.058 U	0.033 U	0.029 U	0.029 U	0.030 U	0.150 U
N-Nitrosodiphenylamine	N/A	0.380 U	0.037 U	0.018 U	0.018 U	0.018 U	0.018 U	0.017 U	0.018 U	0.018 U	0.035 U	0.036 U	0.035 U	0.020 U	0.018 U	0.018 U	0.018 U	0.092 U
Pentachlorophenol	6.7	1.500 U	0.150 U	0.069 U	0.073 UJ	0.069 U	0.069 U	0.069 U	0.073 U	0.073 U	0.140 U	0.150 U	0.140 U	0.082 U	0.069 U	0.069 U	0.073 U	0.360 U
Phenol	100	1.100 U	0.110 U	0.051 U	0.057 J	0.092 J	0.240 J	0.050 U	0.052 U	0.049 J	0.100 U	0.110 U	0.230 J	0.059 U	0.051 U	0.051 U	0.054 U	0.270 U
Metals (mg/Kg)																		
Aluminum	N/A	7900 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	1.4 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	3.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	80.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	0.30 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	0.098 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	54200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	13.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	3.4 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	18.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	11200 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	32.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	26200	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	1110	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	0.021 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	9.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	446 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	1.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	0.34 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	312 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	N/A	1.2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	13.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	22.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

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Former East 21st Street Works, New York, NY

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BTEX (mg/Kg)																		
Benzene	4.8	0.590	0.00023 U	0.00025 U	0.0016	0.0023	0.016	0.0026	0.022 U	0.0020	0.0006 J	0.00023 U	0.00028 U	0.760	0.0014 J	0.650	0.016	0.016
Ethylbenzene	41	0.710	0.00020 U	0.00022 U	0.0087	0.00022 U	0.00022 U	0.0024 J	0.071 J	0.0020 J	0.0014 J	0.0013 J	0.00024 U	0.340 J	0.00030 U	1.800	0.0018 J	0.00025 U
Toluene	100	0.520 J	0.0012 U	0.00021 U	0.0034 J	0.00023 U	0.010	0.0054 J	0.018 U	0.0016 J	0.00021 U	0.0006 J	0.00024 U	0.990	0.0023 J	0.380 J	0.0051 J	0.0024 J
Xylene (Total)	100	0.800	0.00047 U	0.00051 U	0.096	0.00053 U	0.00051 U	0.0089	0.025 U	0.0019 J	0.00051 U	0.0018 J	0.00058 U	1.900	0.00071 U	2.000	0.0023 J	0.00060 U
Total BTEX	N/A	2.62	ND	ND	0.1097	0.0023	0.026	0.0193	0.071	0.0075	0.002	0.0037	ND	3.99	0.0037	4.83	0.0252	0.0184
VOC (mg/Kg)																		
1,2,4-Trichlorobenzene	N/A	0.060 U	0.029 U	0.028 U	0.056 U	0.029 U	0.027 U	0.028 U	0.028 U	0.029 U	0.027 U	0.027 U	0.032 U	0.032 U	0.037 U	0.150 U	0.029 U	0.031 U
2-Butanone (Methyl Ethyl Ketone)	100	0.240 U	0.0022 J	0.0010 U	0.010 J	0.0011 R	0.0010 R	0.0011 U	0.210 R	0.0011 R	0.0010 R	0.0010 R	0.0012 R	0.240 U	0.0015 U	0.220 R	0.0011 U	0.0012 R
Acetone	100	0.230 U	0.022	0.0026 UJ	0.150	0.021 J	0.0026 UJ	0.110 J	0.200 UJ	0.0028 UJ	0.0026 UJ	0.0026 UJ	0.0026 UJ	0.034	0.230 UJ	0.0036 U	0.220 UJ	0.032
Carbon Disulfide	N/A	0.032 U	0.00029 U	0.00032 U	0.0017 J	0.00033 U	0.00032 U	0.0007 J	0.028 U	0.00035 U	0.00032 U	0.00032 U	0.00036 UJ	0.130 J	0.0008 J	0.029 U	0.0008 J	0.0016 J
Carbon Tetrachloride	2.4	0.048 U	0.00021 U	0.00022 U	0.00023 U	0.00023 U	0.00022 U	0.00023 U	0.042 U	0.00024 U	0.00022 U	0.00022 U	0.00025 U	0.046 U	0.00031 U	0.044 U	0.00024 U	0.00026 U
Chlorobenzene	100	0.010 U	0.0095	0.00016 U	0.00017 U	0.00016 U	0.00016 U	0.00017 U	0.0088 U	0.00017 U	0.00016 U	0.00016 U	0.00018 U	0.010 U	0.00022 U	0.0093 U	0.00017 U	0.00019 U
Chloroform	49	0.021 U	0.00022 U	0.00024 U	0.00026 U	0.00025 U	0.00024 U	0.00026 U	0.018 U	0.00027 U	0.00024 U	0.00024 U	0.00028 U	0.021 U	0.00034 U	0.0019 U	0.00026 U	0.00028 U
Methylene Chloride	100	0.016 U	0.0006 U	0.0014 U	0.0021 U	0.0016 U	0.00024 U	0.0015 U	0.014 U	0.00027 U	0.0008 U	0.001 U	0.0017 U	0.016 U	0.0007 U	0.014 U	0.0014 U	0.0024 U
Styrene	N/A	0.210 J	0.00012 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.0029 J	0.017 U	0.00014 U	0.00013 U	0.00013 U	0.00015 U	0.700	0.00018 U	0.018 U	0.00014 U	0.00015 U
Tetrachloroethene	19	0.040 U	0.00017 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.037 U	0.00020 U	0.00017 U	0.00017 U	0.00020 U	0.040 U	0.00025 U	0.037 U	0.00019 U	0.00020 U
Trichloroethene	21	0.030 U	0.00027 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.027 U	0.00032 U	0.00027 U	0.00027 U	0.00032 U	0.030 U	0.00040 U	0.027 U	0.00030 U	0.00032 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	1.100	0.210 J	0.018 U	1.400	0.011 J	0.011 J	0.260 J	0.071 J	0.130 J	0.094 J	0.110 J	0.130 J	1.500	0.023 U	8.900	0.860	0.380 J
Acenaphthene	100	0.970	0.140 J	0.0032 U	0.990	0.0078 J	0.032 J	0.030 J	0.260 J	0.140 J	0.120 J	0.380	0.240 J	0.550	0.085 J	10.000	0.310 J	0.830
Acenaphthylene	100	1.100	0.330 J	0.0032 U	2.400	0.027 J	0.028 J	0.160 J	0.250 J	2.800	0.460	0.200 J	0.250 J	4.200	6.600	2.600	7.800	0.860
Anthracene	100	2.200	0.490	0.0029 U	2.300	0.019 J	0.064 J	0.059 J	0.300 J	1.300	0.300 J	0.780	0.240 J	1.100	1.100	4.800	2.200	2.600
Benzo(a)anthracene	1	2.2	0.830	0.024 J	5.8	0.050	0.140	0.090	0.240	2.6	0.710	1.2	0.800	0.450	0.420	4.2	0.700	4.9
Benzo(a)pyrene	1	1.7	0.720	0.020 J	6.5	0.056	0.140	0.076	0.280	3.6	1.000	1.1	1.000	0.930	1.9	4.4	1.8	5.2
Benzo(b)fluoranthene	1	1.2	0.530	0.018 J	4.4	0.038 J	0.079	0.038	0.110	2.1	0.550	0.870	0.490	0.500	0.960	2.4	0.940	4.3
Benzo(ghi)perylene	100	0.470 J	0.460	0.0041 U	2.600	0.0042 U	0.100 J	0.052 J	0.310 J	1.700	0.720	0.670	0.490	2.400	5.900	3.000	3.000	2.700
Benzo(k)fluoranthene	3.9	1.800	0.690	0.018 J	5.6	0.054	0.093	0.070	0.310 J	2.700	1.000 J	1.100	1.100	0.370	0.810	3.300	0.590	3.700
Chrysene	3.9	2.200	0.830	0.024 J	6.1	0.058 J	0.150 J	0.096 J	0.310 J	4.1	0.880	1.400	0.860	0.540	0.510	4.1	0.670	4.6
Dibenz(a,h)anthracene	0.33	0.130	0.140	0.0025 U	0.74	0.0026 U	0.023 J	0.0025 UJ	0.0025 U	0.52	0.240	0.0024 U	0.0028 U	0.290	0.0033 UJ	0.7	0.38	0.0028 U
Fluoranthene	100	5.400	1.500	0.045 J	7.900	0.089 J	0.310 J	0.220 J	0.360 J	2.400	0.860	2.900	1.100	0.780	0.430 J	7.300	0.550	9.100
Fluorene	100	2.400	0.450	0.0026 U	1.100	0.0027 U	0.023 J	0.110 J	0.290 J	0.0028 U	0.043 J	0.400	0.0030 U	0.450	0.300 J	5.700	0.590	0.970
Indeno(1,2,3-cd)pyrene	0.5	0.480	0.390	0.0025 U	2.5	0.0025 U	0.078	0.036 J	0.190	1.3	0.6	0.62	0.480	1.1	2.8	2	1.6	2.5
Naphthalene	100	8.100	0.390	0.014 J	2.900	0.0034 U	0.023 J	1.200	0.0034 U	0.290 J	0.320 J	0.210 J	0.380 J	5.200	0.190 J	33.000	2.500	0.510
Phenanthrene	100	9.700	2.400	0.036 J	5.700	0.068 J	0.300 J	0.460	0.560	1.400	0.420	2.900	0.510	1.800	0.330 J	18.000	0.930	7.600
Pyrene	100	6.400	1.600	0.041 J	11.000 J	0.100 J	0.310 J	0.300 J	0.560	4.600 J	1.400	2.700	1.400	1.400	0.640	12.000	1.600	7.900 J
Total PAH	N/A	47.55	12.1	0.24	69.93	0.5778	1.904	3.257	4.401	31.68	9.717	17.54	9.47	23.56	22.975	126.4	27.02	58.65

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Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH022 2/6/2004 21GH022-09 7-9	21GH023 2/10/2004 21GH023-07 5-7	21GH027 2/2/2004 21GH027-07 5-7	21GN002 2/18/2004 21GN002-08 7-8	21GT001 3/2/2004 21GT001-09 7-9	21GT002 3/4/2004 21GT002-07 5-7	21MH001 2/17/2004 21MH001-07 5-7	21OT001C 3/15/2004 21OT001C-09 7-9	21OT002 3/3/2004 21OT002-07 5-6.5	21OT002A 3/10/2004 21OT002A-07 5-7	21OT005 3/10/2004 21OT005-07 5-7	21OT007 3/18/2004 21OT007-09 7-9	21PF002 2/23/2004 21PF002-09 7-9	21PF004 2/11/2004 21TP014-07 5-7	21PF005 2/24/2004 21PF005-09 7-9	21PF006 2/19/2004 21PF006-09 7-9	21PF007 2/18/2004 21PF007-07 5-7
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.076 U	0.036 U	0.035 U	0.071 U	0.036 U	0.034 U	0.035 U	0.035 U	0.037 U	0.034 U	0.034 U	0.040 U	0.010 J	0.046 U	0.180 U	0.037 U	0.011 J
2-Methylphenol	100	0.074 U	0.035 U	0.034 U	0.070 U	0.035 U	0.034 U	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0.039 U	0.039 U	0.045 U	0.180 U	0.036 U	0.038 U
4-Methylphenol	100	0.021 J	0.039 U	0.038 U	0.018 J	0.039 U	0.037 U	0.038 U	0.038 U	0.015 J	0.018 J	0.011 J	0.037 J	0.016 J	0.050 U	0.200 U	0.019 J	0.025 J
bis(2-Ethylhexyl) phthalate	N/A	0.230 J	0.700 U	0.200 J	0.460 U	0.024 U	0.130 J	0.240 J	0.023 U	0.160 J	0.096 J	0.250 J	0.089 U	0.310 J	0.030 U	0.440 J	0.083 J	0.800
Butyl benzyl phthalate	N/A	0.033 U	0.110 J	0.015 U	0.031 U	0.016 U	0.015 U	0.015 U	0.015 U	0.016 U	0.015 U	0.015 U	0.095 J	0.017 U	0.020 U	0.081 U	0.016 U	0.210 J
Carbazole	N/A	0.460 J	0.130 J	0.0028 U	0.400 J	0.0029 U	0.028 J	0.0028 U	0.050 J	0.120 J	0.030 J	0.170 J	0.063 J	0.0032 U	0.020 J	0.260 J	0.0029 U	0.670
Dibenzofuran	59	0.820 J	0.100 J	0.020 U	0.920	0.020 U	0.013 J	0.015 J	0.130 J	0.140 J	0.046 J	0.140 J	0.041 J	0.022 U	0.026 U	0.640 J	0.021 U	0.490
Di-n-butyl phthalate	N/A	0.024 U	0.011 U	0.011 U	0.022 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U	0.014 U	0.058 U	0.012 U	0.012 U
Isophorone	N/A	0.062 U	0.030 U	0.029 U	0.058 U	0.030 U	0.028 U	0.029 U	0.029 U	0.030 U	0.028 U	0.028 U	0.033 U	0.033 U	0.038 U	0.150 U	0.030 U	0.032 U
N-Nitrosodiphenylamine	N/A	0.038 U	0.018 U	0.018 U	0.035 U	0.018 U	0.017 U	0.018 U	0.018 U	0.018 U	0.017 U	0.017 U	0.034 J	0.020 U	0.023 U	0.092 U	0.018 U	0.019 U
Pentachlorophenol	6.7	0.150 U	0.073 U	0.069 U	0.140 U	0.073 U	0.069 U	0.069 U	0.069 U	0.073 U	0.069 U	0.069 U	0.078 U	0.078 U	0.092 U	0.360 U	0.073 U	0.078 U
Phenol	100	0.110 U	0.052 U	0.051 U	0.100 U	0.052 U	0.050 U	0.051 U	0.051 U	0.054 U	0.050 U	0.050 U	0.058 U	0.058 U	0.067 U	0.270 U	0.054 U	0.056 U
Metals (mg/Kg)																		
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	8050	NS	NS	NS	4300 J	11900	6270 J	4650 J	9080
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	1.4 U	NS	NS	NS	1.0 UJ	1.2 UJ	0.92 U	1.4 U	1.5 UJ
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	6.5	NS	NS	NS	0.88 U	6.7 J	3.3 J	4.9 J	8.8
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	106	NS	NS	NS	168	92.0	57.6	66.2	104
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	0.43 J	NS	NS	NS	0.35 J	1.3	0.40 J	0.25 J	0.46 J
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	0.56 J	NS	NS	NS	0.10 U	0.79 J	0.094 U	0.12 J	0.36 J
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	3190	NS	NS	NS	56000	62200 J	25600	110000 J	7620 J
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	27.6	NS	NS	NS	5.8 J	12.6	12.1	8.4 J	41.0 J
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	5.9 J	NS	NS	NS	5.4 J	61.1	5.4 J	10.0 J	4.6 J
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	27.8	NS	NS	NS	55.6	48.9 J	21.7	10.9 J	32.5 J
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	13400	NS	NS	NS	9140	31300	29000 J	13700	12400
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	61.3	NS	NS	NS	62.5	33.0	73.5	46.2 J	169 J
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	2260	NS	NS	NS	2160	11600	2730	3740	2440
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	313	NS	NS	NS	182 J	2330	312	815 J	254
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	0.14	NS	NS	NS	0.04 J	0.08	0.29	0.07 J	0.75 J
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	17.3	NS	NS	NS	9.8 J	109 J	10.7	20.2	14.5 J
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	805 J	NS	NS	NS	415 J	848 J	785 J	793 J	578 J
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	1.0 U	NS	NS	NS	1.0 U	1.2 U	0.92 U	1.0 U	1.1 U
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	0.33 U	NS	NS	NS	0.18 U	0.21 U	0.16 U	0.33 U	0.35 U
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	260 J	NS	NS	NS	225 J	320 J	167 J	519 J	210 J
Thallium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	1.1 U	NS	NS	NS	1.1 UJ	1.4 J	1.0 U	1.1 U	1.2 U
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	36.2	NS	NS	NS	12.9	20.4	17.0	13.5	32.6
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	74.7	NS	NS	NS	18.5	165 J	61.4	21.5 J	116 J
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	0.5 U	NS	NS	NS	1.2	2.6	0.5 U	2.1	0.5 U

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21PF009 2/19/2004 21PF009-09 7-9	21PF010 2/23/2004 21PF010-09 7-9	21PF011 2/20/2004 21PF011-09 7-9	21PF012 2/19/2004 21PF012-09 7-9	21PF012 2/19/2004 21PF012-09DUP 7-9	21RE001 2/27/2004 21RE001-09 7-9	21RE010 3/1/2004 21RE010-07 5-7	21RE011 2/26/2004 21RE011-07 5-7	21RE012 2/27/2004 21RE012-07 5-7	21RS001 2/9/2004 21RS001-07 5-7	21RS003 1/27/2004 2/9/2004 21RS003-08 7-8	21RS004 2/9/2004 21RS004-07 5-7	21RS004 2/9/2004 21RS004-08 7-8	21SC004 2/25/2004 21SC004-07 5-7	21TP004 2/2/2004 21TP004-07 5-7	21TP005 2/4/2004 21TP005-10 8-10	21TP007 2/2/2004 21TP007-07 5-7
BTEX (mg/Kg)																		
Benzene	4.8	0.00025 U	0.770	0.022 U	0.990	2.300	0.0044	0.0016	0.00025 U	0.0030	0.0028	0.0064	0.024	0.053	2.500	0.0050	0.015	0.0059
Ethylbenzene	41	0.00022 U	16.000	1.900	1.500	3.200	0.0015 J	0.00022 U	0.00022 U	0.0007 J	0.00022 U	0.0017 J	0.00020 U	0.049	1.100	0.0007 J	0.0013 J	0.00022 U
Toluene	100	0.00022 U	9.900	0.019 U	0.430 J	0.850	0.0047 J	0.00023 U	0.00023 U	0.0017 J	0.0025 J	0.0021 J	0.0037 J	0.110	0.330 J	0.0019 J	0.0049 J	0.0024 J
Xylene (Total)	100	0.00052 U	60.000	3.200	0.780	1.500	0.0029 J	0.00053 U	0.00053 U	0.0026 J	0.00054 U	0.0028 J	0.0012 J	0.330	0.760	0.0017 J	0.0029 J	0.00052 U
Total BTEX	N/A	ND	86.67	5.1	3.7	7.85	0.0135	0.0016	ND	0.008	0.0053	0.013	0.0289	0.542	4.69	0.0093	0.0241	0.0083
VOC (mg/Kg)																		
1,2,4-Trichlorobenzene	N/A	0.027 U	0.670 U	0.560 U	0.130 U	0.150 U	0.028 U	0.027 U	0.027 U	0.029 U	0.028 U	0.290 U	0.026 U	1.500 U	0.022 J	0.028 U	0.032 U	0.027 U
2-Butanone (Methyl Ethyl Ketone)	100	0.0060	0.830 U	0.220 R	0.200 U	0.230 U	0.0011 U	0.0011 R	0.0011 R	0.0011 U	0.0011 R	0.0011 R	0.0010 R	0.0012 R	0.230 U	0.0011 U	0.0012 U	0.0011 U
Acetone	100	0.026	0.790 UJ	0.210 UJ	0.200 UJ	0.220 UJ	0.023 U	0.026 J	0.024 U	0.030 U	0.040 J	0.029 J	0.032 J	0.056 J	0.220 U	0.0026 UJ	0.069 J	0.0026 UJ
Carbon Disulfide	N/A	0.0019 J	0.110 U	0.029 U	0.027 U	0.030 U	0.00033 U	0.00033 U	0.0010 J	0.00034 U	0.0033 J	0.024 J	0.0007 J	0.018	0.030 UJ	0.0009 J	0.016 J	0.0013 J
Carbon Tetrachloride	2.4	0.00023 U	0.160 U	0.042 U	0.041 U	0.046 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00023 U	0.00024 U	0.00021 U	0.00026 U	0.044 U	0.00022 U	0.00025 U	0.00023 U
Chlorobenzene	100	0.00016 U	0.034 U	0.0092 U	0.0085 U	0.0097 U	0.00016 U	0.00016 U	0.00016 U	0.00017 U	0.00017 U	0.00017 U	0.00015 U	0.00019 U	0.0095 U	0.00016 U	0.00018 U	0.00016 U
Chloroform	49	0.00025 U	0.071 U	0.019 U	0.018 U	0.020 U	0.00025 U	0.00025 U	0.00025 U	0.00026 U	0.00026 U	0.00027 U	0.00023 U	0.00029 U	0.020 U	0.00025 U	0.00028 U	0.00025 U
Methylene Chloride	100	0.00024 U	0.051 U	0.014 U	0.013 U	0.015 U	0.0006 U	0.0022 U	0.0011 U	0.00026 U	0.0005 U	0.0022 U	0.002 U	0.0015 U	0.015 U	0.0048 U	0.0005 U	0.0046 U
Styrene	N/A	0.00013 U	8.800	0.018 U	0.063 J	0.095 J	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00013 U	0.00014 U	0.0005 J	0.210	0.019 U	0.00013 U	0.00014 U	0.00013 U
Tetrachloroethene	19	0.00019 U	0.140 U	0.037 U	0.034 U	0.040 U	0.00019 U	0.00019 U	0.00019 U	0.00019 U	0.0015	0.00020 U	0.00017 U	0.00022 U	0.040 U	0.00019 U	0.00020 U	0.00019 U
Trichloroethene	21	0.00030 U	0.100 U	0.027 U	0.025 U	0.030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00030 U	0.00032 U	0.00027 U	0.00035 U	0.030 U	0.00030 U	0.00032 U	0.00030 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.036 J	44.000	17.000	1.600 J	0.790 J	0.017 J	0.086 J	0.020 J	0.018 J	0.018 J	1.400 J	0.036 J	89.000	1.100	0.027 J	0.540	0.380
Acenaphthene	100	0.100 J	2.600 J	10.000	8.600	7.800	0.029 J	0.040 J	0.030 J	0.023 J	0.020 J	4.700	0.027 J	19.000 J	0.660 J	0.075 J	1.700	0.120 J
Acenaphthylene	100	0.074 J	11.000	30.000	7.300	5.900	0.099 J	0.200 J	0.090 J	0.030 J	0.050 J	4.200	0.320 J	180	3.600	0.059 J	2.200	2.000
Anthracene	100	0.240 J	7.600 J	23.000	10.000	9.300	0.075 J	0.150 J	0.078 J	0.050 J	0.079 J	7.900	0.130 J	66.000	2.300	0.190 J	2.300	1.000
Benzo(a)anthracene	1	0.0093 J	4	12	12	12	0.160	0.290	0.110	0.130	0.200	18	0.410	140	4.3	0.320	5.3	2.2
Benzo(a)pyrene	1	0.0088 J	3	11	13	13	0.160	0.370	0.094	0.130	0.200	24	0.420	160	7.5	0.280	4.7	2.8
Benzo(b)fluoranthene	1	0.0028 U	1.1	4.2	7.8	8.4	0.084	0.220	0.056	0.120	0.130	14	0.310	88	5.7	0.210	3.6	1.4
Benzo(ghi)perylene	100	0.0040 U	1.500 J	8.100	7.800	7.900	0.094 J	0.280 J	0.044 J	0.093 J	0.140 J	21.000	0.370	100	4.100	0.220 J	2.900	0.840
Benzo(k)fluoranthene	3.9	0.010 J	1.400	6.6	10	10	0.150	0.360	0.075	0.130	0.180	19	0.400	130	5.5	0.240	3.800	2.300
Chrysene	3.9	0.012 J	3.500 J	12	12	12	0.180 J	0.370 J	0.110 J	0.160 J	0.200 J	18	0.430	120	5	0.330 J	5.1	2.300
Dibenz(a,h)anthracene	0.33	0.0024 U	0.061 U	0.050 U	0.790 J	0.84	0.026 J	0.046	0.0024 U	0.028 J	0.034 J	6.9	0.022 J	21	1.5	0.055	0.35	0.240
Fluoranthene	100	0.068 J	6.500 J	20.000	18.000	19.000	0.440	0.490	0.240 J	0.240 J	0.260 J	24.000	0.660	160	4.800	0.780	6.900	2.800
Fluorene	100	0.083 J	6.500 J	18.000	9.000	8.000	0.076 J	0.055 J	0.082 J	0.027 J	0.046 J	4.700	0.0025 U	54.000	0.670 J	0.086 J	1.200	0.320 J
Indeno(1,2,3-cd)pyrene	0.5	0.0024 UJ	0.800 J	5.2	6.4	6.4	0.075	0.220	0.034 J	0.081	0.110	17	0.260	74	3.8	0.170	2.7	0.81
Naphthalene	100	0.150 J	120	48.000	6.900	4.100	0.030 J	0.140 J	0.055 J	0.027 J	0.057 J	3.900	0.220 J	340	2.800	0.047 J	1.700	0.550
Phenanthrene	100	0.140 J	23.000	80.000	20.000	13.000	0.460	0.460	0.420	0.230 J	0.320 J	25.000	0.570	190	4.900	0.800	6.400	1.900
Pyrene	100	0.160 J	13.000	40.000	27.000	26.000	0.490	0.570	0.320 J	0.290 J	0.300 J	36.000	0.960	280	8.000	0.650	9.600	5.700
Total PAH	N/A	1.0911	249.5	345.1	178.19	164.43	2.645	4.347	1.858	1.807	2.344	249.7	5.545	2211	66.23	4.539	60.99	27.66

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21PF009 2/19/2004 21PF009-09 7-9	21PF010 2/23/2004 21PF010-09 7-9	21PF011 2/20/2004 21PF011-09 7-9	21PF012 2/19/2004 21PF012-09 7-9	21PF012 2/19/2004 21PF012-09DUP 7-9	21RE001 2/27/2004 21RE001-09 7-9	21RE010 3/1/2004 21RE010-07 5-7	21RE011 2/26/2004 21RE011-07 5-7	21RE012 2/27/2004 21RE012-07 5-7	21RS001 2/9/2004 21RS001-07 5-7	21RS003 1/27/2004 21RS003-08 7-8	21RS004 2/9/2004 21RS004-07 5-7	21RS004 2/9/2004 21RS004-08 7-8	21SC004 2/25/2004 21SC004-07 5-7	21TP004 2/2/2004 21TP004-07 5-7	21TP005 2/4/2004 21TP005-10 8-10	21TP007 2/2/2004 21TP007-07 5-7
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.034 U	0.850 U	0.700 U	0.170 U	0.180 U	0.035 U	0.034 U	0.034 U	0.037 U	0.035 U	0.360 U	0.033 U	1.900 U	0.036 J	0.035 U	0.036 J	0.034 U
2-Methylphenol	100	0.034 U	0.840 U	0.690 U	0.160 U	0.180 U	0.034 U	0.034 U	0.034 U	0.036 U	0.034 U	0.350 U	0.033 U	1.900 U	0.073 U	0.034 U	0.023 J	0.034 U
4-Methylphenol	100	0.037 U	0.910 U	0.750 U	0.180 U	0.085 J	0.038 U	0.037 U	0.037 U	0.040 U	0.038 U	0.160 J	0.036 U	2.100 U	0.075 J	0.038 U	0.076 J	0.015 J
bis(2-Ethylhexyl) phthalate	N/A	0.080 J	0.560 U	0.460 UJ	0.110 U	0.120 U	0.150 J	0.160 J	0.810	0.200 J	0.340 J	0.240 U	0.200 U	1.300 U	0.260 J	0.023 U	0.026 U	0.022 U
Butyl benzyl phthalate	N/A	0.015 U	0.370 U	0.310 U	0.073 U	0.081 U	0.015 U	0.015 U	0.190 J	0.016 U	0.015 U	0.160 U	0.015 U	0.850 U	0.032 U	0.015 U	0.017 U	0.015 U
Carbazole	N/A	0.0027 U	0.068 U	0.380 J	0.850 J	0.930 J	0.015 J	0.032 J	0.016 J	0.026 J	0.022 J	2.100 J	0.030 J	4.200 J	0.360 J	0.073 J	0.440	0.058 J
Dibenzofuran	59	0.019 U	0.470 U	0.390 U	1.400 J	1.300 J	0.018 J	0.035 J	0.021 J	0.018 J	0.020 J	4.000	0.020 J	9.200 J	0.410 J	0.049 J	0.610	0.072 J
Di-n-butyl phthalate	N/A	0.011 U	0.270 U	0.220 U	0.052 U	0.058 U	0.011 U	0.011 U	0.011 U	0.012 U	0.011 U	0.110 U	0.010 U	0.610 U	0.023 U	0.011 U	0.012 U	0.011 U
Isophorone	N/A	0.028 U	0.700 U	0.580 U	0.140 U	0.200 J	0.029 U	0.028 U	0.028 U	0.030 U	0.029 U	0.300 U	0.027 U	1.600 U	0.061 U	0.029 U	0.033 U	0.028 U
N-Nitrosodiphenylamine	N/A	0.017 U	0.420 U	0.350 U	0.083 U	0.092 U	0.018 U	0.017 U	0.017 U	0.018 U	0.018 U	0.180 U	0.016 U	0.970 U	0.037 U	0.018 U	0.020 U	0.017 U
Pentachlorophenol	6.7	0.069 U	1.700 U	1.400 U	0.330 U	0.370 U	0.069 U	0.069 U	0.069 U	0.073 U	0.069 U	0.730 U	0.064 U	3.800 U	0.150 U	0.140 J	0.078 U	0.069 U
Phenol	100	0.050 U	1.200 U	1.000 U	0.240 U	0.270 U	0.051 U	0.050 U	0.050 U	0.054 U	0.051 U	0.520 U	0.048 U	2.800 U	0.110 U	0.051 U	0.058 U	0.050 U
Metals (mg/Kg)																		
Aluminum	N/A	12500 J	8720 J	3720 J	5960 J	6000 J	6850 J	5940 J	7140 J	10100 J	7100	6780	3060 J	6170 J	6030	NS	NS	NS
Antimony	N/A	1.3 U	0.86 UJ	1.3 UJ	1.3 U	1.4 U	1.3 UJ	1.3 UJ	1.3 U	1.4 UJ	0.89 U	0.91 UJ	1.3 U	1.5 U	1.4 UJ	NS	NS	NS
Arsenic	16	12.1 J	1.3 J	4.5	9.6 J	9.6 J	2.9	2.1	1.4	13.5	3.0 J	31.2	1.2	7.6	4.9 J	NS	NS	NS
Barium	400	185	59.2	30.3 J	249	140	40.7 J	58.8	42.0 J	57.1	45.8	113	41.0 J	93.7	65.0	NS	NS	NS
Beryllium	72	0.31 J	0.72	0.10 J	0.40 J	0.41 J	0.41 J	0.36 J	0.40 J	0.49	0.41 J	0.51	0.16 J	0.51	0.40 J	NS	NS	NS
Cadmium	4.3	0.15 J	0.088 U	0.091 U	0.47 J	0.56 J	0.090 U	0.089 U	0.088 U	0.096 U	0.092 U	0.093 U	0.086 U	0.33 J	0.097 U	NS	NS	NS
Calcium	N/A	2400 J	1660	1810	30300 J	37400 J	1150 J	2730 J	1140	4120 J	1750	13500	767 J	35200	6980 J	NS	NS	NS
Chromium	180	42.8 J	18.8 J	8.7	11.9 J	13.1 J	14.4	13.7	15.2	50.4	21.7	16.2	6.8	10.1	17.4	NS	NS	NS
Cobalt	N/A	9.9 J	20.0	2.2 J	7.5 J	7.4 J	6.1 J	5.8 J	6.0 J	5.4 J	5.8 J	8.7 J	3.6 J	8.6 J	6.6 J	NS	NS	NS
Copper	270	26.5 J	29.8	9.5	61.6 J	61.5 J	72.2 J	29.8	49.4	38.8 J	42.8	40.7	11.0	40.5	34.5	NS	NS	NS
Iron	N/A	33100	14100	9600 J	16400	21700	12000 J	12400 J	14500	15300 J	13300	31400	6650 J	13300 J	16600	NS	NS	NS
Lead	400	12.2 J	14.4	8.6	567 J	848 J	18.0	64.3	11.0 J	65.0	28.5	1200	28.8	25.9	159	NS	NS	NS
Magnesium	N/A	7550	3510	1420	3990	5030	2290	1860	2300	3480	2450	2540	1540	3110	3260	NS	NS	NS
Manganese	2000	193 J	155 J	47.3 J	267 J	414 J	303	296	333 J	294	330	291	214	421	297	NS	NS	NS
Mercury	0.81	0.019 U	0.03 J	0.09 J	0.52 J	0.55 J	0.10	0.20	0.04	0.19	0.21	0.71	0.06	0.13	1.6	NS	NS	NS
Nickel	310	39.3	42.2	7.9 J	16.9	17.0	12.1	10.5	12.8	14.1	12.0	19.3	14.7	21.2	15.4	NS	NS	NS
Potassium	N/A	6450 J	2370 J	723 J	890 J	930 J	648 J	802 J	626 J	558 J	972 J	1150 J	416 J	652 J	796 J	NS	NS	NS
Selenium	180	0.94 U	0.86 U	0.95 U	0.92 U	1.0 U	0.95 U	0.94 U	0.93 U	1.0 U	0.89 U	0.91 U	0.91 U	1.1 U	1.0 U	NS	NS	NS
Silver	180	0.31 U	0.15 U	0.32 U	0.31 U	0.34 U	0.32 U	0.31 U	0.31 U	0.34 U	0.16 U	0.22 J	0.30 U	0.35 U	0.34 U	NS	NS	NS
Sodium	N/A	273 J	79.7 U	121 J	235 J	239 J	89.4 U	105 J	87.4 U	94.7 U	86.6 J	369 J	111 J	391 J	207 J	NS	NS	NS
Thallium	N/A	1.1 U	0.97 UJ	1.1 U	1.0 U	1.1 U	1.1 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.2 U	1.1 U	NS	NS	NS
Vanadium	N/A	47.4	29.2	10.9 J	30.7	19.3	21.0	20.5	27.4	36.9	28.5	19.3	8.5 J	17.4	24.5	NS	NS	NS
Zinc	10000	48.1 J	92.2	16.0	301 J	224 J	47.9	123	48.6	66.3	45.8	102	36.5	46.7	76.2	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	NS	NS	NS	0.5 U	NS	NS	NS	2.1	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
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NA = Not Available
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Bold = compound was detected

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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.
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J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
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Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21TP007 2/2/2004 21TP007-10 8-10	21TP009 2/9/2004 21TP009-09 7-9	21TP012 2/11/2004 21TP012-10 8-10	21TP013 2/10/2004 21TP013-10 8-10	21VH001 2/25/2004 21VH001-07 5-7	21VH002 2/24/2004 21VH002-09 7-9
BTEX (mg/Kg)							
Benzene	4.8	0.0071	0.082	170	25	0.00023 U	0.00028 U
Ethylbenzene	41	0.0016 J	0.0073	360	26.000	0.00021 U	0.00024 U
Toluene	100	0.0042 J	0.016	4.000 J	34.000	0.00021 U	0.00024 U
Xylene (Total)	100	0.0024 J	0.012	340	64.000	0.00050 U	0.00058 U
Total BTEX	N/A	0.0153	0.1173	874	149	ND	ND
VOC (mg/Kg)							
1,2,4-Trichlorobenzene	N/A	0.027 U	0.059 U	6.700 U	0.320 U	0.026 U	NS
2-Butanone (Methyl Ethyl Ketone)	100	0.0011 U	0.022 J	5.500 U	0.510 U	0.0010 U	0.0012 R
Acetone	100	0.0027 UJ	0.091 J	5.300 R	3.400 J	0.026 J	0.023 J
Carbon Disulfide	N/A	0.0034 J	0.014	0.720 U	0.067 U	0.00031 U	0.0016 J
Carbon Tetrachloride	2.4	0.00023 U	0.00024 U	1.100 U	0.099 U	0.00022 U	0.00025 U
Chlorobenzene	100	0.00016 U	0.00017 U	0.230 U	0.021 U	0.00016 U	0.00018 U
Chloroform	49	0.00025 U	0.00027 U	0.470 U	0.044 U	0.00024 U	0.00028 U
Methylene Chloride	100	0.0047 U	0.0012 U	0.350 U	0.033 U	0.00024 U	0.00028 U
Styrene	N/A	0.00013 U	0.0013 J	0.450 U	3.800	0.00012 U	0.00014 U
Tetrachloroethene	19	0.00019 U	0.00020 U	0.910 U	0.088 U	0.00017 U	0.00020 U
Trichloroethene	21	0.00030 U	0.00032 U	0.670 U	0.064 U	0.00027 U	0.00032 U
PAH (mg/Kg)							
2-Methylnaphthalene	N/A	0.020 J	0.600 J	440.000	2.300 J	0.017 U	NS
Acenaphthene	100	0.0090 J	3.000	180	15.000	0.0030 U	NS
Acenaphthylene	100	0.190 J	2.800	44.000 J	12.000	0.0030 U	NS
Anthracene	100	0.071 J	2.100	160	27.000	0.0028 U	NS
Benzo(a)anthracene	1	0.240	11	100	56	0.0098 U	NS
Benzo(a)pyrene	1	0.280	16	74	62	0.0027 U	NS
Benzo(b)fluoranthene	1	0.130	14	44	51	0.0028 U	NS
Benzo(ghi)perylene	100	0.180 J	4.900	44.000 J	38.000	0.0038 U	NS
Benzo(k)fluoranthene	3.9	0.220	10	71	32	0.0038 U	NS
Chrysene	3.9	0.250 J	11	100	50	0.0045 U	NS
Dibenz(a,h)anthracene	0.33	0.058	2.3	0.600 UJ	5.1	0.0024 U	NS
Fluoranthene	100	0.280 J	14.000	200	62.000	0.0012 U	NS
Fluorene	100	0.0025 U	2.100	130	18.000	0.0025 U	NS
Indeno(1,2,3-cd)pyrene	0.5	0.140	5.6	34	36	0.0023 U	NS
Naphthalene	100	0.033 J	2.200	1200	9.000	0.0032 U	NS
Phenanthrene	100	0.120 J	3.900	450	50.000	0.0033 U	NS
Pyrene	100	0.580	17.000	220	77.000	0.0025 U	NS
Total PAH	N/A	2.801	122.5	3491	602.4	ND	NS

Notes:

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Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-1
Concentrations of Compounds Detected in Vadose Zone (5 to 9 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21TP007 2/2/2004 21TP007-10 8-10	21TP009 2/9/2004 21TP009-09 7-9	21TP012 2/11/2004 21TP012-10 8-10	21TP013 2/10/2004 21TP013-10 8-10	21VH001 2/25/2004 21VH001-07 5-7	21VH002 2/24/2004 21VH002-09 7-9
SVOC (mg/Kg)							
2,4-Dimethylphenol	N/A	0.034 U	0.074 U	8.400 U	0.400 U	0.033 U	NS
2-Methylphenol	100	0.034 U	0.073 U	8.300 U	0.390 U	0.033 U	NS
4-Methylphenol	100	0.037 U	0.092 J	9.000 U	0.430 U	0.036 U	NS
bis(2-Ethylhexyl) phthalate	N/A	0.075 J	0.190 U	5.500 U	0.260 U	0.022 U	NS
Butyl benzyl phthalate	N/A	0.015 U	0.032 U	3.700 U	0.170 U	0.015 U	NS
Carbazole	N/A	0.010 J	0.440 J	140.000	9.400	0.0026 U	NS
Dibenzofuran	59	0.0089 J	0.830	62.000 J	9.700	0.018 U	NS
Di-n-butyl phthalate	N/A	0.011 U	0.023 U	2.600 U	0.120 U	0.010 U	NS
Isophorone	N/A	0.028 U	0.061 U	6.900 U	0.330 U	0.027 U	NS
N-Nitrosodiphenylamine	N/A	0.017 U	0.037 U	7.900 J	5.700	0.016 U	NS
Pentachlorophenol	6.7	0.069 U	0.150 U	16.000 U	0.780 U	0.064 U	NS
Phenol	100	0.050 U	0.110 U	12.000 U	0.580 U	0.048 U	NS
Metals (mg/Kg)							
Aluminum	N/A	NS	NS	NS	6420	NS	NS
Antimony	N/A	NS	NS	NS	1.0 U	NS	NS
Arsenic	16	NS	NS	NS	14.0	NS	NS
Barium	400	NS	NS	NS	81.0	NS	NS
Beryllium	72	NS	NS	NS	0.51	NS	NS
Cadmium	4.3	NS	NS	NS	0.24 J	NS	NS
Calcium	N/A	NS	NS	NS	9780 J	NS	NS
Chromium	180	NS	NS	NS	12.5	NS	NS
Cobalt	N/A	NS	NS	NS	6.9 J	NS	NS
Copper	270	NS	NS	NS	107	NS	NS
Iron	N/A	NS	NS	NS	14400	NS	NS
Lead	400	NS	NS	NS	321	NS	NS
Magnesium	N/A	NS	NS	NS	2660	NS	NS
Manganese	2000	NS	NS	NS	297	NS	NS
Mercury	0.81	NS	NS	NS	0.03 J	NS	NS
Nickel	310	NS	NS	NS	13.6	NS	NS
Potassium	N/A	NS	NS	NS	2030	NS	NS
Selenium	180	NS	NS	NS	1.0 U	NS	NS
Silver	180	NS	NS	NS	0.31 J	NS	NS
Sodium	N/A	NS	NS	NS	208 J	NS	NS
Thallium	N/A	NS	NS	NS	1.1 U	NS	NS
Vanadium	N/A	NS	NS	NS	26.4	NS	NS
Zinc	10000	NS	NS	NS	64.4	NS	NS
Cyanide (mg/Kg)							
Cyanide, Total	27	NS	NS	NS	NS	NS	NS

Notes:

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VOCs - Volatile Organic Compounds
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Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21AB002 3/26/2004 21AB002-19 17-19	21CH001 3/4/2004 21CH001-11 9-11	21CH004 3/5/2004 21CH004-13 11-13	21CH005 3/9/2004 21CH005-19 17-19	21CH006 3/5/2004 21CH006-17 15-17	21CH007 3/18/2004 21CH007-15 13-15	21CH008 3/3/2004 21CH008-17 15-17	21CH009 3/2/2004 21CH009-11 9-11	21CH009 3/2/2004 21CH009-19 17-19	21DT001 3/8/2004 21DT001-14 12-14	21DT001 3/8/2004 21DT001-18 16-18	21DT002 3/3/2004 21DT002-19 17-19	21DT003 3/22/2004 21DT003-15 13-15	21DT003 3/22/2004 21DT003-21 19-21	21DT004 3/30/2004 21DT004-15 13-15	21DT005 3/4/2004 21DT005-11 9-11	21DT005 3/4/2004 21DT005-19 17-19
BTEX (mg/Kg)																		
Benzene	4.8	0.073	NS	NS	NS	NS	NS	NS	NS	NS	2.600	2.600	190	23	120	14	0.290	0.0073
Ethylbenzene	41	0.092	NS	NS	NS	NS	NS	NS	NS	NS	30.000	10.000	810	280	670	130	0.550	0.0038 J
Toluene	100	0.0083	NS	NS	NS	NS	NS	NS	NS	NS	0.038 U	0.120 J	340	2,300 J	230	3,300 J	0.140 J	0.00024 U
Xylene (Total)	100	0.110	NS	NS	NS	NS	NS	NS	NS	NS	4.300	1.800	1300	100	980	320	0.300 J	0.0022 J
Total BTEX	N/A	0.2833	NS	NS	NS	NS	NS	NS	NS	NS	36.9	14.52	2640	405.3	2000	467.3	1.28	0.0133
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.0015 R	NS	NS	NS	NS	NS	NS	NS	NS	0.440 R	0.240 R	10.000 R	5.100 R	9.900 R	2.200 R	0.220 R	0.0012 R
4-Methyl-2-pentanone	N/A	0.0011 U	NS	NS	NS	NS	NS	NS	NS	NS	0.250 U	0.140 U	5.900 U	2.900 U	5.600 U	1.200 U	0.130 U	0.00090 U
Acetone	100	0.170 J	NS	NS	NS	NS	NS	NS	NS	NS	0.420 U	0.230 U	9.800 U	4.900 U	9.400 U	2.100 U	0.210 U	0.0030 UJ
Carbon Disulfide	N/A	0.0066 J	NS	NS	NS	NS	NS	NS	NS	NS	0.056 UJ	0.032 UJ	1.300 U	0.670 UJ	1.300 UJ	0.280 U	0.029 U	0.00036 U
Carbon Tetrachloride	2.4	0.00032 U	NS	NS	NS	NS	NS	NS	NS	NS	0.085 U	0.048 U	1.900 U	0.970 U	1.900 U	0.420 U	0.042 U	0.00025 U
Chloroform	49	0.00035 U	NS	NS	NS	NS	NS	NS	NS	NS	0.037 U	0.021 U	0.880 U	0.440 U	0.840 U	0.180 U	0.019 U	0.00028 U
Methylene Chloride	100	0.0018 U	NS	NS	NS	NS	NS	NS	NS	NS	0.028 U	0.016 U	0.680 U	0.320 U	0.640 U	0.140 U	0.014 U	0.00028 U
Styrene	N/A	0.00018 U	NS	NS	NS	NS	NS	NS	NS	NS	0.035 U	0.020 U	0.840 U	0.420 U	10.000 J	0.180 U	0.018 U	0.00015 U
Trichloroethene	21	0.00040 U	NS	NS	NS	NS	NS	NS	NS	NS	0.054 U	0.030 U	1.300 U	0.620 U	1.200 U	0.270 U	0.027 U	0.00032 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.058 J	0.270 J	0.520 J	0.019 U	0.310 J	0.064 J	0.960	12.000	0.550 J	80.000 J	65.000	4300.000	280.000	1600.000	120.000	1.400 J	0.093 J
Acenaphthene	100	0.0044 U	10.000	22.000	0.028 J	1.300	0.057 J	9.000	9.400	15.000	37.000 J	22.000	1500	170	660	60.000	7.100 J	0.120 J
Acenaphthylene	100	0.0044 U	1.500	9.600	0.0034 U	0.370 J	0.083 J	0.710 J	1.000 J	1.100 J	7.700 J	7.800 J	330.000 J	28.000	190.000 J	16.000 J	1.400 J	0.036 J
Anthracene	100	0.0040 U	4.000	10.000	0.016 J	0.820	0.052 J	3.700	4.300	6.700	19.000 J	14.000	730.000 J	95.000	480	43.000	4.400 J	0.130 J
Benzo(a)anthracene	1	0.014 U	3.1	20	0.016 J	0.720	0.160	2.4	2.1	3.6	13.000 J	21	460	51	360	33	2.800 J	0.880
Benzo(a)pyrene	1	0.0039 U	3.7	18	0.012 J	0.740	0.210	3.6	2.1	3.5	10.000 J	22	470	45	280	36	2.600 J	1.4
Benzo(b)fluoranthene	1	0.0040 U	1.7	6.6	0.0031 U	0.420	0.092	1.5	0.930	1.3	5.600 J	11	200	19	130	20	1.200 J	0.780
Benzo(ghi)perylene	100	0.0056 U	2.700	10.000	0.0043 U	0.430	0.150 J	2.200	1.400 J	1.800 J	4.800 J	15.000	12.000 U	21.000 J	110.000 J	25.000 J	1.900 J	0.970
Benzo(k)fluoranthene	3.9	0.0054 U	2.800	10	0.0042 U	0.560	0.220	2.500	1.400	2.300	6.300 J	21	380	36	270	23	2.000 J	1.200
Chrysene	3.9	0.0065 U	3.200	18	0.022 J	0.680	0.160 J	2.500	2.300 J	3.600	15.000 J	23	480.000 J	54	310.000 J	36.000 J	3.100 J	0.960
Dibenz(a,h)anthracene	0.33	0.0034 U	0.0054 U	1.7	0.0026 U	0.110	0.074	0.8	0.027 U	0.47	1.800 J	5.1	7.300 U	5.4	63	9.5	0.660 J	0.320
Fluoranthene	100	0.0017 U	5.800	31.000	0.029 J	1.500	0.210 J	5.100	4.500	7.100	25.000 J	29.000	1000.000 J	90.000	710	67.000	4.900 J	0.570
Fluorene	100	0.0036 U	2.800	0.950 J	0.0028 U	0.760	0.037 J	3.500	4.400	6.000	30.000 J	21.000	950.000 J	84.000	610	46.000	4.100 J	0.072 J
Indeno(1,2,3-cd)pyrene	0.5	0.0034 U	2.1	6.6	0.0026 U	0.340	0.120	1.8	1	1.3	3.400 J	12	7.200 U	18	110	18	1.600 J	0.82
Naphthalene	100	2.400	1.100	1.800 J	0.0035 U	0.960	0.580	5.200	56.000	0.260 J	13.000 J	150	10000	440	3900	520	1.500 J	0.320 J
Phenanthrene	100	0.027 J	9.300	3.000 J	0.061 J	2.900	0.200 J	13.000	15.000	29.000	86.000 J	84.000	2700	280	1700	150	16.000 J	0.400 J
Pyrene	100	0.0037 U	11.000	58.000	0.048 J	1.700	0.270 J	6.500 J	5.900	11.000	42.000 J	36.000	980.000 J	110	680	91.000	5.700 J	0.780
Total PAH	N/A	2.485	65.07	227.77	0.232	14.62	2.739	64.97	123.73	94.58	399.6	558.9	24480	1826.4	12163	1313.5	62.36	9.851

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
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mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21AB002 3/26/2004 21AB002-19 17-19	21CH001 3/4/2004 21CH001-11 9-11	21CH004 3/5/2004 21CH004-13 11-13	21CH005 3/9/2004 21CH005-19 17-19	21CH006 3/5/2004 21CH006-17 15-17	21CH007 3/18/2004 21CH007-15 13-15	21CH008 3/3/2004 21CH008-17 15-17	21CH009 3/2/2004 21CH009-11 9-11	21CH009 3/2/2004 21CH009-19 17-19	21DT001 3/8/2004 21DT001-14 12-14	21DT001 3/8/2004 21DT001-18 16-18	21DT002 3/3/2004 21DT002-19 17-19	21DT003 3/22/2004 21DT003-15 13-15	21DT003 3/22/2004 21DT003-21 19-21	21DT004 3/30/2004 21DT004-15 13-15	21DT005 3/4/2004 21DT005-11 9-11	21DT005 3/4/2004 21DT005-19 17-19
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.048 U	0.075 U	0.470 U	0.037 U	0.038 U	0.042 U	0.072 U	0.380 U	0.190 U	0.900 UJ	0.780 U	10.000 U	1.900 U	39.000 U	3.600 U	0.360 UJ	0.038 U
2-Methylphenol	100	0.047 U	0.074 U	0.460 U	0.036 U	0.037 U	0.042 U	0.071 U	0.370 U	0.190 U	0.880 UJ	0.760 U	10.000 U	1.900 U	38.000 U	3.500 U	0.350 UJ	0.037 U
4-Methylphenol	100	0.052 U	0.035 J	0.500 U	0.040 U	1.500	0.046 U	0.077 U	0.410 U	0.210 U	0.960 UJ	0.830 U	11.000 U	2.100 U	42.000 U	3.900 U	0.390 UJ	0.020 J
bis(2-Ethylhexyl) phthalate	N/A	0.032 U	0.049 UJ	0.310 U	0.024 U	0.230 J	0.100 U	0.047 U	0.250 U	0.130 U	0.590 UJ	0.510 U	67.000 U	1.300 U	25.000 U	2.400 U	0.240 UJ	0.110 J
Butyl benzyl phthalate	N/A	0.021 U	0.033 U	0.210 U	0.016 U	0.017 U	0.019 U	0.032 U	0.170 U	0.085 U	0.390 UJ	0.340 U	45.000 U	0.850 U	17.000 U	1.600 U	0.160 UJ	0.017 U
Carbazole	N/A	0.0038 U	0.092 J	0.038 U	0.0029 U	0.130 J	0.0034 U	0.170 J	0.390 J	0.015 U	0.800 J	2.900 J	160.000 J	21.000 J	150.000 J	11.000 J	0.230 J	0.063 J
Dibenzofuran	59	0.027 U	0.042 U	0.260 U	0.021 U	0.190 J	0.011 J	0.590 J	0.980 J	0.560 J	4.000 J	6.200 J	390.000 J	29.000	350.000 J	20.000 J	1.200 J	0.043 J
Diethyl phthalate	N/A	0.014 U	0.022 U	0.140 U	0.011 U	0.011 U	0.012 U	0.021 U	0.110 U	0.057 U	0.260 UJ	0.230 U	30.000 U	0.570 U	11.000 U	1.000 U	0.100 UJ	0.011 U
N-Nitrosodiphenylamine	N/A	0.024 U	0.037 U	0.230 U	0.018 U	0.019 U	0.021 U	0.036 U	0.190 U	0.097 U	0.450 UJ	0.390 U	51.000 U	0.970 U	19.000 U	1.800 U	0.180 UJ	0.019 U
Phenol	100	0.070 U	0.110 U	0.680 U	0.054 U	0.055 U	0.062 U	0.100 U	0.550 U	0.280 U	1.300 UJ	1.100 U	14.000 U	2.800 U	56.000 U	5.200 U	0.520 UJ	0.055 U
Metals (mg/Kg)																		
Aluminum	N/A	12700	8240 J	6350	10600	7160	5510	3060	7260 J	3770 J	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	1.8 UJ	0.94 UJ	1.2 U	0.93 U	0.97 U	1.6 U	1.4 U	0.95 U	0.97 U	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	6.0	4.2 J	8.5	2.3 J	8.0	6.7	1.6	10.3	0.85 U	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	46.0 J	45.8 J	264	47.7	225	185	23.3 J	89.7	27.0 J	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	0.74 J	0.40 J	0.60	0.41 J	0.56	0.43 J	0.16 J	0.50	0.34 J	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	0.12 U	0.097 U	0.12 U	0.095 U	0.099 U	0.11 U	0.094 U	0.098 U	0.100 U	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	11300 J	2000	11300	2290	13700	26100	5460	7210	2150	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	24.0	13.2	13.4	15.2	17.0	11.0	6.4	13.8	9.5	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	9.6 J	5.2 J	7.5 J	6.1 J	8.2 J	10.2 J	3.1 J	6.7 J	3.5 J	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	15.2	15.6	31.8	14.7	34.8	25.4	12.0	31.2 J	9.5 J	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	27100 J	15400 J	26900	16900	13200	18300	7920	14400 J	7470 J	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	16.6 J	28.1	1620	15.5	1080	444	57.6	554	26.9	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	5300	1920	1710	2710	2870	4460	1400	2470	1840	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	451 J	227	512	248	180	574	142	223	121	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	0.06	0.13	0.55	0.25	4.7	0.13	0.05	0.33	0.021 U	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	22.5	13.1	14.2	12.5	20.2	12.7	6.4 J	15.1	8.2 J	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	2030 J	497 J	1080 J	579 J	2180	743 U	391 J	1400	1230	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	1.3 U	0.94 U	1.2 U	0.93 U	1.1 J	1.2 U	0.99 U	0.95 U	0.97 U	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	0.43 U	0.17 U	0.22 U	0.17 U	0.37 J	0.39 U	0.33 U	0.17 U	0.17 U	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	497 J	88.0 J	306 J	86.2 U	275 J	472 U	266 J	85.4 J	89.9 U	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	N/A	1.5 U	1.1 U	1.4 U	1.1 U	1.1 U	1.3 U	1.1 U	1.1 J	1.1 U	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	32.1	30.3	24.0	20.4	25.4	19.5	10.5 J	12.7	10.1 J	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	64.0	33.4	221	33.1	204	87.6	15.5	47.1	19.6	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.75	0.5 U	0.5 U	0.5 U	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

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Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21DT006 3/3/2004 21DT006-19 17-19	21ER001 2/12/2004 21ER001-11 9-11	21ER001 2/12/2004 21ER001-15 13-15	21ER002 3/15/2004 21ER002-12 10-12	21ER002 3/15/2004 21ER002-20 18-20	21ER002 3/15/2004 21ER002-20DUP 18-20	21ER003 2/25/2004 21ER003-13 11-13	21ER003 2/25/2004 21ER003-21 19-21	21GH002 1/26/2004 21GH002-15 13-15	21GH002 1/26/2004 21GH002-17 15-17	21GH003 2/13/2004 21GH003-19 17-19	21GH004 1/29/2004 21GH004-19 17-19	21GH005 1/30/2004 21GH005-15 13-15	21GH005 1/30/2004 21GH005-17 15-17	21GH006 2/23/2004 21GH006-19 17-19	21GH007 2/16/2004 21GH007-19 17-19	21GH009 2/5/2004 21GH009-21 19-21
BTEX (mg/Kg)																		
Benzene	4.8	0.0016	0.051	0.350	0.076 J	2.200	2.500	0.100 J	0.025 U	71	150	3.800	1.600	44	0.054 J	120	0.011	2.900
Ethylbenzene	41	0.00021 U	0.200	4.300	6.400	4.300	4.400	2.300	0.990	200	290	18.000	34.000	19.000	0.0030 J	140	0.0020 J	3.100
Toluene	100	0.00021 U	0.130 B	2.000	0.019 U	0.023 U	0.025 U	0.210 J	0.075 J	24.000	250	1.400	1.700 J	12.000	0.0041 J	220	0.0076	0.320 J
Xylene (Total)	100	0.00028 U	0.390	8.700	6.700	3.000	3.000	5.000	1.400	140	450	20.000	54.000	17.000	0.0060	280	0.0059	3.100
Total BTEX	N/A	0.0016	0.771	15.35	13.176	9.5	9.9	7.61	2.465	435	1140	43.2	91.3	92	0.0671	760	0.0265	9.42
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.0024 R	0.011	0.230 U	0.220 R	0.260 R	0.290 R	0.220 U	0.230 U	2.400 U	4.800 U	0.260 U	1.100 U	0.550 U	0.0012 U	4.800 U	0.015	0.290 U
4-Methyl-2-pentanone	N/A	0.0014 U	0.00089 U	0.130 U	0.130 U	0.150 U	0.160 U	0.130 U	0.130 U	1.400 U	2.700 U	0.150 U	0.630 U	0.320 U	0.00089 U	2.700 U	0.00086 U	0.160 U
Acetone	100	0.0023 U	0.096 J	0.220 U	0.210 UJ	0.250 UJ	0.280 UJ	0.210 U	0.220 U	2.300 U	4.500 U	0.240 UJ	1.000 U	0.530 U	0.019	4.500 U	0.110	0.280 UJ
Carbon Disulfide	N/A	0.013	0.0019 J	0.030 U	0.029 U	0.034 U	0.038 U	0.029 UJ	0.030 UJ	0.310 U	0.620 U	1.300	0.140 UJ	0.072 U	0.0010 J	0.620 U	0.0053 J	0.038 U
Carbon Tetrachloride	2.4	0.00046 U	0.00025 U	0.046 U	0.042 U	0.052 U	0.056 U	0.042 U	0.046 U	0.460 U	0.930 U	0.050 U	0.210 U	0.110 U	0.00025 U	0.950 U	0.00024 U	0.056 U
Chloroform	49	0.00021 U	0.00028 U	0.020 U	0.019 U	0.023 U	0.025 U	0.019 U	0.020 U	0.200 U	0.400 U	0.022 U	0.095 U	0.047 U	0.00028 U	0.400 U	0.00027 U	0.025 U
Methylene Chloride	100	0.0036 U	0.0013 U	0.015 U	0.014 U	0.017 U	0.019 U	0.014 U	0.015 U	0.150 U	0.310 U	0.017 U	0.072 U	0.035 U	0.004 U	0.320 U	0.0078 U	0.019 U
Styrene	N/A	0.00020 U	0.013	0.440 J	0.018 U	0.022 U	0.024 U	0.018 U	0.019 U	10.000	130.000	0.021 U	0.090 U	0.045 U	0.0008 J	87.000	0.0012 J	0.110 J
Trichloroethene	21	0.0007 J	0.00032 U	0.030 U	0.027 U	0.032 U	0.035 U	0.027 U	0.030 U	0.300 U	0.600 U	0.032 U	0.140 U	0.069 U	0.00032 U	0.600 U	0.00032 U	0.037 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	10.000 J	3.500	0.520	69.000	0.450 J	0.240 J	30.000	130.000	260.000	950.000	9.200	18.000	10.000 J	1.600 J	610.000	0.300 J	0.024 U
Acenaphthene	100	6.300 J	12.000	0.620	23.000	0.140 J	0.097 J	10.000	46.000	30.000 J	60.000 J	5.400	2.000 J	62.000	7.000	35.000 J	3.100	0.0043 U
Acenaphthylene	100	1.600 J	2.800	0.100 J	3.800 J	0.030 J	0.033 J	2.200 J	10.000 J	50.000	260	0.970 J	1.200 J	0.410 U	1.800 J	190	1.300	0.0043 U
Anthracene	100	5.300 J	2.000 J	0.110 J	9.200	0.056 J	0.053 J	9.000	24.000	29.000 J	120.000 J	3.000 J	2.700 J	45.000 J	5.200	96.000 J	0.980	0.0039 U
Benzo(a)anthracene	1	6.900 J	6.7	0.150	5.3	0.045 J	0.047 J	8.4	22	15	64	2.7	5	23	3.5	49	3.1	0.014 U
Benzo(a)pyrene	1	7.400 J	6.8	0.120	4.5	0.030 J	0.034 J	6.5	19	12	45	2.2	7.3	11	2.1	35	3.1	0.0038 U
Benzo(b)fluoranthene	1	4.000 J	4	0.068	1.5	0.014 J	0.019 J	4	13	5.7	16.000 J	1.4	4	5.5	1.000	14	2.1	0.0039 U
Benzo(ghi)perylene	100	4.000 J	4.300	0.064 J	2.100 J	0.015 J	0.018 J	2.700 J	8.600 J	0.450 U	2.200 U	1.200 J	4.400 J	0.510 U	0.640 J	13.000 J	1.900	0.0054 U
Benzo(k)fluoranthene	3.9	7.300 J	6.2	0.100	3.200	0.020 J	0.028 J	5.8	16	8.8	28	2.000	5.3	9.1	1.800	25	2.500	0.0053 U
Chrysene	3.9	7.500 J	6.7	0.140 J	5.600 J	0.044 J	0.043 J	8.9	22	19.000 J	64.000 J	2.600 J	5.200 J	30.000 J	4.4	51.000 J	3.000	0.0063 U
Dibenz(a,h)anthracene	0.33	1.300 J	0.54	0.018 J	0.052 U	0.0031 U	0.0032 U	0.051 U	0.130 U	0.280 U	1.400 U	0.59	1.9	0.320 U	0.38	0.660 U	0.0026 U	0.0034 U
Fluoranthene	100	9.000 J	6.400	0.200 J	8.600	0.065 J	0.068 J	21.000	54.000	28.000 J	100.000 J	6.400	5.500 J	31.000 J	4.800	85.000 J	4.100	0.0016 U
Fluorene	100	4.700 J	0.760 J	0.200 J	10.000	0.064 J	0.065 J	10.000	35.000	35.000 J	140.000 J	2.600 J	2.300 J	34.000 J	4.600	110	0.270 J	0.0035 U
Indeno(1,2,3-cd)pyrene	0.5	3.700 J	3.8	0.052	1.7	0.011 J	0.013 J	2.6	8.5	0.270 U	1.400 U	1.2	3.7	0.310 U	0.71	11	1.8	0.0033 U
Naphthalene	100	8.200 J	22.000	3.100	120	3.400	2.100	110	340	580	2200	65.000	88.000	36.000 J	3.900	1200	0.860	1.600
Phenanthrene	100	16.000 J	2.600	0.390 J	32.000	0.220 J	0.240 J	33.000	110	100	420	11.000	8.800	360	32.000	330	1.300	0.0047 U
Pyrene	100	9.900 J	9.300	0.310 J	16.000	0.100 J	0.120 J	17.000	42.000	46.000	170.000 J	6.300	7.600 J	65.000 J	9.300 J	130	6.600	0.0036 U
Total PAH	N/A	113.1	100.4	6.262	315.5	4.704	3.218	281.1	900.1	1218.5	4637	123.76	172.9	721.6	84.73	2984	36.31	1.6

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Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21DT006 3/3/2004 21DT006-19 17-19	21ER001 2/12/2004 21ER001-11 9-11	21ER001 2/12/2004 21ER001-15 13-15	21ER002 3/15/2004 21ER002-12 10-12	21ER002 3/15/2004 21ER002-20 18-20	21ER002 3/15/2004 21ER002-20DUP 18-20	21ER003 2/25/2004 21ER003-13 11-13	21ER003 2/25/2004 21ER003-21 19-21	21GH002 1/26/2004 21GH002-15 13-15	21GH002 1/26/2004 21GH002-17 15-17	21GH003 2/13/2004 21GH003-19 17-19	21GH004 1/29/2004 21GH004-19 17-19	21GH005 1/30/2004 21GH005-15 13-15	21GH005 1/30/2004 21GH005-17 15-17	21GH006 2/23/2004 21GH006-19 17-19	21GH007 2/16/2004 21GH007-19 17-19	21GH009 2/5/2004 21GH009-21 19-21
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.190 UJ	0.190 U	0.014 J	0.730 U	0.043 U	0.045 U	0.710 U	1.800 U	3.900 U	19.000 U	0.410 U	0.720 U	4.400 U	0.180 U	9.200 U	0.036 U	0.560
2-Methylphenol	100	0.190 UJ	0.190 U	0.012 J	0.720 U	0.043 U	0.044 U	0.700 U	1.800 U	3.800 U	19.000 U	0.400 U	0.710 U	4.400 U	0.180 U	9.100 U	0.035 U	0.320 J
4-Methylphenol	100	0.210 UJ	0.210 U	0.011 J	0.780 U	0.046 U	0.048 U	0.760 U	2.000 U	4.200 U	21.000 U	0.440 U	0.770 U	4.800 U	0.200 U	9.900 U	0.027 J	0.880
bis(2-Ethylhexyl) phthalate	N/A	0.130 UJ	0.130 U	0.110 J	0.480 U	0.028 U	0.030 U	0.470 U	1.200 U	2.500 U	13.000 U	0.270 U	0.470 U	2.900 U	0.120 U	6.100 U	0.160 J	0.210 U
Butyl benzyl phthalate	N/A	0.085 UJ	0.085 U	0.016 U	0.320 U	0.019 U	0.020 U	0.310 U	0.810 U	1.700 U	8.500 U	0.180 U	0.320 U	1.900 U	0.081 U	4.100 U	0.016 U	0.021 U
Carbazole	N/A	1.000 J	0.190 J	0.0029 U	0.880 J	0.0035 U	0.0036 U	4.700 J	4.600 J	0.310 U	1.500 U	0.140 J	0.780 J	4.100 J	0.590 J	0.740 U	0.099 J	0.0038 U
Dibenzofuran	59	1.100 J	0.250 J	0.012 J	1.900 J	0.016 J	0.013 J	7.200 J	32.000	7.300 J	27.000 J	1.900 J	0.590 J	2.500 U	0.610 J	25.000 J	0.160 J	0.026 U
Diethyl phthalate	N/A	0.057 UJ	0.057 U	0.011 U	0.210 U	0.013 U	0.013 U	0.210 U	0.540 U	1.100 U	5.700 U	0.120 U	0.210 U	1.300 U	0.054 U	2.700 U	0.010 U	0.014 U
N-Nitrosodiphenylamine	N/A	0.097 UJ	0.097 U	0.018 U	0.360 U	0.022 U	0.022 U	0.350 U	0.920 U	1.900 U	9.700 U	0.200 U	0.360 U	2.200 U	0.092 U	4.600 U	0.240 J	0.023 U
Phenol	100	0.280 UJ	0.280 U	0.054 U	1.100 U	0.063 U	0.066 U	1.000 U	2.700 U	5.600 U	28.000 U	0.590 U	1.000 U	6.400 U	0.270 U	13.000 U	0.052 U	0.170 J
Metals (mg/Kg)																		
Aluminum	N/A	NS	5780	6740	7660	8550	10500	6790	3240	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	NS	1.4 J	1.4 UJ	1.4 UJ	1.6 UJ	1.7 UJ	1.3 UJ	1.4 UJ	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	NS	2.6	1.4	1.5	7.8	9.8	1.4 J	0.79 UJ	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	NS	145	47.7	87.8	21.3 J	21.0 J	34.8 J	18.7 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	NS	0.31 J	0.45 J	0.25 J	0.44 J	0.58 J	0.34 J	0.17 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	NS	0.099 U	0.095 U	0.095 U	0.11 U	0.12 U	0.24 J	0.33 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	NS	8520	1710	14900 J	1560 J	1980 J	3280 J	729 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	NS	12.0	15.7	16.5	17.5	22.0	11.6	6.5	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	NS	4.7 J	7.9 J	6.6 J	6.8 J	8.1 J	4.3 J	2.5 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	NS	31.3	14.8	19.7 J	12.1 J	9.6 J	14.6	9.5	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	NS	11200 J	15400 J	14200	20300	27800	10300	6800	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	NS	229	9.8	18.9	8.5	9.8	10.9	7.0	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	NS	2210	2820	7470	4220	5440	3080	1100 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	NS	227 J	173 J	400 J	295 J	430 J	235	88.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	NS	0.75	0.05	0.08	0.03 J	0.03 J	0.02 J	0.020 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	NS	13.8	18.6	13.0 J	14.2 J	17.9 J	9.5	5.8 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	NS	987 J	1520	2840 J	1620 J	1730 J	713 J	480 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	NS	1.0 U	1.00 U	1.00 U	1.2 U	1.2 U	0.98 U	1.0 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	NS	0.35 U	0.33 U	0.33 U	0.40 U	0.41 U	0.33 U	0.34 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	NS	120 J	157 J	186 J	353 J	501 J	148 J	97.2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	N/A	NS	1.2 U	1.1 U	1.1 UJ	1.3 UJ	1.4 UJ	1.1 U	1.2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	NS	18.1	21.2	20.6	22.3	27.1	17.3	12.0	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	NS	113	32.1	43.7	47.2	57.5	26.0	17.0	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	0.5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH010 2/4/2004 21GH010-17 15-17	21GH010 2/5/2004 21GH010-19 17-19	21GH010 2/5/2004 21GH010-20 18-20	21GH011 2/12/2004 21GH011-11 9-11	21GH011 2/12/2004 21GH011-17 15-17	21GH012 2/16/2004 21GH012-11 9-11	21GH012 2/16/2004 21GH012-18 17-17.4	21GH013 2/3/2004 21GH013-15 13-15	21GH013 2/3/2004 21GH013-21 19-21	21GH014 2/18/2004 21GH014-19 17-19	21GH015 2/10/2004 21GH015-15 13-15	21GH015 2/10/2004 21GH015-21 19-21	21GH016 2/9/2004 21GH016-15 13-15	21GH017 3/12/2004 21GH017-15 13-15	21GH018 2/11/2004 21GH018-14 13-13.4	21GH019 2/11/2004 21GH019-15 13-15	21GH020 2/12/2004 21GH020-14.8 13-14.8
BTEX (mg/Kg)																		
Benzene	4.8	4.000	9.1	9.6	0.0071	9.9	0.029	0.440	5	27	0.00023 U	0.0054	97	0.027	20	230	0.029	4.300
Ethylbenzene	41	3.200	16.000	13.000	0.0036 J	1.400	0.0009 J	0.730	1.200	5.500	0.00021 U	0.0014 J	390	0.0012 J	99	620	0.0022 J	54
Toluene	100	0.390 J	0.450 J	6.600	0.0085 U	0.096 J	0.0076	0.660	0.020 U	0.048 U	0.00021 U	0.0093	280	0.0010 J	14.000	530	0.0039 U	22.000
Xylene (Total)	100	1.600	11.000	15.000	0.0078	2.000	0.0018 J	1.200	0.690	4.700	0.00050 U	0.0037 J	620	0.00055 U	170	1200	0.014	96.000
Total BTEX	N/A	9.19	36.55	44.2	0.0185	13.396	0.0393	3.03	6.89	37.2	ND	0.0198	1387	0.0292	303	2580	0.0452	176.3
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.240 U	0.230 U	0.220 U	0.0077	0.300 U	0.0093	0.260 U	0.230 R	0.550 R	0.0057 J	0.0011 R	5.500 R	0.0011 R	2.400 UJ	13.000 U	0.0076	2.500 U
4-Methyl-2-pentanone	N/A	0.140 U	0.130 U	0.130 U	0.00080 U	0.170 U	0.00092 U	0.150 U	0.130 U	0.320 U	0.00077 U	0.00086 U	3.200 U	0.00084 U	1.400 U	7.700 U	0.00086 U	1.400 U
Acetone	100	0.230 UJ	0.220 U	0.210 U	0.059	0.290 U	0.068	0.240 UJ	0.220 R	0.530 R	0.110	0.036	5.300 U	0.038 J	2.300 U	13.000 U	0.035 J	2.400 U
Carbon Disulfide	N/A	0.031 U	0.030 U	0.029 U	0.0019 J	0.039 U	0.0010 J	0.033 U	0.030 UJ	0.072 U	0.00031 U	0.00035 U	0.720 U	0.0026 J	0.310 U	1.700 U	0.0063	0.320 U
Carbon Tetrachloride	2.4	0.046 U	0.044 U	0.042 U	0.00023 U	0.060 U	0.00026 U	0.050 U	0.044 U	0.110 U	0.00022 U	0.00024 U	1.100 U	0.00024 U	0.460 U	2.700 U	0.00024 U	0.480 U
Chloroform	49	0.020 U	0.020 U	0.019 U	0.00025 U	0.026 U	0.00028 U	0.022 U	0.020 U	0.047 U	0.00024 U	0.00027 U	0.470 U	0.00026 U	0.210 U	1.100 U	0.00027 U	0.210 U
Methylene Chloride	100	0.015 U	0.015 U	0.014 U	0.0007 U	0.020 U	0.0096 U	0.017 U	0.015 U	0.037 U	0.0011 U	0.00027 U	0.360 U	0.00026 U	0.150 U	0.900 U	0.001 U	0.160 U
Styrene	N/A	0.019 UJ	0.019 U	1.400	0.00013 U	0.040 J	0.00015 U	0.270 J	0.019 U	0.045 U	0.00012 U	0.00014 U	170.000	0.00014 U	0.200 U	50.000	0.0010 J	0.200 U
Trichloroethene	21	0.030 U	0.030 U	0.027 U	0.00030 U	0.037 U	0.00032 U	0.032 U	0.030 U	0.072 U	0.00027 U	0.00032 U	0.690 U	0.00030 U	0.300 U	1.700 U	0.00032 U	0.320 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	8.400	26.000	6.000	0.170 J	1.600	0.290 J	NS	0.051 J	0.023 U	0.017 U	0.018 U	480.000	0.042 J	140.000	190.000	1.200	25.000
Acenaphthene	100	4.500	9.700	1.500 J	0.045 J	1.400	0.220 J	NS	0.054 J	0.0042 U	0.0031 U	0.0033 U	63.000 J	0.270 J	0.340 U	1.000 U	0.560	0.660 J
Acenaphthylene	100	3.300	6.700	1.000 J	0.077 J	0.410 J	1.800	NS	0.0034 U	0.0042 U	0.0031 U	0.031 J	280	0.083 J	0.340 U	1.000 U	0.710	2.600 J
Anthracene	100	4.600	7.300	0.900 J	0.069 J	1.200	1.400	NS	0.0031 U	0.0039 U	0.018 J	0.028 J	220	0.220 J	1.100 J	0.930 U	0.510	2.200 J
Benzo(a)anthracene	1	5.2	8.6	1.1	0.110	0.900	5.2	NS	0.078	0.014 U	0.062	0.089	180	0.160	2.700 J	3.300 U	1.4	1.8
Benzo(a)pyrene	1	4.3	8.3	1.000	0.069	0.700	5.1	NS	0.190	0.0037 U	0.052	0.075	99	0.130	1.700 J	0.890 U	1.8	1.100 J
Benzo(b)fluoranthene	1	2.5	4.7	0.470	0.0029 U	0.280	3	NS	0.094	0.0039 U	0.024 J	0.051	38	0.050	1.300 J	0.930 U	1.1	0.085 U
Benzo(ghi)perylene	100	2.500	5.400	0.620 J	0.036 J	0.310 J	3.000	NS	0.130 J	0.0053 U	0.0040 U	0.046 J	31.000 J	0.055 J	0.430 U	1.300 U	1.200	0.120 U
Benzo(k)fluoranthene	3.9	4.000 J	6.1	0.860	0.085	0.410	4.6	NS	0.120	0.0052 U	0.045	0.071	83	0.110	1.900 J	1.200 U	1.700	1.400
Chrysene	3.9	5.3	8.8	1.100 J	0.100 J	1.000	5.7	NS	0.084 J	0.0062 U	0.064 J	0.094 J	150	0.160 J	2.400 J	1.500 U	1.400	1.900 J
Dibenz(a,h)anthracene	0.33	0.86	0.46	0.012 U	0.0025 U	0.0036 U	0.0055 U	NS	0.0026 U	0.0033 U	0.0024 U	0.0026 U	12	0.021 J	0.260 U	0.790 UJ	0.0027 UJ	0.073 U
Fluoranthene	100	7.200	12.000	1.700 J	0.160 J	1.800	5.400	NS	0.060 J	0.0016 U	0.120 J	0.150 J	340	0.280 J	5.700 J	0.390 U	1.800	3.800 J
Fluorene	100	4.400	7.900	1.200 J	0.077 J	1.700	0.350 J	NS	0.047 J	0.0034 U	0.0025 U	0.0027 U	470	0.440	0.280 U	0.820 U	0.590	3.600 J
Indeno(1,2,3-cd)pyrene	0.5	2	4	0.450	0.027 J	0.260	2.8	NS	0.110	0.0032 U	0.0024 U	0.036 J	26	0.046	0.260 U	0.780 U	1.2	0.072 U
Naphthalene	100	23.000	72.000	31.000	0.170 J	1.700	0.450 J	NS	0.120 J	0.280 J	0.0033 U	0.014 J	1300	0.110 J	860	1900	1.800	170
Phenanthrene	100	16.000	25.000	3.800	0.380	6.600	3.300	NS	0.150 J	0.0046 U	0.054 J	0.120 J	1300	0.980	5.100 J	1.100 U	1.300	12.000
Pyrene	100	11.000	21.000 J	2.900 J	0.280 J	3.500	8.600	NS	0.076 J	0.0035 U	0.170 J	0.170 J	450	0.430	5.400 J	0.850 U	2.400	5.500 J
Total PAH	N/A	109.06	233.96	55.6	1.855	23.77	51.21	ND	1.364	0.28	0.609	0.975	5522	3.587	1027.3	2090	20.67	231.56

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH010 2/4/2004 21GH010-17 15-17	21GH010 2/5/2004 21GH010-19 17-19	21GH010 2/5/2004 21GH010-20 18-20	21GH011 2/12/2004 21GH011-11 9-11	21GH011 2/12/2004 21GH011-17 15-17	21GH012 2/16/2004 21GH012-11 9-11	21GH012 2/16/2004 21GH012-18 17-17.4	21GH013 2/3/2004 21GH013-15 13-15	21GH013 2/3/2004 21GH013-21 19-21	21GH014 2/18/2004 21GH014-19 17-19	21GH015 2/10/2004 21GH015-15 13-15	21GH015 2/10/2004 21GH015-21 19-21	21GH016 2/9/2004 21GH016-15 13-15	21GH017 3/12/2004 21GH017-15 13-15	21GH018 2/11/2004 21GH018-14 13-13.4	21GH019 2/11/2004 21GH019-15 13-15	21GH020 2/12/2004 21GH020-14.8 13-14.8
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.180 U	0.370 U	0.180 U	0.035 U	0.050 U	0.078 U	NS	0.037 U	0.076 J	0.034 U	0.036 U	8.700 U	0.036 U	3.700 U	11.000 U	0.038 U	1.000 U
2-Methylphenol	100	0.180 U	0.360 U	0.170 U	0.034 U	0.049 U	0.076 U	NS	0.036 U	0.045 U	0.034 U	0.035 U	8.500 U	0.035 U	3.600 U	11.000 U	0.037 U	1.000 U
4-Methylphenol	100	0.200 U	0.400 U	0.190 U	0.038 U	0.054 U	0.083 U	NS	0.040 U	0.038 J	0.037 U	0.039 U	9.300 U	0.039 U	4.000 U	12.000 U	0.025 J	1.100 U
bis(2-Ethylhexyl) phthalate	N/A	0.120 U	0.240 U	0.120 U	0.098 J	0.033 U	0.500 J	NS	0.150 U	0.030 U	0.110 J	0.900 U	5.700 U	0.290 J	2.400 U	7.300 U	0.250 U	0.670 U
Butyl benzyl phthalate	N/A	0.081 U	0.160 U	0.077 U	0.015 U	0.022 U	0.034 U	NS	0.016 U	0.020 U	0.015 U	0.016 U	3.800 U	0.016 U	1.600 U	4.900 U	0.017 U	0.450 U
Carbazole	N/A	0.780 J	0.370 J	0.014 U	0.0028 U	0.049 J	0.240 J	NS	0.034 J	0.0037 U	0.0027 U	0.0029 U	14.000 J	0.033 J	0.290 U	0.880 U	0.062 J	0.081 U
Dibenzofuran	59	1.200 J	1.100 J	0.190 J	0.018 J	0.260 J	0.140 J	NS	0.032 J	0.026 U	0.019 U	0.020 U	44.000 J	0.068 J	2.100 U	6.200 U	0.100 J	0.560 J
Diethyl phthalate	N/A	0.054 U	0.110 U	0.051 U	0.010 U	0.014 U	0.023 U	NS	0.011 U	0.014 U	0.010 U	0.010 U	2.500 U	0.010 U	1.100 U	3.200 U	0.011 U	0.300 U
N-Nitrosodiphenylamine	N/A	0.092 U	0.180 U	0.088 U	0.018 U	0.025 U	0.039 U	NS	0.018 U	0.023 U	0.017 U	0.018 U	4.300 U	0.018 U	1.800 U	5.500 U	0.019 U	0.510 U
Phenol	100	0.270 U	0.540 U	0.260 U	0.051 U	0.072 U	0.110 U	NS	0.054 U	0.180 J	0.050 U	0.052 U	13.000 U	0.052 U	5.400 U	16.000 U	0.055 U	1.500 U
Metals (mg/Kg)																		
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Thallium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
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mg/Kg = milligram per kilogram
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Bold = compound was detected

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.
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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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH021 2/12/2004 21GH021-15 13-15	21GH022 2/6/2004 21GH022-15 13-15	21GH022 2/6/2004 21GH022-19 17-19	21GH024 2/5/2004 21GH024-17 15-17	21GH024 2/5/2004 21GH024-21 19-21	21GH025 1/26/2004 21GH025-11 9-11	21GH025 1/26/2004 21GH025-15 13-15	21GH025 1/26/2004 21GH025-17 15-17	21GH026 2/16/2004 21GH026-11 9-11	21GH028 2/6/2004 21GH028-18 16-18	21GH028 2/6/2004 21GH028-19 18-19	21GH029 2/12/2004 21GH029-17 15-17	21GN001 2/17/2004 21GN001-17 15-17	21GN001 2/17/2004 21GN001-21 19-21	21GN002 2/18/2004 21GN002-15 13-15	21GT001 3/2/2004 21GT001-19 17-19	21GT002 3/4/2004 21GT002-17 15-17	21MH001 2/17/2004 21MH001-17 15-17
BTEX (mg/Kg)																			
Benzene	4.8	7.7	51.000 J	18	0.038	6.7	0.990	330	420	0.048	5.1	23	3.100	3.500	0.071	0.014	15	0.400	0.0014
Ethylbenzene	41	5.200	420.000 J	69	0.0014 J	2.800	0.650	270	250	0.0019 J	2.900	24.000	39.000	2.200	0.025	0.030	15.000	11.000	0.0011 J
Toluene	100	0.580 J	260.000 J	44.000	0.0077	1.100	0.086 J	650	720	0.015	0.350 J	30.000	6.600	0.820	0.0047 J	0.011	0.620 J	0.019 U	0.0030 J
Xylene (Total)	100	2.500	780.000 J	120	0.0032 J	7.400	0.310 J	820	790	0.0043 J	1.700	60.000	44.000	4.200	0.055	0.032	0.550 J	1.600	0.0035 J
Total BTEX	N/A	15.98	1511	251	0.0503	18	2.036	2070	2180	0.0692	10.05	137	92.7	10.72	0.1557	0.087	31.17	13	0.009
VOC (mg/Kg)																			
2-Butanone (Methyl Ethyl Ke	100	0.230 U	5.100 UJ	0.990 U	0.0013 U	0.230 U	0.230 R	8.300 U	8.300 R	0.018	0.260 U	0.480 U	0.480 U	0.270 U	0.0012 U	0.0063 J	0.270 U	0.220 R	0.0095
4-Methyl-2-pentanone	N/A	0.130 U	2.900 UJ	0.560 U	0.00096 U	0.130 U	0.130 UJ	4.700 U	4.700 UJ	0.00081 U	0.150 U	0.270 U	0.270 U	0.160 U	0.00093 U	0.00083 U	0.150 U	0.120 U	0.00084 U
Acetone	100	0.220 U	4.900 UJ	0.940 UJ	0.092 J	0.220 UJ	0.220 UJ	7.900 U	7.900 UJ	0.150	0.250 U	0.450 UJ	0.450 U	0.260 UJ	0.100 J	0.120	0.260 U	0.210 U	0.100 J
Carbon Disulfide	N/A	0.030 U	0.670 UJ	0.550 J	0.0091	0.030 U	0.030 U	1.100 U	1.100 U	0.0049 J	0.034 U	0.350 J	0.062 U	0.035 U	0.0039 J	0.00034 U	0.035 U	0.028 UJ	0.0015 J
Carbon Tetrachloride	2.4	0.046 U	1.000 UJ	0.190 U	0.00027 U	0.046 U	0.044 U	1.600 U	1.600 U	0.00023 U	0.052 U	0.089 U	0.093 U	0.054 U	0.00026 U	0.00023 U	0.052 U	0.042 U	0.00024 U
Chloroform	49	0.020 U	0.440 UJ	0.084 U	0.00030 U	0.020 U	0.020 U	0.710 U	0.710 U	0.00025 U	0.023 U	0.040 U	0.040 U	0.023 U	0.00029 U	0.00026 U	0.023 U	0.018 U	0.00026 U
Methylene Chloride	100	0.015 U	0.340 UJ	0.064 U	0.0025 U	0.015 U	0.015 U	0.510 U	0.550 U	0.012 U	0.017 U	0.029 U	0.031 U	0.018 U	0.0011 U	0.0011 U	0.017 U	0.014 U	0.0014 U
Styrene	N/A	0.120 J	80.000 J	12.000	0.00016 U	0.019 UJ	0.019 U	460.000	460.000	0.00013 U	0.022 U	26.000	1.100 J	0.180 J	0.00015 U	0.0018 J	0.022 U	0.018 U	0.00014 U
Trichloroethene	21	0.030 U	0.670 UJ	0.120 U	0.00035 U	0.030 U	0.030 U	1.000 U	1.000 U	0.00030 U	0.032 U	0.057 U	0.060 U	0.035 U	0.00035 U	0.00030 U	0.035 U	0.027 U	0.00030 U
PAH (mg/Kg)																			
2-Methylnaphthalene	N/A	89.000	260.000	70.000	0.730 J	44.000	3.100	2000.000	760.000	1.200 J	2.000 J	4.900	280.000	0.500 J	0.280 J	0.014 J	7.100	91.000	0.085 J
Acenaphthene	100	0.680 U	130	28.000	1.500	11.000	1.200	82.000 J	23.000 J	1.800 J	8.600	5.100	52.000	0.020 U	0.028 J	0.049 J	7.100	25.000	0.170 J
Acenaphthylene	100	2.100 J	64.000	35.000	2.200	14.000	0.150 J	630	220	4.800	6.200	5.100	69.000	0.020 U	0.026 J	0.061 J	0.0082 U	6.600 J	0.028 J
Anthracene	100	2.800 J	150	52.000	2.100	23.000	0.510 J	260	98.000 J	5.800	11.000	8.700	46.000	0.018 U	0.029 J	0.044 J	1.800	14.000	0.290 J
Benzo(a)anthracene	1	6.500 J	130	47	7.8	28	0.560	130	51	11	16	11	26	0.066 U	0.048	0.060	1.3	11	0.290
Benzo(a)pyrene	1	5.800 J	96	37	7.4	17	0.590	100	36	14	14	10	19	0.018 U	0.038 J	0.045	2.1	9.6	0.170
Benzo(b)fluoranthene	1	3.900 J	52	19	5.5	10	0.370	40	14.000 J	8.5	8.9	6.3	8.2	0.018 U	0.019 J	0.024 J	0.910	4.1	0.120
Benzo(ghi)perylene	100	3.500 J	50.000 J	18.000 J	4.500	6.800 J	0.460 J	32.000 J	1.900 U	7.100	6.200	4.200	8.100 J	0.026 U	0.0045 U	0.0042 U	1.500	4.000 J	0.098 J
Benzo(k)fluoranthene	3.9	5.600 J	78	27	5.8	16	0.440	62	21	9.6	13	9.8	16	0.025 U	0.036 J	0.035 J	1.500	6.4	0.220
Chrysene	3.9	6.500 J	120	46	7.6	25	0.600 J	140.000 J	52.000 J	12	16	11	23.000 J	0.030 U	0.048 J	0.063 J	1.500	12	0.280 J
Dibenz(a,h)anthracene	0.33	0.530 U	16	4.4	1.8	1.2	0.120	1.200 U	1.200 U	2.4	2.3	1.4	2.300 J	0.016 UJ	0.0028 UJ	0.0026 U	0.6	1.2	0.0026 UJ
Fluoranthene	100	10.000 J	310	120	7.600	41.000	1.100	220	82.000 J	21.000	23.000	16.000	41.000 J	0.0078 U	0.120 J	0.120 J	2.000	18.000	0.620
Fluorene	100	0.550 U	230	67.000	0.530 J	39.000	0.480 J	310	110.000 J	2.300	9.100	7.200	54.000	0.016 U	0.090 J	0.0027 U	2.600	19.000	0.190 J
Indeno(1,2,3-cd)pyrene	0.5	2.800 J	46	18	4	6.4	0.370	26	1.200 U	6.5	6.1	4.1	6.8	0.016 U	0.0027 U	0.0025 U	1.3	3.3	0.097
Naphthalene	100	760	840	230	2.900	140	14.000	4000	1700	2.300	11.000	18.000	480	27.000	3.800	0.130 J	19.000	180	0.170 J
Phenanthrene	100	9.700 J	780	220	4.800	94.000	1.700	930	340	21.000	38.000	30.000	150	0.130 J	0.300 J	0.250 J	7.800	70.000	0.920
Pyrene	100	10.000 J	370	130	10.000	40.000	1.900	390	140.000 J	26.000	38.000	24.000	59.000	0.053 J	0.140 J	0.160 J	2.700	30.000	0.550
Total PAH	N/A	918.2	3722	1168.4	76.76	556.4	27.65	9352	3647	157.3	229.4	176.8	1340.4	27.683	5.002	1.055	60.81	505.2	4.298

Notes:

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Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH021 2/12/2004 21GH021-15 13-15	21GH022 2/6/2004 21GH022-15 13-15	21GH022 2/6/2004 21GH022-19 17-19	21GH024 2/5/2004 21GH024-17 15-17	21GH024 2/5/2004 21GH024-21 19-21	21GH025 1/26/2004 21GH025-11 9-11	21GH025 1/26/2004 21GH025-15 13-15	21GH025 1/26/2004 21GH025-17 15-17	21GH026 2/16/2004 21GH026-11 9-11	21GH028 2/6/2004 21GH028-18 16-18	21GH028 2/6/2004 21GH028-19 18-19	21GH029 2/12/2004 21GH029-17 15-17	21GN001 2/17/2004 21GN001-17 15-17	21GN001 2/17/2004 21GN001-21 19-21	21GN002 2/18/2004 21GN002-15 13-15	21GT001 3/2/2004 21GT001-19 17-19	21GT002 3/4/2004 21GT002-17 15-17	21MH001 2/17/2004 21MH001-17 15-17
SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	7.400 U	4.100 U	1.000 U	0.120 J	4.200 J	0.076 U	17.000 U	17.000 U	0.180 U	0.200 U	0.044 J	3.800 U	0.220 U	0.039 U	0.036 U	0.090 U	0.900 U	0.036 U
2-Methylphenol	100	7.300 U	4.000 U	1.000 U	0.110 J	2.300 J	0.074 U	16.000 U	16.000 U	0.180 U	0.200 U	0.180 U	3.700 U	0.220 U	0.038 U	0.035 U	0.088 U	0.890 U	0.035 U
4-Methylphenol	100	7.900 U	4.400 U	1.100 U	0.220 J	6.100 J	0.081 U	18.000 U	18.000 U	0.081 J	0.220 U	0.047 J	4.100 U	0.240 U	0.042 U	0.039 U	0.096 U	0.970 U	0.039 U
bis(2-Ethylhexyl) phthalate	N/A	4.800 U	2.700 U	0.670 U	0.054 U	0.480 U	0.440 J	11.000 U	11.000 U	0.680 J	0.130 U	0.120 U	2.500 U	0.140 U	0.140 J	0.160 J	0.059 U	0.590 UJ	0.210 J
Butyl benzyl phthalate	N/A	3.200 U	1.800 U	0.450 U	0.036 U	0.320 U	0.033 U	7.300 U	7.300 U	0.081 U	0.089 U	0.081 U	1.700 U	0.097 U	0.017 U	0.016 U	0.039 U	0.400 U	0.016 U
Carbazole	N/A	0.590 U	25.000 J	8.200 J	0.330 J	18.000	0.140 J	5.500 J	1.300 U	1.700 J	1.400 J	1.100 J	1.000 J	0.100 J	0.010 J	0.026 J	0.150 J	0.750 J	0.120 J
Dibenzofuran	59	4.100 U	52.000	16.000	0.330 J	28.000	0.260 J	68.000 J	21.000 J	2.100	2.700	2.100	11.000 J	0.120 U	0.037 J	0.017 J	0.480 J	2.500 J	0.130 J
Diethyl phthalate	N/A	2.200 U	1.200 U	0.300 U	0.024 U	0.210 U	0.022 U	4.900 U	4.900 U	0.054 U	0.059 U	0.054 U	1.100 U	0.065 U	0.011 U	0.010 U	0.026 U	0.260 U	0.010 U
N-Nitrosodiphenylamine	N/A	3.700 U	2.000 U	0.510 U	0.041 U	0.360 U	0.038 U	8.300 U	8.300 U	0.092 U	0.100 U	0.092 U	1.900 U	0.110 U	0.019 U	0.018 U	0.045 U	0.450 U	0.018 U
Phenol	100	11.000 U	5.900 U	1.500 U	0.130 J	5.800 J	0.110 U	24.000 U	24.000 U	0.270 U	0.300 U	0.270 U	5.500 U	0.320 U	0.056 U	0.052 U	0.130 U	1.300 U	0.052 U
Metals (mg/Kg)																			
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	11400	8090	NS	NS	NS
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.1 UJ	0.99 UJ	NS	NS	NS
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7.3	3.3 J	NS	NS	NS
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	26.6 J	11.4 J	NS	NS	NS
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.64	0.41 J	NS	NS	NS
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.11 U	0.10 U	NS	NS	NS
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2150	747 J	NS	NS	NS
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	22.9 J	11.2 J	NS	NS	NS
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9.1 J	6.0 J	NS	NS	NS
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	11.0 J	9.4 J	NS	NS	NS
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	25200	14500	NS	NS	NS
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9.8 J	5.0 J	NS	NS	NS
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5440 J	2820 J	NS	NS	NS
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	408	187	NS	NS	NS
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.024 UJ	0.021 UJ	NS	NS	NS
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	22.1	13.6	NS	NS	NS
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2110	801 J	NS	NS	NS
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.1 U	0.99 U	NS	NS	NS
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.20 U	0.18 U	NS	NS	NS
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	994 J	533 J	NS	NS	NS
Thallium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.3 U	1.1 U	NS	NS	NS
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	29.6	12.2 J	NS	NS	NS
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	59.4	30.2	NS	NS	NS
Cyanide (mg/Kg)																			
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

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Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21OT001C 3/15/2004 21OT001C-15 13-15	21OT002A 3/10/2004 21OT002A-15 13-15	21OT003 3/10/2004 21OT003-11 9-11	21OT003 3/10/2004 21OT003-19 17-19	21OT004 3/11/2004 21OT004-13 11-13	21OT004 3/11/2004 21OT004-17 15-17	21OT005 3/10/2004 21OT005-15 13-15	21OT005 3/10/2004 21OT005-15DUP 13-15	21OT006 3/24/2004 21OT006-15 13-15	21OT007 3/18/2004 21OT007-15 13-15	21PF001 2/18/2004 21PF001-11 9-11	21PF001 2/18/2004 21PF001-13 11-13	21PF002 2/23/2004 21PF002-19 17-19	21PF003 2/24/2004 21PF003-11 9-11	21PF003 2/24/2004 21PF003-21 19-21	21PF004 2/24/2004 21PF004-15 13-15	21PF004 2/24/2004 21PF004-11 9-11
BTEX (mg/Kg)																		
Benzene	4.8	15	0.400	1.900	0.00032 U	0.00028 U	0.079 J	0.0010 J	0.0030	0.00028 U	0.00025 U	0.025 U	0.022 U	0.036	0.360	0.00030 U	0.0081	0.0066
Ethylbenzene	41	44	14.000	1.700	0.00029 U	0.00024 U	0.110 J	0.0012 J	0.0067	0.00023 U	0.00022 U	0.021 U	2.200	0.0094	4.200	0.00025 U	0.0015 J	0.0041 J
Toluene	100	0.860 J	0.081 J	0.200 J	0.00029 U	0.00024 U	0.026 U	0.00024 U	0.0011 J	0.00023 U	0.00022 U	0.021 U	0.019 U	0.0036 J	0.170 J	0.00025 U	0.0024 J	0.0025 J
Xylene (Total)	100	37.000	1.600	0.800 J	0.00069 U	0.00058 U	0.035 U	0.0021 J	0.012	0.00056 U	0.00054 U	0.028 U	0.220 J	0.016	1.500	0.00060 U	0.0021 J	0.0029 J
Total BTEX	N/A	96.86	16.081	4.6	ND	ND	0.189	0.0043	0.0228	ND	ND	ND	2.42	0.065	6.23	ND	0.0141	0.0161
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	1.100 R	0.230 R	0.510 R	0.0049 J	0.0012 UJ	0.300 UJ	0.0012 R	0.0013 R	0.0011 R	0.0011 R	0.240 R	0.220 R	0.014	0.240 U	0.0012 U	0.0011 R	0.013 J
4-Methyl-2-pentanone	N/A	0.610 U	0.130 U	0.290 U	0.0011 U	0.00090 U	0.170 U	0.00089 U	0.00095 U	0.00086 U	0.00083 U	0.140 U	0.130 U	0.0011 U	0.140 U	0.00093 U	0.00086 U	0.00093 U
Acetone	100	1.000 UJ	0.220 UJ	0.490 UJ	0.0035 UJ	0.036	0.290 U	0.0029 UJ	0.0031 UJ	0.035 J	0.0027 U	0.230 R	0.210 R	0.077 J	0.230 UJ	0.030 J	0.030 J	0.040 J
Carbon Disulfide	N/A	0.140 U	0.030 U	0.067 U	0.0011 J	0.0009 J	0.039 U	0.0014 J	0.0011 J	0.00035 U	0.0009 J	0.031 U	0.029 U	0.0019 J	0.032 UJ	0.0045 J	0.010	0.015
Carbon Tetrachloride	2.4	0.210 U	0.044 U	0.099 U	0.0020 J	0.00025 U	0.058 U	0.00025 U	0.00027 U	0.00024 U	0.00023 U	0.046 U	0.042 U	0.00030 U	0.048 U	0.00026 U	0.00024 U	0.00026 U
Chloroform	49	0.091 U	0.020 U	0.044 U	0.0039 J	0.00028 U	0.026 U	0.00028 U	0.00029 U	0.00027 U	0.00026 U	0.021 U	0.019 U	0.00033 U	0.021 U	0.00029 U	0.00027 U	0.00029 U
Methylene Chloride	100	0.068 U	0.015 U	0.033 U	0.0014 U	0.005 U	0.020 U	0.001 U	0.0009 U	0.0004 U	0.0019 U	0.016 U	0.014 U	0.00033 U	0.016 U	0.00029 U	0.00027 U	0.00029 U
Styrene	N/A	0.087 U	0.019 U	0.042 U	0.00017 U	0.00015 U	0.024 U	0.00014 U	0.00015 U	0.00014 U	0.00013 U	0.020 U	0.018 U	0.00017 U	0.020 U	0.00015 U	0.00014 U	0.00015 U
Trichloroethene	21	0.130 U	0.030 U	0.064 U	0.00038 U	0.00032 U	0.037 U	0.00032 U	0.00035 U	0.00032 U	0.00030 U	0.030 U	0.027 U	0.00038 U	0.030 U	0.00035 U	0.00032 U	0.00032 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	150.000	100.000	0.160 J	0.051 J	0.085 J	0.260 J	0.092 J	0.160 J	0.027 J	0.032 J	0.260 J	0.580	0.023 U	0.099 U	0.020 U	0.055 J	1.800 J
Acenaphthene	100	50.000	0.440 J	0.190 J	0.0042 U	0.280 J	5.900	0.083 J	0.140 J	0.014 J	0.048 J	0.880	1.100	0.0042 U	16.000	0.011 J	0.660	7.200
Acenaphthylene	100	8.000 J	0.085 U	0.670	0.0042 U	0.120 J	1.200	0.085 J	0.120 J	0.015 J	0.0033 U	3.300	2.200	0.0042 U	14.000	0.018 J	0.450	3.400
Anthracene	100	27.000 J	21.000	0.530	0.058 J	0.180 J	4.100	0.097 J	0.140 J	0.011 J	0.049 J	1.700	2.200	0.0038 U	12.000	0.024 J	0.210 J	10.000
Benzo(a)anthracene	1	25	12	1.1	0.064	0.220	11	0.110	0.180 J	0.021 J	0.120	1.6	1.3	0.013 U	12	0.030 J	0.630	19
Benzo(a)pyrene	1	31	8.7	1.4	0.058	0.220	15	0.120	0.180	0.027 J	0.160	2.5	1.1	0.0036 U	11	0.026 J	0.880	17
Benzo(b)fluoranthene	1	18	7.8	0.900	0.058	0.150	17	0.064	0.081	0.018 J	0.091	1.3	0.460	0.0038 U	6	0.017 J	0.370	13
Benzo(ghi)perylene	100	22.000 J	7.500 J	0.820	0.0053 U	0.120 J	8.900	0.079 J	0.150 J	0.026 J	0.098 J	2.600	0.710	0.0052 U	6.900	0.0045 U	0.680	10.000
Benzo(k)fluoranthene	3.9	28.000 J	10	1.200	0.067	0.160 J	0.010 UJ	0.100 J	0.170 J	0.025 J	0.160	1.500	0.710	0.0051 U	8.8	0.022 J	0.680	15
Chrysene	3.9	27.000 J	14	1.300	0.092 J	0.240 J	12	0.130 J	0.220 J	0.024 J	0.140 J	1.600	1.100	0.0061 U	12	0.034 J	0.670	16
Dibenz(a,h)anthracene	0.33	0.310 U	0.066 U	0.0030 U	0.0033 U	0.052	4.6	0.0026 U	0.0030 U	0.0097 J	0.0026 U	0.52	0.047	0.0032 U	2	0.0028 U	0.160	4.7
Fluoranthene	100	42.000 J	32.000	1.600	0.140 J	0.430 J	10.000	0.270 J	0.380 J	0.029 J	0.170 J	2.100	1.900	0.0016 U	17.000	0.080 J	0.970	34.000
Fluorene	100	33.000 J	26.000	0.066 J	0.048 J	0.150 J	1.200	0.099 J	0.120 J	0.015 J	0.028 J	0.160 J	2.000	0.0034 U	14.000	0.017 J	0.120 J	5.300
Indeno(1,2,3-cd)pyrene	0.5	20	6.2	0.73	0.035 J	0.094	8.3	0.057	0.110	0.019 J	0.095	1.7	0.440	0.0032 U	5.5	0.0027 U	0.480	9.1
Naphthalene	100	520	170	0.470	0.098 J	0.120 J	0.520 J	0.260 J	0.480	0.042 J	0.110 J	0.860	5.400	0.059 J	35.000	0.029 J	0.260 J	3.600
Phenanthrene	100	100	88.000	0.720	0.170 J	0.610	5.800	0.470	0.630	0.038 J	0.150 J	1.700	6.200	0.0045 U	40.000	0.110 J	0.380 J	29.000
Pyrene	100	44.000 J	45.000	2.000	0.140 J	0.600	13.000	0.380 J	0.610 J	0.031 J	0.210 J	3.500 J	3.400 J	0.0034 U	29.000	0.072 J	1.600	32.000
Total PAH	N/A	1145	548.64	13.856	1.079	3.831	118.78	2.496	3.871	0.3917	1.661	27.78	30.847	0.059	241.2	0.49	9.255	230.1

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21OT001C 3/15/2004 21OT001C-15 13-15	21OT002A 3/10/2004 21OT002A-15 13-15	21OT003 3/10/2004 21OT003-11 9-11	21OT003 3/10/2004 21OT003-19 17-19	21OT004 3/11/2004 21OT004-13 11-13	21OT004 3/11/2004 21OT004-17 15-17	21OT005 3/10/2004 21OT005-15 13-15	21OT005 3/10/2004 21OT005-15DUP 13-15	21OT006 3/24/2004 21OT006-15 13-15	21OT007 3/18/2004 21OT007-15 13-15	21PF001 2/18/2004 21PF001-11 9-11	21PF001 2/18/2004 21PF001-13 11-13	21PF002 2/23/2004 21PF002-19 17-19	21PF003 2/24/2004 21PF003-11 9-11	21PF003 2/24/2004 21PF003-21 19-21	21PF004 2/24/2004 21PF004-15 13-15	21PF004 2/24/2004 21PF004-11 9-11
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	4.300 U	0.920 U	0.042 U	0.046 U	0.091 J	0.076 J	0.037 U	0.010 J	0.037 U	0.036 U	0.039 U	0.035 U	0.045 U	0.190 U	0.039 U	0.037 U	0.190 U
2-Methylphenol	100	4.300 U	0.910 U	0.041 U	0.045 U	0.430 J	0.180 J	0.036 U	0.041 U	0.036 U	0.035 U	0.038 U	0.034 U	0.044 U	0.190 U	0.038 U	0.036 U	0.190 U
4-Methylphenol	100	4.600 U	0.990 U	0.010 J	0.500	0.660	0.480 J	0.580	0.300 J	0.093 J	0.021 J	0.044 J	0.038 U	0.048 U	0.210 U	0.042 U	0.040 U	0.100 J
bis(2-Ethylhexyl) phthalate	N/A	2.800 U	0.610 U	0.120 J	0.030 U	0.026 U	0.061 U	0.120 J	0.140 J	0.024 U	0.150 U	0.190 U	0.023 U	0.180 J	0.130 U	0.780	0.092 J	0.130 U
Butyl benzyl phthalate	N/A	1.900 U	0.410 U	0.018 U	0.020 U	0.017 U	0.041 U	0.016 U	0.018 U	0.016 U	0.016 U	0.088 J	0.015 U	0.020 U	0.085 U	0.017 U	0.016 U	0.085 U
Carbazole	N/A	8.300 J	2.400 J	0.054 J	0.0037 U	0.045 J	1.100	0.018 J	0.018 J	0.0029 U	0.013 J	0.096 J	0.020 J	0.0036 U	0.620 J	0.0031 U	0.017 J	2.900
Dibenzofuran	59	20.000 J	8.700 J	0.090 J	0.023 J	0.077 J	0.480 J	0.028 J	0.037 J	0.011 J	0.012 J	0.180 J	0.020 U	0.025 U	2.200	0.022 U	0.023 J	2.200
Diethyl phthalate	N/A	1.300 U	0.270 U	0.012 U	0.014 U	0.012 U	0.027 U	0.011 U	0.012 U	0.011 U	0.010 U	0.011 U	0.010 U	0.013 U	0.057 U	0.011 U	0.011 U	0.057 U
N-Nitrosodiphenylamine	N/A	2.200 U	0.460 U	0.021 U	0.023 U	0.032 J	0.046 U	0.018 U	0.023 U	0.018 U	0.018 U	0.019 U	0.018 U	0.022 U	0.097 U	0.019 U	0.018 U	0.097 U
Phenol	100	6.300 U	1.300 U	0.060 U	0.067 U	0.190 J	0.560 J	0.054 U	0.060 U	0.054 U	0.052 U	0.056 U	0.051 U	0.066 U	0.280 U	0.056 U	0.054 U	0.280 U
Metals (mg/Kg)																		
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6550	9410	12200 J	6980	8470	7310 J	6390 J
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.5 UJ	1.3 UJ	1.1 UJ	1.4 UJ	1.5 UJ	0.93 U	1.0 U
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3.1	2.6	7.6	5.5 J	1.8 J	2.0 J	7.1
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	54.8	69.8	26.0 J	75.6	15.1 J	45.9 J	72.6
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.34 J	0.59	0.61	0.63	0.42 J	0.36 J	0.48 J
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.10 U	0.092 U	0.12 U	0.100 U	0.10 U	0.095 U	0.10 U
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	25700 J	2690 J	2660	19800 J	1960 J	831 J	8440
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	10.6 J	18.6 J	23.1 J	14.3	13.1	12.6	17.9
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3.9 J	7.4 J	8.9 J	9.0 J	5.9 J	4.7 J	7.5 J
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	13.5 J	20.3 J	9.6	50.7	11.2	15.9	65.8
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	10100	21500	26900	23900	13300	13200 J	17500 J
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	52.7 J	11.8 J	9.2	176	6.1	10.8	183
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	6010	3540	5810	3680	3150	1870	2330
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	372	409	414 J	440	154	83.2	332
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.11 J	0.019 UJ	0.024 U	0.32	0.021 U	0.02 J	0.45
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	12.7 J	14.6 J	20.4	18.9	16.5	10.1	18.9
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	686 J	2070	2290 J	953 J	789 J	576 J	832 J
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.1 U	0.97 U	1.1 U	1.0 U	1.1 U	0.93 U	1.0 U
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.35 U	0.32 U	0.20 U	0.35 U	0.36 U	0.17 U	0.18 U
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	518 J	179 J	289 J	195 J	264 J	85.6 U	190 J
Thallium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.2 U	1.1 U	1.3 UJ	1.2 U	1.2 U	1.0 U	1.1 U
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	14.1	27.2	30.2	19.5	15.6	16.6	24.0
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	36.9 J	42.0 J	60.0	103	35.8	28.5	111
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.5 U	1.4

Notes:

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BTEX (mg/Kg)																		
Benzene	4.8	0.270	0.022 U	32	17	0.00025 U	0.0014	0.00025 U	0.0068	0.022 U	0.012	0.210	0.0035	0.340	0.450 U	0.220 U	0.190	0.880
Ethylbenzene	41	0.710	0.150 J	240	110	0.00022 U	0.00022 U	0.00022 U	0.0051 J	1.200	0.010	1.200	0.0026 J	3.000	41	13.000	0.250 J	15.000
Toluene	100	0.200 J	0.019 U	1.300 U	1.000 U	0.00022 U	0.0012 J	0.00022 U	0.018	0.018 U	0.0031 J	0.220 J	0.0021 J	0.026 U	0.380 U	0.190 U	0.020 U	0.760 J
Xylene (Total)	100	0.900	0.130 J	120	51.000	0.00054 U	0.00053 U	0.00054 U	0.017	1.200	0.026	0.320 J	0.0023 J	1.600	53.000	15.000	0.340 J	15.000
Total BTEX	N/A	2.08	0.28	392	178	ND	0.0026	ND	0.0469	2.4	0.0511	1.95	0.0105	4.94	94	28	0.78	31.64
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.220 R	0.220 U	15.000 U	12.000 U	0.0011 R	0.0058 J	0.0011 U	0.0014 U	0.210 R	0.026	0.210 U	0.0012 R	0.300 R	4.400 R	2.200 R	0.230 R	1.200 R
4-Methyl-2-pentanone	N/A	0.130 U	0.130 U	8.400 U	6.800 U	0.00083 U	0.00081 U	0.00083 U	0.0010 U	0.120 U	0.0011 U	0.120 U	0.00089 U	0.170 U	2.500 U	9.100	0.130 U	0.680 U
Acetone	100	0.210 UJ	0.210 UJ	14.000 UJ	11.000 UJ	0.061	0.056	0.027	0.0033 UJ	0.200 UJ	0.140	0.200 UJ	0.038 J	0.280 UJ	4.200 UJ	2.100 UJ	0.220 UJ	1.100 UJ
Carbon Disulfide	N/A	0.029 U	0.029 U	1.900 U	1.500 U	0.016	0.0014 J	0.00034 U	0.00041 U	0.028 U	0.0088	0.027 U	0.0010 J	0.038 U	0.560 UJ	0.290 UJ	0.030 UJ	0.150 UJ
Carbon Tetrachloride	2.4	0.042 U	0.042 U	2.900 U	2.300 U	0.00023 U	0.00023 U	0.00023 U	0.00028 U	0.042 U	0.00032 U	0.041 U	0.00025 U	0.058 U	0.850 U	0.420 U	0.044 U	0.230 U
Chloroform	49	0.019 U	0.019 U	1.200 U	1.000 U	0.00026 U	0.00025 U	0.00026 U	0.00032 U	0.018 U	0.00035 U	0.018 U	0.00028 U	0.025 U	0.370 U	0.190 U	0.020 U	0.100 U
Methylene Chloride	100	0.014 U	0.014 U	0.940 U	0.770 U	0.0017 U	0.0013 U	0.00026 U	0.00031 U	0.014 U	0.00035 U	0.014 U	0.0027 U	0.019 U	0.280 U	0.140 U	0.015 U	0.077 U
Styrene	N/A	0.018 U	0.018 U	1.200 U	0.970 U	0.00013 U	0.00013 U	0.00013 U	0.0026 J	0.017 U	0.00018 U	0.017 U	0.00014 U	0.024 U	0.350 U	0.180 U	0.019 U	0.096 U
Trichloroethene	21	0.027 U	0.027 U	1.800 U	1.500 U	0.00030 U	0.00030 U	0.00030 U	0.00038 U	0.027 U	0.00040 U	0.027 U	0.00032 U	0.037 U	0.540 U	0.270 U	0.030 U	0.150 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	1.500	6.200	400.000	68.000	0.0089 J	0.018 UJ	0.018 U	0.011 J	53.000	0.096 J	3.400	77.000	1.200 U	370.000	540.000	84.000	300.000
Acenaphthene	100	1.200	36.000	400	87.000	0.0033 UJ	0.120 J	0.020 J	0.021 J	13.000	2.200	0.860	36.000	79.000	98.000	130	23.000	180
Acenaphthylene	100	0.970	8.600	52.000 J	11.000 J	0.0033 UJ	0.120 J	0.0033 U	0.0032 U	19.000	0.190 J	0.180 J	15.000	31.000	47.000	49.000	8.200	37.000 J
Anthracene	100	1.100	16.000	210	48.000	0.034 J	0.056 J	0.0030 U	0.015 J	17.000	0.120 J	0.270 J	33.000	82.000	67.000	81.000	13.000	80.000
Benzo(a)anthracene	1	1.5	12	160	40	0.070 J	0.210 J	0.011 U	0.010 J	9.8	0.019 J	0.270	23	130	60	78	12	56
Benzo(a)pyrene	1	2	8.2	130	30	0.0029 UJ	0.260 J	0.0029 U	0.0028 U	8.2	0.014 J	0.180	20	130	40	54	7.9	38
Benzo(b)fluoranthene	1	1.1	3.4	66	15	0.0030 UJ	0.120 J	0.0030 U	0.0029 U	2.7	0.011 J	0.078	8.3	74	17	24	3.5	16
Benzo(ghi)perylene	100	1.300	2.300 J	0.520 J	16.000 J	0.0042 UJ	0.210 J	0.0042 U	0.0041 U	5.100 J	0.0056 U	0.071 J	10.000	54.000	16.000 J	21.000 J	3.100 J	13.000 J
Benzo(k)fluoranthene	3.9	1.600	4.6	100	23	0.0041 UJ	0.160 J	0.0041 U	0.0040 U	4.4	0.012 J	0.160	15	120	26	38	5.3	27
Chrysene	3.9	1.600	14	150.000 J	39	0.065 J	0.230 J	0.0048 U	0.011 J	10	0.027 J	0.310 J	28	130	60	77	12	54
Dibenz(a,h)anthracene	0.33	0.49	1.4	8.200 J	5.9	0.0026 UJ	0.0026 UJ	0.0026 UJ	0.0025 U	1	0.0034 U	0.028 J	2.9	23	5.9	5.1	0.051 U	3.300 J
Fluoranthene	100	2.500	16.000	300	70.000	0.110 J	0.400 J	0.0013 U	0.018 J	15.000	0.062 J	0.470	44.000	170	130	160	26.000	94.000
Fluorene	100	0.760	11.000	210	42.000	0.0027 UJ	0.0027 UJ	0.0027 U	0.0026 U	15.000	0.480 J	0.660	36.000	49.000	160	190	32.000	120
Indeno(1,2,3-cd)pyrene	0.5	1.1	2.1	51	12	0.0025 UJ	0.140 J	0.0025 UJ	0.0025 U	2.8	0.0034 U	0.060	7.8	53	12	15	2.3	11
Naphthalene	100	4.600	28.000	2900	510	0.0034 UJ	0.0034 UJ	0.0034 U	0.0034 U	120	1.200	6.000	92.000	4.200 J	490	710	110	690
Phenanthrene	100	3.200	58.000	620	140	0.150 J	0.053 J	0.025 J	0.050 J	58.000	0.950	1.600	150	280	490	590	100	330
Pyrene	100	3.000	42.000	440	100	0.140 J	0.700 J	0.017 J	0.031 J	34.000	0.090 J	0.720	59.000	170	220	260	43.000	150
Total PAH	N/A	29.52	269.8	6197.72	1256.9	0.5779	2.779	0.062	0.167	388	5.471	15.317	657	1579.2	2308.9	3022.1	485.3	2199.3

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21PF005 2/24/2004 21PF005-17 15-17	21PF006 2/19/2004 21PF006-11 10-11	21PF006 2/19/2004 21PF006-13 12-13	21PF006 2/19/2004 21PF006-14 13-13.5	21PF007 2/18/2004 21PF007-15 13-15	21PF008 2/18/2004 21PF008-13 11-13	21PF009 2/19/2004 21PF009-15 13-15	21PF010 2/23/2004 21PF010-15 13-15	21PF011 2/20/2004 21PF011-13 11-13	21PF012 2/19/2004 21PF012-17 15-17	21RE001 2/27/2004 21RE001-19 17-19	21RE002 3/1/2004 21RE002-11 9-11	21RE002 3/1/2004 21RE002-13 11-13	21RE003 2/26/2004 21RE003-14 12-14	21RE003 2/26/2004 21RE003-14DUP 12-14	21RE003 2/26/2004 21RE003-18 16-18	21RE004 2/26/2004 21RE004-11 9-11
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.036 U	0.360 U	15.000 U	2.400 U	0.036 UJ	0.036 UJ	0.036 U	0.035 U	0.880 U	0.048 U	0.035 U	0.770 U	2.300 U	3.600 U	3.600 U	0.710 U	3.700 U
2-Methylphenol	100	0.035 U	0.350 U	14.000 U	2.400 U	0.035 UJ	0.035 UJ	0.035 U	0.034 U	0.860 U	0.047 U	0.034 U	0.750 U	2.300 U	3.500 U	3.500 U	0.700 U	3.600 U
4-Methylphenol	100	0.039 U	0.160 J	16.000 U	2.600 U	0.039 UJ	0.039 UJ	0.039 U	0.038 U	0.940 U	0.052 U	0.038 U	0.820 U	2.500 U	3.900 U	3.900 U	0.760 U	4.000 U
bis(2-Ethylhexyl) phthalate	N/A	0.200 J	0.240 U	9.700 U	1.600 U	0.130 J	0.100 J	0.230 J	0.210 J	0.580 U	0.120 J	0.079 J	0.500 U	1.500 U	2.400 U	2.400 U	0.470 U	2.400 U
Butyl benzyl phthalate	N/A	0.016 U	0.160 U	6.500 U	1.000 U	0.016 UJ	0.016 UJ	0.016 U	0.015 U	0.380 U	0.021 U	0.015 U	0.340 U	1.000 U	1.600 U	1.600 U	0.310 U	1.600 U
Carbazole	N/A	0.130 J	0.740 J	48.000 J	8.900 J	0.0029 UJ	0.0029 UJ	0.0029 U	0.0028 U	0.070 U	0.018 J	0.097 J	1.300 J	1.300 J	2.700 J	5.000 J	0.810 J	3.200 J
Dibenzofuran	59	0.230 J	2.400 J	64.000 J	13.000 J	0.0089 J	0.020 UJ	0.020 U	0.020 U	0.490 U	0.012 J	0.079 J	6.200 J	20.000 J	11.000 J	16.000 J	2.300 J	16.000 J
Diethyl phthalate	N/A	0.010 U	0.100 U	4.300 U	0.700 U	0.010 UJ	0.010 UJ	0.010 U	0.010 U	0.260 U	0.014 U	0.010 U	0.220 U	0.680 U	1.000 U	1.000 U	0.210 U	1.100 U
N-Nitrosodiphenylamine	N/A	0.018 U	0.180 U	7.400 U	1.200 U	0.018 UJ	0.018 UJ	0.018 U	0.018 U	0.440 U	0.024 U	0.018 U	0.380 U	1.200 U	1.800 U	1.800 U	0.350 U	1.800 U
Phenol	100	0.052 U	0.520 U	21.000 U	3.500 U	0.052 UJ	0.052 UJ	0.052 U	0.051 U	1.300 U	0.070 U	0.051 U	1.100 U	3.400 U	5.200 U	5.200 U	1.000 U	5.400 U
Metals (mg/Kg)																		
Aluminum	N/A	6640 J	6650 J	11500 J	9340 J	6890	7200	6880 J	7710 J	6990 J	13700 J	5940 J	8820 J	5070 J	6150 J	6690 J	6620 J	4420 J
Antimony	N/A	0.92 U	1.3 U	2.3 U	1.8 U	1.4 UJ	1.4 UJ	1.4 U	0.89 UJ	1.3 UJ	1.8 U	1.3 UJ	1.5 UJ	1.7 UJ	1.4 U	1.3 U	1.3 U	1.4 U
Arsenic	16	1.6 J	5.9 J	11.6 J	6.6 J	1.8	0.88 J	3.4 J	1.4 J	4.3	7.8 J	0.99 J	10.1	9.7	2.0	2.2	1.4	4.0
Barium	400	41.2 J	60.6	133	103	44.4 J	47.5	35.8 J	70.5	58.4	46.3 J	61.1	54.6	45.5 J	52.3	79.8	62.3	47.1 J
Beryllium	72	0.40 J	0.43 J	1.4	0.72	0.39 J	0.34 J	0.40 J	0.30 J	0.26 J	0.72	0.33 J	0.50	0.66	0.38 J	0.50	0.41 J	0.68
Cadmium	4.3	0.094 U	0.20 J	1.4 J	1.7	0.094 U	0.094 U	0.11 J	0.091 U	0.091 U	0.16 J	0.091 U	0.29 J	0.15 J	0.094 U	0.093 U	0.093 U	0.095 U
Calcium	N/A	6210	84200 J	6800 J	7930 J	1020 J	1190 J	737 J	937 J	3000	3450 J	3590 J	4430 J	2240 J	14900	4370	3650	19000
Chromium	180	16.5	18.5 J	26.1 J	23.5 J	13.5 J	11.8 J	12.3 J	16.8 J	17.9	25.0 J	11.9	21.9	12.4	12.8	13.2	15.6	6.8
Cobalt	N/A	6.6 J	4.5 J	15.1 J	12.4 J	4.5 J	5.5 J	13.9	5.2 J	5.0 J	11.2 J	5.0 J	5.4 J	6.7 J	5.6 J	6.5 J	5.9 J	5.5 J
Copper	270	15.2	15.8 J	84.1 J	45.8 J	16.8 J	18.9 J	17.4 J	21.6	17.7	64.4 J	30.4 J	40.9	41.3	17.0	25.4	28.2	40.5
Iron	N/A	12700 J	15500	45300	27900	14800	13000	9670	13800	15200 J	29200	10800 J	15600 J	21600 J	12400	14100	13400	14300
Lead	400	23.8	35.8 J	311 J	100 J	12.9 J	19.4 J	10.6 J	7.8	9.6	26.6 J	48.5	42.4	71.8	37.0 J	47.6 J	33.8 J	191 J
Magnesium	N/A	2060	4660	3860	4040	2200	2260	2050	2870	2820	5220	2320	2440	1050 J	2520	2800	2600	1310
Manganese	2000	169	334 J	311 J	247 J	134	130	92.3 J	85.5 J	104 J	667 J	201	356	259	239 J	226 J	250 J	347 J
Mercury	0.81	0.02 J	0.13 J	2.2 J	1.0 J	0.020 UJ	0.05 J	0.017 U	0.02 J	0.05 J	0.14 J	0.08	0.21	0.18	0.07	0.30	0.12	0.13
Nickel	310	10.9	11.9	26.5	22.4	11.2 J	10.4 J	23.5	12.5	13.1	23.3	13.5	12.5	52.8	14.0	18.0	13.2	14.7
Potassium	N/A	888 J	623 J	2470 J	3430 J	1020 J	1160	918 J	2800 J	1630	2130 J	922 J	689 J	501 J	1000 J	923 J	1100 J	544 J
Selenium	180	0.92 U	0.97 U	1.6 U	1.3 U	0.99 U	0.98 U	0.99 U	0.89 U	0.96 U	1.3 U	0.95 U	1.1 U	2.4	0.98 U	0.98 U	0.98 U	1.00 U
Silver	180	0.16 U	0.32 U	0.96 J	0.55 J	0.33 U	0.33 U	0.33 U	0.16 U	0.32 U	0.44 U	0.32 U	0.35 U	0.42 U	0.33 U	0.33 U	0.33 U	0.33 U
Sodium	N/A	84.9 U	200 J	533 J	341 J	203 J	156 J	229 J	82.3 U	139 J	558 J	89.7 U	187 J	258 J	92.7 U	91.9 U	91.9 U	126 J
Thallium	N/A	1.0 U	1.1 U	1.8 U	1.5 U	1.1 U	1.1 U	1.1 U	1.0 UJ	1.1 U	1.5 U	1.1 U	1.2 U	1.4 U	1.1 U	1.1 U	1.1 U	1.1 U
Vanadium	N/A	20.8	20.5	35.5	27.3	20.1	21.3	19.2	25.9	19.6	33.6	15.1	32.9	17.2	18.3	21.1	19.9	14.3
Zinc	10000	34.8	42.3 J	511 J	514 J	31.9 J	31.2 J	40.6 J	32.8	29.9	67.7 J	41.5	66.3	114	29.3	38.6	37.9	61.4
Cyanide (mg/Kg)																		
Cyanide, Total	27	0.5 U	0.5 U	387	1.8	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
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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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RE004 2/26/2004 21RE004-21 19-21	21RE005 2/27/2004 21RE005-11 10-11	21RE006 3/2/2004 21RE006-11 9-11	21RE006 3/2/2004 21RE006-15 13-15	21RE006 3/2/2004 21RE006-15DUP 13-15	21RE007 3/3/2004 21RE007-11 9-11	21RE007 3/3/2004 21RE007-13 11-13	21RE007 3/3/2004 21RE007-15 13-15	21RE008 3/1/2004 21RE008-13 11-13	21RE008 3/1/2004 21RE008-19 17-19	21RE008 3/1/2004 21RE008-19DUP 17-19	21RE009 3/4/2004 21RE009-15 13-15	21RE010 3/1/2004 21RE010-15 13-15	21RE011 2/26/2004 21RE011-21 19-21	21RE012 2/27/2004 21RE012-21 19-21	21RS002 1/27/2004 21RS002-17 15-17	21RS002 1/27/2004 21RS002-11 9-11
BTEX (mg/Kg)																		
Benzene	4.8	1.000	2.000 J	2.400	0.022 U	0.025 U	0.0026	0.022 U	0.022 U	0.610	1.300	1.000	0.170 J	7.2	0.410	1.900	0.0061	0.00025 U
Ethylbenzene	41	9.700	120	76	0.270 J	0.470	0.0008 J	0.270 J	0.240 J	0.490	14.000	8.400	0.220 J	140	13.000	2.800	0.0049 J	0.00023 U
Toluene	100	0.520 J	2.500 J	5.200	0.018 U	0.020 U	0.0014 J	0.057 J	0.020 U	0.330 J	0.620	0.380 J	0.180 J	0.760 U	0.340 J	0.200 J	0.0038 J	0.00023 U
Xylene (Total)	100	10.000	120	90.000	0.060 J	0.100 J	0.00053 U	0.400 J	0.490 J	0.490 J	17.000	10.000	1.900	12.000 J	14.000	2.900	0.025	0.00055 U
Total BTEX	N/A	21.22	244.5	173.6	0.33	0.57	0.0048	0.727	0.73	1.92	32.92	19.78	2.47	159.2	27.75	7.8	0.0398	ND
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	1.100 R	5.100 U	0.870 R	0.210 R	0.230 R	0.0011 R	0.220 R	0.220 R	0.210 R	0.240 R	0.220 R	0.480 R	8.700 R	0.230 R	0.240 U	0.0012 U	0.0011 U
4-Methyl-2-pentanone	N/A	0.610 U	2.900 U	0.500 U	0.120 U	0.130 U	0.00081 U	0.130 U	0.130 U	0.120 U	0.140 U	0.130 U	0.270 U	5.000 U	0.130 U	0.140 U	0.00093 U	0.00084 U
Acetone	100	1.000 UJ	4.900 U	0.830 U	0.200 U	0.220 U	0.0027 U	0.210 U	0.220 U	0.200 UJ	0.230 UJ	0.220 UJ	0.450 U	8.300 UJ	0.220 UJ	0.230 U	0.020	0.012
Carbon Disulfide	N/A	0.140 UJ	0.670 U	0.110 U	0.028 U	0.030 U	0.0020 J	0.029 U	0.029 U	0.028 U	0.032 U	0.029 U	0.062 U	1.100 U	0.030 U	0.031 U	0.0092	0.0010 J
Carbon Tetrachloride	2.4	0.210 U	1.000 U	0.170 U	0.042 U	0.044 U	0.00023 U	0.042 U	0.044 U	0.042 U	0.048 U	0.044 U	0.089 U	1.700 U	0.044 U	0.046 U	0.00026 U	0.00024 U
Chloroform	49	0.091 U	0.440 U	0.074 U	0.018 U	0.020 U	0.00025 U	0.019 U	0.019 U	0.018 U	0.021 U	0.019 U	0.040 U	0.740 U	0.020 U	0.021 U	0.00029 U	0.00026 U
Methylene Chloride	100	0.068 U	0.340 U	0.055 U	0.014 UJ	0.015 UJ	0.0009 U	0.014 U	0.014 U	0.014 U	0.016 U	0.014 U	0.030 U	0.600 U	0.015 U	0.015 U	0.0074 U	0.002 U
Styrene	N/A	0.087 U	0.420 U	0.071 U	0.017 U	0.019 U	0.00013 U	0.018 U	0.018 U	0.017 U	0.020 U	0.018 U	0.039 U	0.710 U	0.019 U	0.020 U	0.0016 J	0.00014 U
Trichloroethene	21	0.130 U	0.670 U	0.110 U	0.027 U	0.030 U	0.00030 U	0.027 U	0.027 U	0.027 U	0.030 U	0.027 U	0.057 U	1.100 U	0.030 U	0.030 U	0.00032 U	0.00030 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	85.000	860.000	41.000	11.000 J	9.100 J	0.340 J	12.000	19.000	0.220 J	6.700	2.500	31.000	160.000	200.000	22.000	0.600	0.960
Acenaphthene	100	16.000	340	11.000 J	35.000	72.000 J	0.370 J	27.000	22.000	0.520	2.300	0.990	20.000	50.000	43.000	22.000	1.500	0.930
Acenaphthylene	100	12.000	42.000 J	43.000	19.000 J	37.000 J	1.200	10.000	6.400 J	0.150 J	0.310 J	0.200 J	8.200 J	7.000 J	28.000	14.000	0.160 J	0.840
Anthracene	100	14.000	110.000 J	22.000	23.000	58.000 J	0.850	27.000	14.000	0.420	1.100	0.530	20.000	16.000	33.000	27.000	0.110 J	1.300
Benzo(a)anthracene	1	11	59	17	16	30.000 J	2.7	47	19	1.000	1.8	0.420	34	7.8	24	26	0.068	2.1
Benzo(a)pyrene	1	10	47	17	13	20.000 J	3.5	45	20	1.4	2.3	0.350	34	7.3	13	24	0.050	2
Benzo(b)fluoranthene	1	4.1	18	6.4	5.3	7.300 J	2.3	28	8.9	0.600	1.000	0.140	22	2.1	5.8	13	0.019 J	1.2
Benzo(ghi)perylene	100	4.700 J	19.000 J	8.600 J	5.200 J	5.400 J	1.400	29.000	14.000	0.690	1.300	0.160 J	22.000	3.100 J	4.000 J	11.000	0.0045 U	1.600
Benzo(k)fluoranthene	3.9	6.8	34	11	8.7	20.000 J	3.200	40	14	0.990	1.900	0.260	27	4.8	8	18	0.036 J	1.700
Chrysene	3.9	11	58.000 J	19.000 J	16.000 J	32.000 J	3.400	53	21	1.200	2.400	0.630	34	8.800 J	26	25	0.071 J	2.700
Dibenz(a,h)anthracene	0.33	0.063 U	6.100 J	0.120 U	0.120 U	1.800 J	0.45	8.8	3.7	0.240	0.44	0.071	7.9	0.063 U	0.130 U	3.7	0.0028 U	0.68
Fluoranthene	100	18.000	88.000 J	29.000	28.000	62.000 J	4.700	140	53.000	0.940	1.800	0.560	80.000	15.000	32.000	55.000	0.110 J	2.800
Fluorene	100	22.000	130	41.000	47.000	90.000 J	0.210 J	37.000	28.000	0.200 J	1.100	0.450	36.000	22.000	38.000	33.000	0.300 J	0.730 J
Indeno(1,2,3-cd)pyrene	0.5	3.9	16	7.1	0.120 U	4.900 J	1.3	22	9.5	0.53	1	0.160	18	2.3	3.4	9.8	0.0027 U	1.4
Naphthalene	100	160	2600	370	34.000	40.000 J	0.920	10.000	28.000	2.000	10.000	5.700	5.100 J	140	290	82.000	1.600	4.400
Phenanthrene	100	77.000	390	140	160	250.000 J	1.900	180	140	0.960	7.800	4.200	160	69.000	130	180	0.400 J	5.900
Pyrene	100	34.000	150	44.000	46.000	100.000 J	5.800 J	140.000 J	59.000 J	1.400	2.600	1.000	67.000	24.000	58.000	71.000	0.170 J	5.400
Total PAH	N/A	489.5	4967.1	827.1	467.2	839.5	34.54	855.8	479.5	13.46	45.85	18.321	626.2	539.2	936.2	636.5	5.194	36.64

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
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mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

U = Nondetected result. The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
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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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RE004 2/26/2004 21RE004-21 19-21	21RE005 2/27/2004 21RE005-11 10-11	21RE006 3/2/2004 21RE006-11 9-11	21RE006 3/2/2004 21RE006-15 13-15	21RE006 3/2/2004 21RE006-15DUP 13-15	21RE007 3/3/2004 21RE007-11 9-11	21RE007 3/3/2004 21RE007-13 11-13	21RE007 3/3/2004 21RE007-15 13-15	21RE008 3/1/2004 21RE008-13 11-13	21RE008 3/1/2004 21RE008-19 17-19	21RE008 3/1/2004 21RE008-19DUP 17-19	21RE009 3/4/2004 21RE009-15 13-15	21RE010 3/1/2004 21RE010-15 13-15	21RE011 2/26/2004 21RE011-21 19-21	21RE012 2/27/2004 21RE012-21 19-21	21RS002 1/27/2004 21RS002-17 15-17	21RS002 1/27/2004 21RS002-11 9-11
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.890 U	10.000 U	1.800 U	1.800 U	1.800 UJ	0.034 U	0.920 U	0.900 U	0.035 U	0.078 U	0.036 U	1.800 U	0.890 U	1.800 U	0.620 J	0.039 U	0.075 U
2-Methylphenol	100	0.870 U	10.000 U	1.700 U	1.700 U	1.700 UJ	0.034 U	0.900 U	0.880 U	0.034 U	0.077 U	0.012 J	1.700 U	0.870 U	1.800 U	0.480 J	0.038 U	0.074 U
4-Methylphenol	100	0.950 U	11.000 U	1.900 U	1.900 U	1.900 UJ	0.020 J	0.980 U	0.960 U	0.038 U	0.084 U	0.039 U	1.900 U	0.950 U	2.000 U	0.860 J	0.042 U	0.040 J
bis(2-Ethylhexyl) phthalate	N/A	0.580 U	6.700 U	1.200 U	1.200 U	1.200 UJ	0.120 J	0.600 U	0.590 U	0.023 U	0.052 U	0.024 U	1.200 U	0.580 U	1.200 U	0.520 U	0.170 J	0.740 J
Butyl benzyl phthalate	N/A	0.390 U	4.500 U	0.770 U	0.770 U	0.770 UJ	0.015 U	0.400 U	0.390 U	0.015 U	0.034 U	0.016 U	0.770 U	0.390 U	0.810 U	0.350 U	0.017 U	0.033 U
Carbazole	N/A	0.071 U	5.100 J	0.430 J	0.570 J	1.200 J	0.120 J	2.600 J	3.600 J	0.120 J	0.180 J	0.045 J	3.900 J	0.460 J	0.930 J	6.600 J	0.066 J	0.200 J
Dibenzofuran	59	3.400 J	24.000 J	4.300 J	5.300 J	10.000 J	0.120 J	22.000	8.300 J	0.057 J	0.150 J	0.020 U	25.000	3.600 J	1.000 U	12.000	0.032 J	0.200 J
Diethyl phthalate	N/A	0.260 U	3.000 U	0.510 U	0.510 U	0.510 UJ	0.010 U	0.270 U	0.260 U	0.010 U	0.023 U	0.010 U	0.510 U	0.260 U	0.540 U	0.230 U	0.011 U	0.022 U
N-Nitrosodiphenylamine	N/A	0.440 U	5.100 U	0.880 U	0.880 U	0.880 UJ	0.017 U	0.460 U	0.450 U	0.018 U	0.039 U	0.018 U	0.880 U	0.440 U	0.920 U	0.400 U	0.019 U	0.037 U
Phenol	100	1.300 U	15.000 U	2.600 U	2.600 U	2.600 UJ	0.050 U	1.300 U	1.300 U	0.051 U	0.110 U	0.052 U	2.600 U	1.300 U	2.700 U	1.200 U	0.056 U	0.110 U
Metals (mg/Kg)																		
Aluminum	N/A	4780 J	8180 J	9120 J	9000 J	6530 J	6890	4480	8810	6660 J	7840 J	8560 J	3800 J	5090 J	8880 J	4210 J	8410	7470
Antimony	N/A	1.3 U	1.6 UJ	0.89 U	0.90 U	0.91 U	1.3 U	0.92 U	1.3 U	1.3 UJ	1.5 UJ	1.3 UJ	0.91 UJ	1.3 UJ	1.4 U	1.5 UJ	0.99 UJ	0.94 UJ
Arsenic	16	1.4	8.8	7.4	6.4	7.5	6.7	2.7 J	3.0	2.8	2.8	2.0	3.1 J	2.1	2.9	0.83 U	2.3 J	3.0 J
Barium	400	46.6	83.9	93.1	80.1	53.5	178	62.2	66.6	66.1	86.1	55.6	32.3 J	82.1	78.1	34.8 J	71.4	65.4
Beryllium	72	0.28 J	1.3	0.70	0.94	0.51	0.44 J	0.32 J	0.44 J	0.53	0.75	0.55	0.27 J	0.39 J	0.49	0.31 J	0.33 J	0.79
Cadmium	4.3	0.093 U	0.11 U	0.092 U	0.49 J	0.093 U	0.76 J	0.095 U	0.29 J	0.092 U	0.10 U	0.093 U	0.093 U	0.092 U	0.095 U	0.10 U	0.10 U	0.097 U
Calcium	N/A	6480	7720 J	9720	3900	2650	15900	8510	5160	43200 J	5070 J	3200 J	9160	28900 J	9510	3640 J	1500	2420
Chromium	180	11.0	13.9	15.9	14.5	13.1	18.2	18.1	20.5	12.5	17.8	18.7	10.6	11.4	17.9	10.2	19.0	27.4
Cobalt	N/A	4.5 J	16.4	3.5 J	6.9 J	4.0 J	8.2 J	4.9 J	10.7 J	5.8 J	7.5 J	6.7 J	3.6 J	5.0 J	6.3 J	4.1 J	7.3 J	7.1 J
Copper	270	110	62.9 J	52.5 J	39.9 J	36.8 J	57.4	21.1	19.9	23.5	24.5	19.1	26.5	34.2	22.0	16.3 J	11.4	43.7
Iron	N/A	9240	33100 J	12900 J	14500 J	12500 J	17500	11200	19100	12800 J	18000 J	17700 J	10600 J	11800 J	15100	12400 J	26500	22600
Lead	400	99.9 J	52.7	53.1	46.7	37.9	236	61.2	40.2	16.9	19.5	13.6	160	67.6	72.0 J	32.9	8.6	33.9
Magnesium	N/A	2550	2140	1910	2230	1660	7310	3460	5760	7080	3100	3640	2640	3510	3920	2170	3830	1900
Manganese	2000	149 J	278	75.2	97.8	150	237	239	590	1040	264	176	212	363	335 J	303	1250	207
Mercury	0.81	0.19	0.17	0.13	0.17	0.12	0.37	0.28	0.13	0.019 U	0.03 J	0.019 U	0.24	0.18	0.18	0.03 J	0.021 U	0.31
Nickel	310	10.2	57.6	17.2	27.2	12.4	19.3	14.1	19.3	10.6	16.6	15.5	9.7	10.9	16.7	10.6	15.7	17.2
Potassium	N/A	1090 J	593 J	1600	1690	1100 J	1750	1140	2930	1350	1490	1800	822 J	882 J	1760 J	669 J	3820	1020 J
Selenium	180	0.97 U	4.8	0.89 U	0.90 U	0.91 U	0.94 U	0.92 U	0.98 U	0.96 U	1.1 U	0.98 U	0.91 U	0.97 U	1.00 U	1.1 U	0.99 U	0.94 U
Silver	180	0.32 U	0.38 U	0.16 U	0.16 U	0.16 U	0.31 U	0.17 U	0.33 U	0.32 U	0.36 U	0.33 U	0.16 U	0.32 U	0.33 U	0.36 U	0.18 U	0.17 U
Sodium	N/A	122 J	296 J	82.6 U	83.0 U	84.3 U	231 J	134 J	187 J	530 J	200 J	154 J	164 J	166 J	107 J	102 U	184 J	87.4 U
Thallium	N/A	1.1 U	1.3 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.1 U	1.1 U	1.2 U	1.1 U	1.0 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U
Vanadium	N/A	14.4	24.5	12.9	20.7	16.8	24.1	16.4	29.5	23.7	23.9	24.5	19.7	20.2	27.5	14.8	27.6	43.1
Zinc	10000	45.4	115	33.6	90.9	100	252	54.6	51.2	28.1	42.0	42.2	27.6	41.3	35.8	23.2	44.4	67.3
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

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Table A-2
Concentrations of Compounds Detected in Saturated Zone (9 to 20 ft bgs) Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RS003 1/27/2004 21RS003-17 15-17	21RS003 1/27/2004 21RS003-20 19-20	21RS005 2/9/2004 21RS005-11 9-11	21RS005 2/9/2004 21RS005-15 13-15	21SC001 2/25/2004 21SC001-13 11-13	21SC001 2/25/2004 21SC001-17 15-17	21SC002 2/27/2004 21SC002-15 13-15	21SC003 2/23/2004 21SC003-11 9-11	21SC003 2/23/2004 21SC003-15 13-15	21SC004 2/25/2004 21SC004-17 15-17	21VH001 2/26/2004 21VH001-17 15-17	21VH002 2/24/2004 21VH002-13 11-13
BTEX (mg/Kg)													
Benzene	4.8	0.00025 U	0.059 J	0.012	0.390 J	0.025 U	0.750	0.320	0.0056	0.025 U	1.200	0.020	0.470
Ethylbenzene	41	0.00022 U	0.0025 J	0.0007 J	0.560 J	0.230 J	12.000	1.700	0.055	0.400 J	29.000	0.0014 J	0.880
Toluene	100	0.00023 U	0.0023 J	0.0094	0.790 J	0.021 U	1.200	0.460 J	0.0011 J	0.021 U	9.900	0.0014 J	0.150 J
Xylene (Total)	100	0.00055 U	0.0041 J	0.0030 J	1.500 J	0.260 J	12.000	1.700	0.078	0.380 J	40.000	0.0028 J	0.310 J
Total BTEX	N/A	ND	0.0679	0.0251	3.24	0.49	25.95	4.18	0.1397	0.78	80.1	0.0256	1.81
VOC (mg/Kg)													
2-Butanone (Methyl Ethyl Ke	100	0.0011 R	0.0013 R	0.0012 R	1.200 R	0.240 U	0.240 U	0.250 U	0.0012 U	0.240 U	0.480 U	0.012 J	0.230 R
4-Methyl-2-pentanone	N/A	0.00084 U	0.0010 U	0.00093 U	0.700 U	0.140 U	0.140 U	0.140 U	0.00092 U	0.140 U	0.270 U	0.00096 U	0.130 U
Acetone	100	0.013 J	0.043 J	0.048 J	1.200 U	0.230 UJ	0.230 U	0.240 U	0.0030 UJ	0.230 UJ	0.450 U	0.041 J	0.220 UJ
Carbon Disulfide	N/A	0.00034 UJ	0.011 J	0.00038 U	0.160 U	0.031 UJ	0.031 UJ	0.033 U	0.00037 U	0.031 U	0.062 UJ	0.0080	0.030 U
Carbon Tetrachloride	2.4	0.00024 U	0.00028 U	0.00026 U	0.230 U	0.046 U	0.046 U	0.050 U	0.00026 U	0.046 U	0.095 U	0.00027 U	0.044 U
Chloroform	49	0.00026 U	0.00031 U	0.00029 U	0.100 U	0.020 U	0.020 U	0.022 U	0.00028 U	0.020 U	0.040 U	0.00030 U	0.020 U
Methylene Chloride	100	0.0021 U	0.026 B	0.0015 U	0.081 U	0.015 U	0.015 U	0.016 U	0.00028 U	0.015 U	0.032 U	0.0012 U	0.015 U
Styrene	N/A	0.00014 U	0.00016 UJ	0.00015 U	0.010 U	0.019 U	0.019 U	0.170 J	0.00015 U	0.019 U	0.039 U	0.00016 U	0.019 U
Trichloroethene	21	0.00030 U	0.00038 U	0.00032 U	0.150 U	0.030 U	0.030 U	0.032 U	0.00032 U	0.030 U	0.062 U	0.00035 U	0.030 U
PAH (mg/Kg)													
2-Methylnaphthalene	N/A	0.018 U	0.021 J	0.400 J	2000.000	2.600	9.700	5.100	9.700	18.000	29.000	0.210 J	0.720 J
Acenaphthene	100	0.026 J	0.029 J	1.100	1200	1.200	1.800 J	2.800	4.100	3.700 J	4.600	0.660	4.400
Acenaphthylene	100	0.0032 U	0.0038 U	1.200	620	0.220 J	2.400	1.700 J	4.900	3.300 J	8.300	0.920	3.600
Anthracene	100	0.0029 U	0.0035 U	4.700	730	0.680	1.100 J	1.800 J	2.600	2.700 J	3.600 J	2.100	4.800
Benzo(a)anthracene	1	0.010 U	0.012 U	13	790	0.480	0.520	1.3	4.1	1.7	2	6.1	5.1
Benzo(a)pyrene	1	0.0028 U	0.0033 U	8.8	540	0.430	0.400	1.4	5.9	1.3	1.5	4.1	5.2
Benzo(b)fluoranthene	1	0.0029 U	0.0035 U	8.4	260	0.220	0.140 J	0.620	3	0.510	0.570	1.8	3
Benzo(ghi)perylene	100	0.0041 U	0.0048 U	5.000	240.000 J	0.260 J	0.140 J	0.840 J	4.300	0.610 J	0.680 J	1.300	3.000
Benzo(k)fluoranthene	3.9	0.0040 U	0.0047 U	6	450	0.370	0.300	1.100	4.2	0.840	1.200	2.800	3.300
Chrysene	3.9	0.0047 U	0.0056 U	12	660	0.510	0.520 J	1.400 J	4.7	1.700 J	2.200 J	6	5
Dibenz(a,h)anthracene	0.33	0.0025 U	0.0030 U	1.8	28.000 J	0.078	0.013 U	0.240	1.2	0.027 U	0.230 J	0.53	0.87
Fluoranthene	100	0.0012 U	0.0014 U	17.000	1200	0.950	0.870 J	2.100 J	3.900	2.800 J	3.500 J	5.400	8.700
Fluorene	100	0.0026 U	0.0031 U	1.300	1300	0.610	1.400 J	1.200 J	2.100	3.100 J	4.400	0.490	5.300
Indeno(1,2,3-cd)pyrene	0.5	0.0025 U	0.0029 U	5	190	0.220	0.120 J	0.69	3	0.430	0.54	1.4	2.4
Naphthalene	100	0.0034 U	0.130 J	0.810 J	7200	8.000	24.000	28.000	30.000	50.000	68.000	0.420 J	2.800
Phenanthrene	100	0.0035 U	0.010 J	18.000	3800	2.200	4.000	7.900	7.000	9.600	13.000	3.600	18.000
Pyrene	100	0.0027 U	0.0032 U	18.000	1600	1.200	1.200 J	4.100	7.100	4.800	5.100	9.100	12.000
Total PAH	N/A	0.026	0.19	122.51	22808	20.228	48.61	62.29	101.8	105.09	148.42	46.93	88.19

Notes:

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Table A-2
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Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RS003 1/27/2004 21RS003-17 15-17	21RS003 1/27/2004 21RS003-20 19-20	21RS005 2/9/2004 21RS005-11 9-11	21RS005 2/9/2004 21RS005-15 13-15	21SC001 2/25/2004 21SC001-13 11-13	21SC001 2/25/2004 21SC001-17 15-17	21SC002 2/27/2004 21SC002-15 13-15	21SC003 2/23/2004 21SC003-11 9-11	21SC003 2/23/2004 21SC003-15 13-15	21SC004 2/25/2004 21SC004-17 15-17	21VH001 2/26/2004 21VH001-17 15-17	21VH002 2/24/2004 21VH002-13 11-13
SVOC (mg/Kg)													
2,4-Dimethylphenol	N/A	0.035 U	0.042 U	0.058 J	42.000 J	0.037 U	0.060 J	0.200 U	0.180 U	0.380 U	0.410 U	0.042 U	0.180 U
2-Methylphenol	100	0.034 U	0.041 U	0.034 J	38.000 U	0.036 U	0.048 J	0.200 U	0.170 U	0.370 U	0.400 U	0.041 U	0.180 U
4-Methylphenol	100	0.038 U	0.044 U	0.150 J	20.000 J	0.040 U	0.062 J	0.220 U	0.190 U	0.410 U	0.440 U	0.012 J	0.048 J
bis(2-Ethylhexyl) phthalate	N/A	0.023 U	0.110 J	0.052 U	25.000 U	0.130 J	0.120 U	0.130 U	0.500 J	0.250 U	0.270 U	0.260 J	0.120 U
Butyl benzyl phthalate	N/A	0.015 U	0.018 U	0.034 U	17.000 U	0.016 U	0.081 U	0.089 U	0.077 U	0.170 U	0.180 U	0.018 U	0.081 U
Carbazole	N/A	0.095 J	0.0033 U	1.900	250.000 J	0.049 J	0.015 U	0.058 J	0.140 J	0.030 U	0.100 J	0.040 J	0.460 J
Dibenzofuran	59	0.020 U	0.011 J	1.000	520	0.072 J	0.290 J	0.230 J	0.240 J	0.300 J	0.880 J	0.060 J	0.990 J
Diethyl phthalate	N/A	0.010 U	0.012 U	0.023 U	11.000 U	0.370 J	0.054 U	0.059 U	0.051 U	0.110 U	0.120 U	0.012 U	0.054 U
N-Nitrosodiphenylamine	N/A	0.018 U	0.021 U	0.039 U	19.000 U	0.018 U	0.092 U	0.100 U	0.088 U	0.190 U	0.200 U	0.021 U	0.092 U
Phenol	100	0.051 U	0.060 U	0.110 U	56.000 U	0.054 U	0.270 U	0.300 U	0.260 U	0.550 U	0.590 U	0.060 U	0.270 U
Metals (mg/Kg)													
Aluminum	N/A	8000	11800	10400 J	1760 J	7370	4900	7140 J	9180 J	5940 J	5800	NS	NS
Antimony	N/A	0.88 UJ	1.1 UJ	1.5 U	1.5 U	1.4 UJ	1.4 UJ	1.5 UJ	0.82 UJ	0.96 UJ	1.5 UJ	NS	NS
Arsenic	16	0.77 U	2.2 J	4.3	1.0 J	1.2 J	1.2 J	3.5	2.7 J	1.1 J	1.0 J	NS	NS
Barium	400	55.7	52.4 J	178	205	56.9	18.8 J	54.2	67.7	41.7 J	30.1 J	NS	NS
Beryllium	72	0.41 J	0.88	0.83	0.25 J	0.53	0.24 J	0.40 J	0.68	0.33 J	0.31 J	NS	NS
Cadmium	4.3	0.091 U	0.11 U	0.42 J	0.10 U	0.097 U	0.096 U	0.10 U	0.084 U	0.099 U	0.10 U	NS	NS
Calcium	N/A	1040 J	3120	49400	8730	3250 J	1020 J	45500 J	4600	53300	1560 J	NS	NS
Chromium	180	13.9	21.2	17.0	4.0	14.4	9.7	15.5	24.6 J	13.3 J	12.5	NS	NS
Cobalt	N/A	5.6 J	8.3 J	6.4 J	2.9 J	3.5 J	4.4 J	6.6 J	6.8 J	5.4 J	11.9 J	NS	NS
Copper	270	16.0	15.9	16.9	19.4	14.9	11.9	23.4 J	21.0	16.4	16.9	NS	NS
Iron	N/A	12800	21900	17400 J	7460 J	9230	10800	15400 J	20800	12700	10200	NS	NS
Lead	400	8.4	5.2	112	68.1	7.4	9.6	47.0	9.5	9.2	44.4	NS	NS
Magnesium	N/A	2040	3440	17800	732 J	2970	2120	4200	3310	2290	2400	NS	NS
Manganese	2000	384	267	936	98.6	85.4	150	195	215 J	219 J	109	NS	NS
Mercury	0.81	0.019 U	0.023 U	0.24	0.021 U	0.020 U	0.02 J	0.09	0.09	0.021 U	0.12	NS	NS
Nickel	310	11.0	17.4	17.3	7.6 J	9.5	9.0 J	15.7	18.1	10.7	17.3	NS	NS
Potassium	N/A	961 J	2360	1900	203 J	803 J	834 J	759 J	2250 J	1130 J	1200 J	NS	NS
Selenium	180	0.88 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U	1.1 U	0.82 U	0.96 U	1.1 U	NS	NS
Silver	180	0.16 U	0.19 U	0.36 U	0.35 U	0.34 U	0.34 U	0.36 U	0.15 U	0.17 U	0.37 U	NS	NS
Sodium	N/A	102 J	258 J	484 J	161 J	98.6 J	122 J	107 J	113 J	88.9 U	141 J	NS	NS
Thallium	N/A	1.00 U	1.2 U	1.2 U	1.2 U	1.1 U	1.1 U	1.2 U	0.92 UJ	1.1 UJ	1.2 U	NS	NS
Vanadium	N/A	19.4	31.8	20.4	6.9 J	22.1	13.4	19.9	32.4	20.2	15.9	NS	NS
Zinc	10000	26.5	46.1	99.5	10.2	28.3	23.5	43.7	39.0	30.3	31.8	NS	NS
Cyanide (mg/Kg)													
Cyanide, Total	27	NS	NS	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21AB001 3/25/2004 21AB001-23 21-23	21AB001 3/25/2004 21AB001-29 27-29	21AB001 3/25/2004 21AB001-51 49-51	21AB002 3/29/2004 21AB002-35 33-35	21AB002 3/29/2004 21AB002-51 49-51	21AB003 3/30/2004 21AB003-23 21-23	21AB003 3/30/2004 21AB003-39 37-39	21AB003 3/30/2004 21AB003-51 49-51	21AB004 3/26/2004 21AB004-23 21-23	21AB004 3/26/2004 21AB004-27 25-27	21AB004 3/29/2004 21AB004-41 39-41	21AB004 3/29/2004 21AB004-51 49-51	21BR001 3/30/2004 21BR001-129 127-129	21CH001 3/4/2004 21CH001-27 25-27	21CH001 3/4/2004 21CH001-27DUP 25-27	21CH001 3/4/2004 21CH001-51 49-51	21CH002 3/8/2004 21CH002-27 25-27	21CH002 3/8/2004 21CH002-29 27-29
BTEX (mg/Kg)																			
Benzene	4.8	2.100	0.082	0.0032	220	0.012	16	0.032	0.088	61	130	0.400	0.0033	0.00023 U	NS	NS	NS	NS	NS
Ethylbenzene	41	0.026 U	0.052	0.00024 U	220	0.0018 J	20.000	0.039	0.190	140	62	0.620	0.0019 J	0.00021 U	NS	NS	NS	NS	NS
Toluene	100	0.026 U	0.0013 J	0.00024 U	260	0.0028 J	5.400	0.028	0.120	160	250	0.760	0.0032 J	0.00021 U	NS	NS	NS	NS	NS
Xylene (Total)	100	0.034 U	0.0054 J	0.00058 U	250	0.00061 U	26.000	0.086	0.370	270	370	1.400	0.0027 J	0.00050 U	NS	NS	NS	NS	NS
Total BTEX	N/A	2.1	0.1407	0.0032	950	0.0166	67.4	0.185	0.768	631	812	3.18	0.0111	ND	NS	NS	NS	NS	NS
VOC (mg/Kg)																			
2-Butanone (Methyl Ethyl Ke	100	0.300 R	0.0012 R	0.0012 R	9.900 R	0.0013 R	0.270 R	0.0012 R	0.0012 R	5.500 R	5.900 R	0.220 R	0.0012 R	0.0010 R	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	N/A	0.170 U	0.00092 U	0.00089 U	5.600 U	0.00095 U	0.160 U	0.00090 U	0.00092 U	3.200 U	3.400 U	0.130 U	0.00089 U	0.00077 U	NS	NS	NS	NS	NS
Acetone	100	0.280 UJ	0.035 J	0.028 J	9.400 U	0.011 J	0.260 U	0.0030 UJ	0.0030 UJ	5.300 U	5.700 U	0.220 U	0.020 J	0.014 J	NS	NS	NS	NS	NS
Carbon Disulfide	N/A	0.038 U	0.014	0.00036 U	1.300 U	0.00038 U	0.210 J	0.00036 U	0.00037 U	0.720 U	0.770 U	0.029 U	0.00036 U	0.00031 U	NS	NS	NS	NS	NS
Carbon Tetrachloride	2.4	0.058 U	0.00026 U	0.00025 U	1.900 U	0.00027 U	0.052 U	0.00025 U	0.00026 U	1.100 U	1.100 U	0.044 U	0.00025 U	0.00022 U	NS	NS	NS	NS	NS
Chloroform	49	0.025 U	0.00028 U	0.00028 U	0.840 U	0.00029 U	0.023 U	0.00028 U	0.00028 U	0.470 U	0.510 U	0.019 U	0.00028 U	0.00024 U	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	100	0.033 U	0.00037 U	0.00036 U	1.100 U	0.00038 U	0.030 U	0.0016 J	0.00037 U	0.620 U	0.660 U	0.025 U	0.00036 U	0.00031 U	NS	NS	NS	NS	NS
Methylene Chloride	100	0.019 U	0.012 U	0.011 U	0.640 U	0.027 U	0.017 U	0.0014 U	0.001 U	0.360 U	0.380 U	0.014 U	0.028 U	0.0006 U	NS	NS	NS	NS	NS
Styrene	N/A	0.024 U	0.00015 U	0.00014 U	40.000	0.00015 U	0.022 U	0.0027 J	0.0072	8.000 J	71.000	0.018 U	0.00014 U	0.00012 U	NS	NS	NS	NS	NS
Tetrachloroethene	19	0.051 U	0.00020 U	0.00020 U	1.700 U	0.00022 U	0.047 U	0.00020 U	0.00020 U	0.950 U	0.980 U	0.037 U	0.00020 U	0.00017 U	NS	NS	NS	NS	NS
Trichloroethene	21	0.037 U	0.00032 U	0.00032 U	1.200 U	0.00035 U	0.035 U	0.00032 U	0.00032 U	0.690 U	0.720 U	0.027 U	0.00032 U	0.00027 U	NS	NS	NS	NS	NS
PAH (mg/Kg)																			
2-Methylnaphthalene	N/A	0.024 U	0.062 J	0.019 U	190.000	0.0090 J	1600.000	1.200	2.800	1500.000	430.000	4.100	0.240 J	0.017 U	390.000	140.000	0.019 U	0.022 U	370.000
Acenaphthene	100	0.0043 U	0.025 J	0.0035 U	29.000 J	0.0038 U	500	0.810	1.300	220.000 J	39.000 J	0.760	0.059 J	0.0031 U	34.000 J	11.000 J	0.0035 U	0.0098 J	33.000 J
Acenaphthylene	100	0.0043 U	0.0036 U	0.0035 U	70.000 J	0.022 J	140.000 J	0.310 J	0.440	440	170	1.900	0.100 J	0.0031 U	120	40.000	0.0035 U	0.0039 U	140
Anthracene	100	0.0039 U	0.0032 U	0.0032 U	27.000 J	0.015 J	360	0.730	1.100	460	140	2.200	0.160 J	0.0028 U	120	40.000	0.012 J	0.014 J	160
Benzo(a)anthracene	1	0.014 U	0.011 U	0.011 U	36	0.023 J	290	0.520	0.860	310	110	1.5	0.130	0.010 U	82	25	0.011 J	0.024 J	94
Benzo(a)pyrene	1	0.0038 U	0.0031 U	0.0030 U	39	0.056	230	0.320	0.680	250	84	1.2	0.130	0.0027 U	70	20	0.0030 U	0.035 J	64
Benzo(b)fluoranthene	1	0.0039 U	0.0032 U	0.0032 U	16	0.040 J	110	0.220	0.420	150	48	0.710	0.076	0.0028 U	39	9.4	0.0032 U	0.016 J	26
Benzo(ghi)perylene	100	0.0054 U	0.0045 U	0.0044 U	28.000 J	0.150 J	100.000 J	0.130 J	0.300 J	120.000 J	37.000 J	0.540	0.130 J	0.0040 U	28.000 J	7.300 J	0.0044 U	0.0049 U	26.000 J
Benzo(k)fluoranthene	3.9	0.0053 U	0.0044 U	0.0043 U	27	0.051	200	0.290	0.560	210	72	1.000	0.120	0.0038 U	62	18	0.0043 U	0.028 J	69
Chrysene	3.9	0.0063 U	0.0052 U	0.0051 U	31.000 J	0.020 J	270	0.460	0.800	290	100.000 J	1.300	0.130 J	0.0046 U	74	22.000 J	0.0099 J	0.030 J	100
Dibenz(a,h)anthracene	0.33	0.0034 U	0.0028 U	0.0027 U	3.800 J	0.110	28	0.057	0.110	49	16	0.230	0.078	0.0024 U	11	2.8	0.0027 U	0.0030 U	0.360 U
Fluoranthene	100	0.0016 U	0.0014 U	0.0013 U	86.000	0.036 J	590	1.500	2.000	620	210	3.200	0.240 J	0.0012 UJ	150	51.000	0.025 J	0.038 J	200
Fluorene	100	0.0035 U	0.0029 U	0.0028 U	72.000 J	0.014 J	500	1.100	1.500	570	210	2.200	0.190 J	0.0025 U	160	54.000	0.0090 J	0.0032 U	160
Indeno(1,2,3-cd)pyrene	0.5	0.0033 U	0.0027 U	0.0027 U	17	0.120	89	0.100	0.280	110	34	0.490	0.110	0.0024 U	24	6.5	0.0027 U	0.0030 U	21
Naphthalene	100	0.0045 U	0.220 J	0.0036 U	1300	0.026 J	4100	1.700	4.400	4500	1300	7.600	0.450	0.0033 U	1000	350	0.0084 J	0.040 J	1000
Phenanthrene	100	0.0047 U	0.052 J	0.0038 U	230	0.054 J	1400	3.800	4.600	1500	550	7.200	0.560	0.0082 J	400	130	0.045 J	0.055 J	610
Pyrene	100	0.0036 U	0.0030 U	0.0029 U	110	0.046 J	640	1.500	2.200	590	190	3.000	0.250 J	0.0026 U	180	54.000	0.026 J	0.048 J	210
Total PAH	N/A	ND	0.359	ND	2311.8	0.792	11147	14.747	24.35	11889	3740	39.13	3.153	0.0082	2944	981	0.1463	0.3378	3283

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons

SVOCs - Semivolatile Organic Compounds

VOCs - Volatile Organic Compounds

mg/kg - milligrams per kilogram

DL - Detection Limit

ND = calculated totals are not detected

NA = Not Available

N/A = Not Applicable

mg/Kg = milligram per kilogram

NS = Not Sampled

Bold = compound was detected

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 or absence of the analyte cannot be verified.

Bold Italics = ND value exceeds soil cleanup objective for that compound.

Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21AB001 3/25/2004 21AB001-23 21-23	21AB001 3/25/2004 21AB001-29 27-29	21AB001 3/25/2004 21AB001-51 49-51	21AB002 3/29/2004 21AB002-35 33-35	21AB002 3/29/2004 21AB002-51 49-51	21AB003 3/30/2004 21AB003-23 21-23	21AB003 3/30/2004 21AB003-39 37-39	21AB003 3/30/2004 21AB003-51 49-51	21AB004 3/26/2004 21AB004-23 21-23	21AB004 3/26/2004 21AB004-27 25-27	21AB004 3/29/2004 21AB004-41 39-41	21AB004 3/29/2004 21AB004-51 49-51	21BR001 3/30/2004 21BR001-129 127-129	21CH001 3/4/2004 21CH001-27 25-27	21CH001 3/4/2004 21CH001-27DUP 25-27	21CH001 3/4/2004 21CH001-51 49-51	21CH002 3/8/2004 21CH002-27 25-27	21CH002 3/8/2004 21CH002-29 27-29
SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	0.047 U	0.039 U	0.038 U	7.700 U	0.042 U	21.000 U	0.030 J	0.030 J	45.000 J	46.000 J	0.340 J	0.0086 J	0.034 U	7.800 J	3.400 J	0.038 U	0.042 U	1.100 J
2-Chloronaphthalene	N/A	0.032 U	0.027 U	0.026 U	5.200 U	0.028 U	14.000 U	0.027 U	0.026 U	16.000 U	6.300 U	0.025 U	0.026 U	0.023 U	3.500 U	1.800 U	0.026 U	0.029 U	3.400 U
2-Methylphenol	100	0.046 U	0.038 U	0.037 U	7.500 U	0.041 U	21.000 U	0.039 U	0.037 U	23.000 U	6.000 J	0.071 J	0.037 U	0.034 U	5.100 U	2.500 U	0.037 U	0.042 U	4.900 U
4-Methylphenol	100	0.050 U	0.042 U	0.041 U	8.200 U	0.044 U	23.000 U	0.018 J	0.014 J	37.000 J	67.000 J	0.350 J	0.041 U	0.037 U	2.900 J	1.400 J	0.041 U	0.330 J	1.200 J
4-Nitrophenol	N/A	0.015 U	0.013 U	0.012 U	2.500 U	0.014 U	7.000 U	0.013 U	0.012 U	7.500 U	3.000 U	0.012 U	0.012 U	0.011 U	8.300 J	0.840 U	0.012 U	0.014 U	1.700 U
bis(2-Ethylhexyl) phthalate	N/A	0.110 U	0.025 U	0.025 U	5.000 U	0.095 J	14.000 U	0.026 U	0.120 J	15.000 U	6.100 U	0.091 J	0.025 U	0.110 J	3.400 UJ	1.700 UJ	0.025 U	0.140 J	3.300 U
Butyl benzyl phthalate	N/A	0.021 U	0.017 U	0.017 U	3.400 U	0.018 U	9.300 U	0.017 U	0.017 U	10.000 U	4.100 U	0.016 U	0.017 U	0.015 U	2.300 U	1.100 U	0.017 U	0.019 U	2.200 U
Carbazole	N/A	0.0038 U	0.0031 U	0.0030 U	6.300 J	0.0033 U	120.000 J	0.250 J	0.340 J	170.000 J	58.000 J	0.840	0.057 J	0.0027 U	41.000 J	19.000 J	0.0030 U	0.0034 U	69.000
Dibenzofuran	59	0.026 U	0.012 J	0.021 U	14.000 J	0.023 U	280	0.580	0.870	320	120	1.400	0.089 J	0.019 U	92	31.000	0.021 U	0.024 U	100
Diethyl phthalate	N/A	0.014 U	0.011 U	0.011 U	2.200 U	0.012 U	6.200 U	0.012 U	0.011 U	6.800 U	2.700 U	0.011 U	0.011 U	0.010 U	1.500 U	0.760 U	0.011 U	0.012 U	1.400 U
Phenol	100	0.068 U	0.056 U	0.055 U	11.000 U	0.060 U	31.000 U	0.058 U	0.055 U	34.000 U	13.000 U	0.054 U	0.055 U	0.050 U	7.500 U	3.800 U	0.055 U	0.062 U	7.200 U
Metals (mg/Kg)																			
Aluminum	N/A	13100 J	8580 J	3980 J	5350 J	4400 J	4410	3450	5190	6150	13400	2200 J	5620 J	3520	15300 J	13800 J	3350 J	5240 J	15100 J
Antimony	N/A	1.2 UJ	0.98 UJ	0.97 UJ	1.4 U	1.6 U	1.1 U	1.0 U	0.97 U	1.7 UJ	1.8 UJ	1.4 U	1.4 U	1.3 U	1.3 UJ	1.3 UJ	0.96 UJ	1.6 UJ	1.9 UJ
Arsenic	16	9.7 J	0.83 J	0.84 UJ	1.4	0.86 U	8.1	0.86 J	1.4 J	12.9	10.6	0.76 U	0.92 J	0.71 U	11.9	11.2	0.84 U	15.6 J	10.7 J
Barium	400	25.8 J	29.4 J	49.1	41.3 J	40.5 J	97.2	18.5 J	56.6	292 J	72.1 J	12.2 J	37.6 J	43.1 J	68.8	69.2	69.6	331	59.3 J
Beryllium	72	0.77 J	0.48 J	0.29 J	0.34 J	0.31 J	0.37 J	0.22 J	0.36 J	0.67 J	0.80 J	0.17 J	0.40 J	0.30 J	0.85	0.87	0.46 J	0.65	0.90
Cadmium	4.3	0.12 U	0.10 U	0.099 U	0.100 U	0.11 U	0.11 U	0.10 U	0.099 U	0.12 U	0.12 U	0.095 U	0.099 U	0.088 U	0.14 U	0.13 U	0.099 U	0.11 U	0.13 U
Calcium	N/A	2180	468 J	11000	885 J	10800 J	15700	4040	12100	13200 J	7250 J	621 J	13000 J	10900	5020	8250	1080 J	12300	4350
Chromium	180	27.9	12.4	9.6	10.8	11.3	8.7	9.9	12.4	9.5	25.3	6.3	12.5	8.4	28.8	26.5	10.1	11.5	28.5
Cobalt	N/A	9.7 J	6.4 J	4.7 J	5.2 J	5.3 J	5.2 J	4.3 J	5.8 J	4.4 J	10.5 J	2.4 J	7.1 J	4.4 J	11.9 J	10.5 J	4.1 J	5.1 J	11.2 J
Copper	270	14.7	16.4	9.6	11.3	11.2	105	8.8	11.6	32.8	44.0	5.8	12.7	20.9	43.7	35.0	9.4	41.7	38.4
Iron	N/A	32600 J	17200 J	9160 J	13200 J	9720 J	19500	9470	12800	12900 J	27600 J	5980 J	13300 J	9120	30700 J	35700 J	8890 J	12500 J	30600 J
Lead	400	12.5 J	8.1 J	3.4 J	4.7	3.7	174	3.0	5.5	352 J	174 J	2.1	5.5	4.6	184	151	3.1	671	130
Magnesium	N/A	6370	3500	5250	2540	5470	1570	4030	6200	1580	5930	1310	6460	5810	6520	5920	2180	1250 J	6970
Manganese	2000	441	133	290	101 J	351 J	203	237	390	192 J	925 J	47.6 J	404 J	283	767	1680	59.7	198	916
Mercury	0.81	0.03 J	0.021 UJ	0.021 UJ	0.021 U	0.022 U	1.2	0.022 U	0.021 U	0.36	0.64	0.020 U	0.02 U	0.02 U	0.86	0.78	0.021 U	0.89 J	0.65 J
Nickel	310	24.5 J	17.8 J	16.6 J	13.6	18.0	11.5	17.2	21.2	11.2 J	24.7	8.5 J	21.5	9.1	28.1	25.7	20.4	11.0	26.2
Potassium	N/A	2580 J	803 J	1200 J	599 J	1190 J	790 J	959 J	1470	928 J	2400 J	367 J	1290 J	1150	3000	2530	1000 J	767 J	2590 J
Selenium	180	1.2 U	0.98 U	0.97 U	1.0 U	1.1 U	1.1 J	1.0 U	0.97 U	1.2 U	1.3 U	1.0 U	1.0 U	0.93 U	1.7	1.7	0.96 U	1.2 U	1.4 U
Silver	180	0.22 U	0.18 U	0.17 U	0.35 U	0.38 U	0.37 J	0.18 U	0.17 U	0.41 U	0.42 U	0.33 U	0.35 U	0.31 U	0.29 J	0.23 U	0.17 U	0.39 U	0.46 U
Sodium	N/A	1390 J	152 J	152 J	200 J	295 J	732 J	133 J	142 J	1670 J	2030 J	184 J	241 J	269 J	1070 J	986 J	99.1 J	755 J	944 J
Vanadium	N/A	33.2	15.3	12.4	11.2 J	12.8 J	15.5	12.2 J	15.4	21.9	32.3	6.3 J	14.8	18.6	38.3	37.2	12.7	26.1	37.3
Zinc	10000	69.1	51.4	21.6	33.7	24.7	122	21.8	27.6	134	100	12.6	30.6	33.8	92.2	88.3	24.2	132 J	97.2 J
Cyanide (mg/Kg)																			
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.95	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.86	0.5 U

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21CH002 3/8/2004 21CH002-51 49-51	21CH002 3/8/2004 21CH002-51DUP 49-51	21CH003 3/9/2004 21CH003-23 21-23	21CH003 3/9/2004 21CH003-29 27-29	21CH003 3/9/2004 21CH003-51 49-51	21CH004 3/5/2004 21CH004-23 21-23	21CH004 3/8/2004 21CH004-51 49-51	21CH005 3/9/2004 21CH005-27 25-27	21CH005 3/9/2004 21CH005-51 49-51	21CH006 3/5/2004 21CH006-27 25-27	21CH006 3/5/2004 21CH006-51 49-51	21CH007 3/18/2004 21CH007-23 21-23	21CH007 3/18/2004 21CH007-51 49-51	21CH008 3/3/2004 21CH008-29 27-29	21CH008 3/3/2004 21CH008-45 43-45	21CH008 3/3/2004 21CH008-51 49-51	21CH009 3/2/2004 21CH009-23 21-23
BTEX (mg/Kg)																		
Benzene	4.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Ethylbenzene	41	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Toluene	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Xylene (Total)	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Total BTEX	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4-Methyl-2-pentanone	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Acetone	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbon Disulfide	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Carbon Tetrachloride	2.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chloroform	49	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
cis-1,2-Dichloroethene	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Methylene Chloride	100	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	19	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Trichloroethene	21	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.019 U	0.021 U	0.150 J	1000.000	0.130 J	120.000	0.021 U	420.000	0.019 U	170.000	0.019 U	1.700	0.019 U	410.000	6.100 J	0.076 J	250.000
Acenaphthene	100	0.023 J	0.018 J	0.350 J	180	0.140 J	15.000	0.0038 U	41.000 J	0.0034 U	18.000 J	0.0034 U	2.800	0.0034 U	36.000 J	160	2.000	170
Acenaphthylene	100	0.019 J	0.016 J	0.088 J	390	0.190 J	46.000	0.0038 U	150	0.0034 U	77.000	0.0034 U	0.670 J	0.0034 U	130	47.000	0.440	15.000 J
Anthracene	100	0.032 J	0.024 J	0.280 J	430	0.290 J	56.000	0.0035 U	160	0.0031 U	66.000	0.0031 U	1.700	0.0031 U	120	35.000 J	0.310 J	60.000
Benzo(a)anthracene	1	0.026 J	0.021 J	0.300	290	0.200	42	0.0091 J	110	0.011 U	47	0.011 U	1.7	0.011 U	89	38	0.290	36
Benzo(a)pyrene	1	0.0030 U	0.0033 U	0.350	210	0.140	31	0.0033 U	83	0.0030 U	33	0.0030 U	1.4	0.0030 U	78	51	0.400	35
Benzo(b)fluoranthene	1	0.0031 U	0.0034 U	0.240	120	0.064	18	0.0035 U	58	0.0031 U	18	0.0031 U	0.910	0.0031 U	37	17	0.130	14
Benzo(ghi)perylene	100	0.0043 U	0.0047 U	0.240 J	83.000 J	0.050 J	11.000 J	0.0048 U	32.000 J	0.0043 U	12.000 J	0.0043 U	0.560 J	0.0043 U	34.000 J	36.000 J	0.260 J	18.000 J
Benzo(k)fluoranthene	3.9	0.0042 U	0.0046 U	0.270	200	0.130	26	0.0047 U	83	0.0042 U	30	0.0042 U	1.400	0.0042 U	67	31	0.250	22
Chrysene	3.9	0.031 J	0.020 J	0.310 J	300	0.180 J	38	0.010 J	110	0.0050 U	43	0.0050 U	1.600	0.0050 U	86.000 J	36.000 J	0.300 J	37.000 J
Dibenz(a,h)anthracene	0.33	0.0026 U	0.0029 U	0.100	42	0.020 J	4.4	0.0030 U	14	0.0026 U	3.9	0.0026 U	0.280	0.0026 U	0.790 U	0.280 U	0.0028 U	6.1
Fluoranthene	100	0.070 J	0.050 J	0.490	600	0.430	78.000	0.025 J	250	0.0013 U	95.000	0.0013 U	2.600	0.0013 U	180	110	0.790	64.000
Fluorene	100	0.021 J	0.018 J	0.140 J	570	0.260 J	69.000	0.0031 U	240	0.0028 U	89.000	0.0028 U	3.000	0.0028 U	180	70.000	0.510	70.000
Indeno(1,2,3-cd)pyrene	0.5	0.0026 U	0.0029 U	0.210	80	0.048	11	0.0029 U	28	0.0026 U	12	0.0026 U	0.58	0.0026 U	32	21	0.170	14
Naphthalene	100	0.0035 U	0.0039 U	0.740	2100	0.370 J	210	0.0040 U	1100	0.0035 U	320	0.0035 U	6.400	0.0035 U	1200	0.370 U	0.200 J	440
Phenanthrene	100	0.140 J	0.100 J	0.540	1300	0.950	160	0.025 J	500	0.0037 U	210	0.0037 U	7.400	0.0037 U	450	300	2.300	250
Pyrene	100	0.100 J	0.072 J	0.640	580	0.430	74.000	0.026 J	240	0.025 J	84.000	0.0028 U	2.500	0.0028 U	170.000 J	170.000 J	1.200 J	98.000
Total PAH	N/A	0.462	0.339	5.438	8475	4.022	1009.4	0.0951	3619	0.025	1327.9	ND	37.2	ND	3299	1128.1	9.626	1599.1

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Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21CH002 3/8/2004 21CH002-51 49-51	21CH002 3/8/2004 21CH002-51DUP 49-51	21CH003 3/9/2004 21CH003-23 21-23	21CH003 3/9/2004 21CH003-29 27-29	21CH003 3/9/2004 21CH003-51 49-51	21CH004 3/5/2004 21CH004-23 21-23	21CH004 3/8/2004 21CH004-51 49-51	21CH005 3/9/2004 21CH005-27 25-27	21CH005 3/9/2004 21CH005-51 49-51	21CH006 3/5/2004 21CH006-27 25-27	21CH006 3/5/2004 21CH006-51 49-51	21CH007 3/18/2004 21CH007-23 21-23	21CH007 3/18/2004 21CH007-51 49-51	21CH008 3/3/2004 21CH008-29 27-29	21CH008 3/3/2004 21CH008-45 43-45	21CH008 3/3/2004 21CH008-51 49-51	21CH009 3/2/2004 21CH009-23 21-23
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.037 U	0.041 U	0.041 U	7.000 J	0.040 U	1.600 J	0.042 U	1.200 J	0.037 U	1.200 J	0.037 U	0.080 U	0.037 U	9.900 J	3.900 U	0.039 U	3.800 U
2-Chloronaphthalene	N/A	0.025 U	0.028 U	0.028 U	7.000 U	0.027 U	0.820 U	0.028 U	3.300 U	0.025 U	1.400 U	0.025 U	0.055 U	0.025 U	7.600 U	2.700 U	0.027 U	2.600 U
2-Methylphenol	100	0.036 U	0.040 U	0.040 U	10.000 U	0.039 U	0.470 J	0.041 U	4.700 U	0.036 U	2.000 U	0.036 U	0.079 U	0.036 U	11.000 U	3.800 U	0.038 U	3.700 U
4-Methylphenol	100	0.040 U	0.044 U	0.110 J	5.500 J	0.043 U	0.410 J	0.044 U	5.200 U	0.040 U	2.200 U	0.040 U	0.054 J	0.040 U	3.500 J	4.200 U	0.042 U	4.100 U
4-Nitrophenol	N/A	0.012 U	0.014 U	0.014 U	3.300 U	0.013 U	0.400 U	0.014 U	1.600 U	0.012 U	0.680 U	0.012 U	0.027 U	0.012 U	3.600 U	1.300 U	0.013 U	1.200 U
bis(2-Ethylhexyl) phthalate	N/A	0.024 U	0.027 U	0.090 J	6.700 U	0.026 U	0.790 U	0.027 U	3.200 U	0.024 U	1.300 U	0.024 U	0.053 U	0.024 U	7.300 U	2.500 U	0.025 U	2.500 U
Butyl benzyl phthalate	N/A	0.016 U	0.018 U	0.018 U	4.500 U	0.017 U	0.530 U	0.018 U	2.100 U	0.016 U	0.890 U	0.016 U	0.035 U	0.016 U	4.900 U	1.700 U	0.017 U	1.700 U
Carbazole	N/A	0.0029 U	0.0032 U	0.038 J	140.000	0.062 J	19.000	0.0033 U	57.000	0.0029 U	23.000	0.0029 U	1.300	0.0029 U	53.000 J	0.310 U	0.019 J	1.300 J
Dibenzofuran	59	0.021 U	0.023 U	0.038 J	320	0.110 J	37.000	0.023 U	120	0.021 U	52.000	0.021 U	1.600	0.021 U	110.000 J	3.000 J	0.022 J	7.600 J
Diethyl phthalate	N/A	0.011 U	0.012 U	0.012 U	3.000 U	0.012 U	0.350 U	0.012 U	1.400 U	0.011 U	0.590 U	0.011 U	0.023 U	0.011 U	3.200 U	1.100 U	0.011 U	1.100 U
Phenol	100	0.054 U	0.059 U	0.059 U	15.000 U	0.058 U	1.700 U	0.060 U	7.000 U	0.054 U	3.000 U	0.054 U	0.120 U	0.054 U	16.000 U	5.600 U	0.056 U	5.500 U
Metals (mg/Kg)																		
Aluminum	N/A	4970 J	3470 J	3070	13800	5530	13100	4630 J	15900	2040	8780	4480	8820	3200	11300	2180	3960	5130 J
Antimony	N/A	1.4 UJ	1.5 UJ	1.0 U	1.3 U	1.0 U	1.2 U	1.6 UJ	1.2 U	0.93 U	1.0 U	0.94 U	1.5 U	1.4 U	1.6 U	1.5 U	1.4 U	0.95 U
Arsenic	16	0.77 UJ	0.85 UJ	3.2 J	12.5	1.5 J	9.5	0.86 UJ	12.1	0.81 U	7.6	0.83 J	7.3	0.78 U	9.0	0.81 U	0.92 J	1.7 J
Barium	400	50.1	44.4 J	45.2 J	77.8	38.4 J	62.5 J	66.5	74.5	15.9 J	84.2	83.6	132	85.4	71.7	27.1 J	41.1 J	42.9 J
Beryllium	72	0.37 J	0.26 J	0.20 J	0.81	0.39 J	0.79	0.36 J	0.88	0.13 J	0.53	0.36 J	0.57	0.18 J	0.63	0.13 J	0.24 J	0.32 J
Cadmium	4.3	0.097 U	0.11 U	0.11 U	0.21 J	0.10 U	0.13 U	0.11 U	0.13 U	0.096 U	0.11 U	0.096 U	0.10 U	0.097 U	0.42 J	0.10 U	0.15 J	0.098 U
Calcium	N/A	5570	1220 J	11500	40200	12700	4260	10400	5320	17.8 U	6080	7400	14500	7060	37900	3380	7900	8120
Chromium	180	11.8	8.6	4.1	25.6	13.2	24.5	11.0	29.8	5.9	19.7	12.6	18.0	10.6	20.7	5.6	10.2	10.6
Cobalt	N/A	6.3 J	4.5 J	2.4 J	9.9 J	6.4 J	9.6 J	5.8 J	11.7 J	2.6 J	7.1 J	5.1 J	7.8 J	4.1 J	8.6 J	2.7 J	4.9 J	4.4 J
Copper	270	10.1	8.5	21.9	36.1	12.9	38.5	11.2	40.9	4.8 J	70.1	13.0	37.4	7.3	34.1	6.2	10.0	14.7 J
Iron	N/A	12700 J	9670 J	6510	29500	12800	28200	11100 J	33400	5580	22100	11600	25100	8870	24800	7900	9610	9230 J
Lead	400	5.7	3.3	311	138	6.9	142	4.1	137	2.0	283	3.9	139	2.9	98.7	1.8	3.2	46.0
Magnesium	N/A	5660	2700	818 J	6400	6540	5620	5850	6500	1500	3660	5110	3200	4230	5530	3040	5040	2750
Manganese	2000	156	61.7	101	1180	410	831	270	883	38.7	558	298	389	194	765	86.6	245	187
Mercury	0.81	0.020 UJ	0.022 UJ	0.11	0.52	0.021 U	0.61	0.022 UJ	0.79	0.02 U	0.19	0.020 U	0.89	0.020 U	0.58	0.021 U	0.021 U	0.02 J
Nickel	310	19.4	16.2	4.5 J	23.7	21.9	23.4	19.5	27.9	9.5	17.6	18.8	16.8	14.8	20.0	9.5 J	17.7	12.3
Potassium	N/A	1310 J	839 J	282 J	2560	1480	2600	1140 J	2680	444 J	1720	1350	1390 U	758 U	1960	393 J	956 J	1140 J
Selenium	180	1.0 U	1.1 U	1.0 U	1.3 U	1.0 U	1.2 U	1.1 U	1.2 U	0.93 U	1.0 U	0.94 U	1.1 U	1.0 U	1.2 U	1.1 U	1.0 U	0.95 U
Silver	180	0.34 U	0.37 U	0.19 U	0.23 U	0.18 U	0.22 U	0.37 U	0.30 J	0.17 U	0.19 U	0.17 U	0.36 U	0.34 U	0.39 U	0.35 U	0.35 U	0.18 J
Sodium	N/A	174 J	149 J	282 J	1680	142 J	2080	128 J	751 J	86.5 U	512 J	166 J	359 U	236 U	1370 J	160 J	200 J	309 J
Vanadium	N/A	15.0	12.3 J	7.4 J	35.3	16.5	32.5	14.1	40.0	7.7 J	24.1	16.6	26.2	12.5	29.8	7.1 J	14.0	16.7
Zinc	10000	28.7 J	20.9 J	22.2	84.4	28.3	114	28.0 J	108	18.0	92.4	22.7	73.3	18.2	70.9	11.5	21.8	29.5
Cyanide (mg/Kg)																		
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.9	0.87	0.5 U	0.5 U	0.5 U

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Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21CH009 3/2/2004 21CH009-27 25-27	21CH009 3/2/2004 21CH009-51 49-51	21DT001 3/8/2004 21DT001-28 26-28	21DT001 3/8/2004 21DT001-28DUP 26-28	21DT001 3/9/2004 21DT001-42 40-42	21DT001 3/9/2004 21DT001-44 42-44	21DT001 3/9/2004 21DT001-50 48-50	21DT002 3/3/2004 21DT002-37 35-37	21DT002 3/3/2004 21DT002-51 49-51	21DT003 3/23/2004 21DT003-33 31-33	21DT003 3/23/2004 21DT003-37 35-37	21DT003 3/23/2004 21DT003-51 49-51	21DT003 3/23/2004 21DT003-51DUP 49-51	21DT004 3/30/2004 21DT004-23 21-23	21DT004 3/31/2004 21DT004-37 35-37	21DT004 3/31/2004 21DT004-51 49-51	21DT005 3/4/2004 21DT005-29 27-29	21DT005 3/4/2004 21DT005-51 49-51
BTEX (mg/Kg)																			
Benzene	4.8	NS	NS	76	64	0.440	1.500	0.027 U	0.760	0.160	0.067 J	0.620	0.0031	0.0028	150	6.7	0.0042	13	0.036
Ethylbenzene	41	NS	NS	44	42	4.100	27.000	0.094 J	3.200	0.0074	0.021 U	8.100	0.00023 U	0.00023 U	210	100	0.0018 J	20.000	0.00026 U
Toluene	100	NS	NS	240	220	0.440 J	1.700 J	0.023 U	0.092 J	0.0019 J	0.021 U	0.100 J	0.0017 J	0.0016 J	190	1.600 J	0.0008 J	59.000	0.012
Xylene (Total)	100	NS	NS	440	420	5.100	33.000	0.030 U	3.100	0.011	0.028 U	10.000	0.00056 U	0.00057 U	550	130	0.0038 J	180	0.00062 U
Total BTEX	N/A	NS	NS	800	746	10.08	63.2	0.094	7.152	0.1803	0.067	18.82	0.0048	0.0044	1100	238.3	0.0106	272	0.048
VOC (mg/Kg)																			
2-Butanone (Methyl Ethyl Ke	100	NS	NS	3.200 R	3.000 R	0.240 R	0.950 R	0.260 R	0.260 R	0.0011 R	0.240 R	0.230 R	0.0011 R	0.0012 R	5.100 R	2.400 R	0.0012 R	1.200 R	0.0013 R
4-Methyl-2-pentanone	N/A	NS	NS	1.800 U	1.700 U	0.140 U	0.540 U	0.150 U	0.150 U	0.00084 U	0.140 U	0.130 U	0.00086 U	0.00087 U	2.900 U	1.400 U	0.00090 U	0.680 U	0.00096 U
Acetone	100	NS	NS	3.100 U	2.900 U	0.230 UJ	0.910 UJ	0.250 UJ	0.240 U	0.0028 UJ	0.230 U	0.220 U	0.0028 UJ	0.0028 UJ	4.900 U	2.300 U	0.0020 J	1.100 U	0.0031 UJ
Carbon Disulfide	N/A	NS	NS	0.420 UJ	0.390 UJ	0.032 U	0.120 U	0.034 U	0.033 U	0.00034 U	0.031 U	0.030 U	0.00035 U	0.00035 U	0.670 U	0.310 U	0.00036 U	0.150 UJ	0.00039 U
Carbon Tetrachloride	2.4	NS	NS	0.620 U	0.580 U	0.048 U	0.180 U	0.050 U	0.050 U	0.00024 U	0.046 U	0.046 U	0.00024 U	0.00025 U	1.000 U	0.460 U	0.00025 U	0.230 U	0.00027 U
Chloroform	49	NS	NS	0.270 U	0.260 U	0.021 U	0.081 U	0.022 U	0.022 U	0.00026 U	0.020 U	0.020 U	0.00027 U	0.00027 U	0.440 U	0.210 U	0.00028 U	0.100 U	0.00030 U
cis-1,2-Dichloroethene	100	NS	NS	0.360 U	0.330 U	0.027 U	0.100 U	0.029 U	0.029 U	0.0009 J	0.026 U	0.026 U	0.00035 U	0.00035 U	0.570 U	0.270 U	0.00036 U	0.130 U	0.0006 J
Methylene Chloride	100	NS	NS	0.210 U	0.200 U	0.016 U	0.060 U	0.017 U	0.017 U	0.00026 U	0.015 U	0.015 U	0.00027 U	0.00027 U	0.340 U	0.160 U	0.0027 U	0.077 U	0.0009 U
Styrene	N/A	NS	NS	82.000	78.000	0.230 J	0.590 J	0.021 U	0.021 U	0.00014 U	0.019 U	0.019 U	0.00014 U	0.00014 U	39.000	0.200 U	0.00015 U	33.000	0.00016 U
Tetrachloroethene	19	NS	NS	0.540 U	0.510 U	0.040 U	0.160 U	0.044 U	0.044 U	0.00019 U	0.040 U	0.040 U	0.00020 U	0.00020 U	0.880 U	0.400 U	0.00020 U	0.200 U	0.00022 U
Trichloroethene	21	NS	NS	0.400 U	0.370 U	0.030 U	0.120 U	0.032 U	0.032 U	0.00030 U	0.030 U	0.030 U	0.0015	0.0016	0.640 U	0.300 U	0.00032 U	0.150 U	0.00035 U
PAH (mg/Kg)																			
2-Methylnaphthalene	N/A	140.000	0.019 U	600.000	490.000	190.000	78.000	0.060 J	2.200 J	0.048 J	0.470	10.000	0.039 J	0.066 J	1400.000	440.000	0.160 J	210.000	0.021 U
Acenaphthene	100	47.000	0.064 J	57.000 J	49.000 J	410	53.000	0.270 J	7.800 J	0.210 J	0.310 J	8.800	0.015 J	0.014 J	260.000 J	270	0.110 J	21.000 J	0.012 J
Acenaphthylene	100	27.000	0.0035 U	140	110	73.000 J	47.000	0.220 J	2.000 J	0.140 J	0.290 J	2.300	0.020 J	0.020 J	630.000 J	48.000	0.081 J	56.000	0.0037 U
Anthracene	100	50.000	0.035 J	170	150	190	36.000	0.420 J	4.700 J	0.270 J	0.600	6.600	0.045 J	0.031 J	580.000 J	150	0.180 J	67.000	0.012 J
Benzo(a)anthracene	1	38	0.027 J	150	130	140	30	0.340	3.500 J	0.220	0.480	3.9	0.035 J	0.030 J	460	82	0.130	49	0.014 J
Benzo(a)pyrene	1	36	0.0030 U	100	90	140	29	0.260	3.000 J	0.190	0.390	3.2	0.028 J	0.020 J	340	65	0.110	37	0.012 J
Benzo(b)fluoranthene	1	22	0.0032 U	51	47	42	10	0.140	1.200 J	0.098	0.200	1.4	0.014 J	0.013 J	240	25	0.057	20	0.0034 U
Benzo(ghi)perylene	100	11.000 J	0.0044 U	50.000 J	44.000 J	62.000 J	15.000	0.120 J	1.200 J	0.100 J	0.160 J	1.300 J	0.0043 U	0.0043 U	170.000 J	30.000 J	0.047 J	16.000 J	0.0047 U
Benzo(k)fluoranthene	3.9	34	0.0043 U	110	91	110	20	0.180	2.400 J	0.150	0.390	2.500	0.031 J	0.020 J	280	47	0.087	31	0.0088 J
Chrysene	3.9	34	0.032 J	150	120	140	29	0.320 J	3.600 J	0.220 J	0.440	3.900	0.041 J	0.033 J	410.000 J	87	0.120 J	43.000 J	0.014 J
Dibenz(a,h)anthracene	0.33	0.130 U	0.0027 U	19	9.900 J	13	4.1	0.039 J	0.0058 UJ	0.0026 U	0.070	0.42	0.0026 U	0.0026 U	38.000 J	8.6	0.016 J	0.330 U	0.0029 U
Fluoranthene	100	82.000	0.056 J	300	300	320	74.000	0.780	6.900 J	0.420	1.000	7.900	0.074 J	0.056 J	1200	190	0.300 J	100	0.024 J
Fluorene	100	71.000	0.0028 U	280	240	270	52.000	0.520	6.200 J	0.290 J	0.590	6.200	0.044 J	0.0028 U	880.000 J	220	0.150 J	86.000	0.011 J
Indeno(1,2,3-cd)pyrene	0.5	11	0.0027 U	39	32	43	10	0.094	0.980 J	0.091	0.140	1.1	0.0026 U	0.0026 U	160	23	0.041 J	14	0.0029 U
Naphthalene	100	370	0.0036 U	1900	1700	500	170	0.110 J	3.600 J	0.150 J	0.710	9.900	0.074 J	0.170 J	7000	700	0.220 J	590	0.014 J
Phenanthrene	100	250	0.140 J	810	760	810	170	1.900	19.000 J	1.100	2.000	23.000	0.160 J	0.110 J	2300	490	0.690	250	0.048 J
Pyrene	100	72.000	0.082 J	300	270	450	96.000	1.000	9.400 J	0.420 J	0.970	9.800	0.073 J	0.048 J	1100	250	0.290 J	95.000	0.024 J
Total PAH	N/A	1295	0.436	5226	4632.9	3903	923.1	6.773	77.68	4.117	9.21	102.22	0.693	0.631	17448	3125.6	2.789	1685	0.1938

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21CH009 3/2/2004 21CH009-27 25-27	21CH009 3/2/2004 21CH009-51 49-51	21DT001 3/8/2004 21DT001-28 26-28	21DT001 3/8/2004 21DT001-28DUP 26-28	21DT001 3/9/2004 21DT001-42 40-42	21DT001 3/9/2004 21DT001-44 42-44	21DT001 3/9/2004 21DT001-50 48-50	21DT002 3/3/2004 21DT002-37 35-37	21DT002 3/3/2004 21DT002-51 49-51	21DT003 3/23/2004 21DT003-33 31-33	21DT003 3/23/2004 21DT003-37 35-37	21DT003 3/23/2004 21DT003-51 49-51	21DT003 3/23/2004 21DT003-51DUP 49-51	21DT004 3/30/2004 21DT004-23 21-23	21DT004 3/31/2004 21DT004-37 35-37	21DT004 3/31/2004 21DT004-51 49-51	21DT005 3/4/2004 21DT005-29 27-29	21DT005 3/4/2004 21DT005-51 49-51
SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	1.800 U	0.038 U	42.000 J	35.000 J	8.000 U	0.920 U	0.041 U	0.081 UJ	0.037 U	0.018 J	0.180 U	0.037 U	0.037 U	56.000 J	3.800 U	0.012 J	5.000 J	0.041 U
2-Chloronaphthalene	N/A	1.300 U	0.026 U	7.000 U	6.300 U	5.500 U	0.630 U	0.028 U	0.056 UJ	0.025 U	0.027 U	0.130 U	0.025 U	0.025 U	58.000 U	2.600 U	0.026 U	3.200 U	0.028 U
2-Methylphenol	100	1.800 U	0.037 U	8.000 J	9.100 U	7.900 U	0.910 U	0.040 U	0.080 UJ	0.036 U	0.038 U	0.180 U	0.036 U	0.036 U	84.000 U	3.700 U	0.037 U	1.200 J	0.040 U
4-Methylphenol	100	2.000 U	0.041 U	30.000 J	20.000 J	8.600 U	0.990 U	0.044 U	0.087 UJ	0.040 U	0.023 J	0.200 U	0.040 U	0.040 U	22.000 J	4.100 U	0.0089 J	3.000 J	0.044 U
4-Nitrophenol	N/A	0.620 U	0.012 U	3.400 U	3.100 U	2.700 U	0.310 U	0.014 U	0.027 UJ	0.012 U	0.013 U	0.060 U	0.012 U	0.012 U	28.000 U	1.200 U	0.012 U	1.500 U	0.013 U
bis(2-Ethylhexyl) phthalate	N/A	1.200 U	0.025 U	6.700 U	6.100 U	5.300 U	0.610 U	0.027 U	0.053 UJ	0.024 U	0.025 U	0.120 U	0.024 U	0.024 U	56.000 U	2.500 U	0.025 U	3.000 U	0.027 U
Butyl benzyl phthalate	N/A	0.810 U	0.017 U	4.500 U	4.100 U	3.500 U	0.410 U	0.018 U	0.036 UJ	0.016 U	0.017 U	0.081 U	0.016 U	0.016 U	37.000 U	1.700 U	0.017 U	2.000 U	0.018 U
Carbazole	N/A	17.000 J	0.0030 U	92.000 J	81.000 J	7.600 J	1.200 J	0.079 J	0.460 J	0.110 J	0.300 J	0.920 J	0.0029 U	0.0029 U	230.000 J	15.000 J	0.051 J	32.000 J	0.0032 U
Dibenzofuran	59	45.000	0.021 U	180	150	27.000 J	5.000 J	0.100 J	1.100 J	0.120 J	0.290 J	1.800 J	0.022 J	0.016 J	670.000 J	33.000 J	0.078 J	56.000	0.023 U
Diethyl phthalate	N/A	0.540 U	0.011 U	3.000 U	2.700 U	2.300 U	0.270 U	0.012 U	0.024 UJ	0.011 U	0.011 U	0.054 U	0.011 U	0.011 U	25.000 U	1.100 U	0.011 U	1.400 U	0.012 U
Phenol	100	2.700 U	0.055 U	15.000 U	13.000 U	12.000 U	1.300 U	0.059 U	0.120 UJ	0.054 U	0.056 U	0.270 U	0.054 U	0.054 U	12.000 U	5.500 U	0.055 U	6.700 U	0.059 U
Metals (mg/Kg)																			
Aluminum	N/A	4470 J	2440 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	0.95 U	0.96 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	3.6 J	0.84 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	18.2 J	33.4 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	0.27 J	0.22 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	0.097 U	0.098 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	2560	4400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	9.7	6.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	4.5 J	3.8 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	6.9 J	5.4 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	12100 J	8170 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	15.8	2.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	2820	3620	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	187	170	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	0.06	0.020 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	9.7	14.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	908 J	610 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	0.95 U	0.96 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	0.17 U	0.17 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	405 J	88.7 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	13.9	9.0 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	27.1	16.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																			
Cyanide, Total	27	0.5 U	0.5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
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Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21DT006 3/3/2004 21DT006-29 27-29	21DT006 3/3/2004 21DT006-39 37-39	21DT006 3/4/2004 21DT006-51 49-51	21ER001 2/13/2004 21ER001-33 31-33	21ER001 2/13/2004 21ER001-51 49-51	21ER002 3/15/2004 21ER002-26 24-26	21ER002 3/16/2004 21ER002-51 49-51	21ER003 2/25/2004 21ER003-33 31-33	21ER003 2/25/2004 21ER003-51 49-51	21GH001 1/29/2004 21GH001-25 23-25	21GH001 1/29/2004 21GH001-33 31-33	21GH001 1/30/2004 21GH001-51 49-51	21GH003 2/13/2004 21GH003-29 27-29	21GH003 2/13/2004 21GH003-51 49-51	21GH005 1/30/2004 21GH005-31 29-31	21GH005 1/30/2004 21GH005-51 49-51	21GH007 2/16/2004 21GH007-33 31-33	21GH007 2/17/2004 21GH007-39 37-39
BTEX (mg/Kg)																			
Benzene	4.8	11	1.900 J	0.00028 U	0.0068	0.014	1.900	0.0015	0.200	0.0028	29	0.220 J	0.082	4.500	0.011	3.000	0.440	26	34
Ethylbenzene	41	55	160	0.00023 U	0.0013 J	0.0013 J	30.000	0.00024 U	14.000	0.0018 J	4.100	0.0042 J	0.0026 J	0.320 J	0.0013 J	0.170 J	0.021 U	52	14.000
Toluene	100	43.000	0.380 U	0.00024 U	0.0034 J	0.0019 J	6.800	0.00025 U	0.660	0.0031 J	28.000	0.011	0.0081	2.000	0.0039 J	0.025 U	0.021 U	47.000	35.000
Xylene (Total)	100	130	140	0.00057 U	0.0036 J	0.0027 J	37.000	0.00060 U	27.000	0.0054 J	32.000	0.018	0.0053 J	0.810	0.0034 J	0.034 U	0.028 U	64.000	32.000
Total BTEX	N/A	239	301.9	ND	0.0151	0.0199	75.7	0.0015	41.86	0.0131	93.1	0.2532	0.098	7.63	0.0196	3.17	0.44	189	115
VOC (mg/Kg)																			
2-Butanone (Methyl Ethyl Ke	100	2.200 R	4.400 R	0.0012 R	0.0099	0.0085	0.990 R	0.0012 R	0.220 U	0.0013 U	0.310 U	0.0011 U	0.0013 U	0.250 U	0.0077	0.290 U	0.240 U	0.910 U	0.510 U
4-Methyl-2-pentanone	N/A	1.300 U	2.500 U	0.00087 U	0.0021 J	0.00083 U	0.560 U	0.00092 U	0.120 U	0.00096 U	0.180 U	0.00084 U	0.00095 U	0.140 U	0.00089 U	0.170 U	0.140 U	0.520 U	0.290 U
Acetone	100	2.200 U	4.200 U	0.0028 UJ	0.089 J	0.088 J	0.940 UJ	0.0030 U	0.210 U	0.031	0.290 U	0.0070	0.0031 U	0.240 UJ	0.067 J	0.280 U	0.230 U	0.870 UJ	0.490 UJ
Carbon Disulfide	N/A	0.290 U	0.560 U	0.00035 U	0.00036 U	0.0009 J	0.130 U	0.0008 J	0.028 UJ	0.0015 J	0.040 U	0.0064	0.00038 U	0.032 U	0.0008 J	0.038 UJ	0.031 U	0.120 U	0.067 U
Carbon Tetrachloride	2.4	0.440 U	0.890 U	0.00025 U	0.00025 U	0.00024 U	0.190 U	0.00026 U	0.042 U	0.00027 U	0.060 U	0.00024 U	0.00026 U	0.048 U	0.0017 J	0.058 U	0.046 U	0.180 U	0.100 U
Chloroform	49	0.190 U	0.370 U	0.00027 U	0.00028 U	0.00026 U	0.084 U	0.00028 U	0.018 U	0.00030 U	0.026 U	0.00026 U	0.00029 U	0.021 U	0.0005 J	0.025 U	0.020 U	0.078 U	0.044 U
cis-1,2-Dichloroethene	100	0.250 U	0.480 U	0.00035 U	0.0026 J	0.00034 U	0.110 U	0.0022 J	0.024 U	0.0023 J	0.034 U	0.00034 U	0.00038 U	0.028 U	0.0007 J	0.032 U	0.026 U	0.100 U	0.057 U
Methylene Chloride	100	0.140 U	0.290 U	0.00027 U	0.0013 U	0.003 U	0.064 U	0.0073 U	0.014 U	0.00030 U	0.020 U	0.0064 U	0.0062 U	0.016 U	0.0009 U	0.019 U	0.015 U	0.060 U	0.034 U
Styrene	N/A	5.700	0.350 U	0.00014 U	0.00015 U	0.00013 U	3.200	0.00015 U	0.018 U	0.00016 U	8.000	0.0014 J	0.00015 U	0.020 U	0.00014 U	0.024 U	0.019 U	9.500	24.000
Tetrachloroethene	19	0.370 U	0.780 U	0.00020 U	0.0006 J	0.00019 U	0.170 U	0.00020 U	0.037 U	0.00022 U	0.054 U	0.00019 U	0.00022 U	0.044 U	0.00020 U	0.051 U	0.040 U	0.160 U	0.088 U
Trichloroethene	21	0.270 U	0.570 U	0.00032 U	0.0008 J	0.00030 U	0.120 U	0.0015	0.027 U	0.0012 J	0.040 U	0.00030 U	0.00035 U	0.032 U	0.0008 J	0.037 U	0.030 U	0.110 U	0.064 U
PAH (mg/Kg)																			
2-Methylnaphthalene	N/A	110.000	400.000	0.019 U	0.019 U	0.070 J	63.000	0.019 U	83.000	4.200	9.100	7.900	0.092 J	0.099 J	0.019 U	1.000	0.063 J	850.000	180.000
Acenaphthene	100	16.000 J	280	0.170 J	0.011 J	0.040 J	3.000 J	0.0035 U	29.000	1.700	0.520 J	0.620 J	0.021 J	0.056 J	0.010 J	0.390 J	0.097 J	66.000 J	23.000 J
Acenaphthylene	100	61.000	56.000 J	0.070 J	0.0034 U	0.021 J	13.000	0.0035 U	20.000	0.430 J	3.500 J	3.000	0.056 J	0.040 J	0.0034 U	0.0042 U	0.0087 J	320.000 J	100
Anthracene	100	34.000	120	0.150 J	0.0031 U	0.029 J	6.000 J	0.0032 U	32.000	2.300	0.550 J	1.400 J	0.120 J	0.150 J	0.011 J	0.024 J	0.028 J	110.000 J	33.000 J
Benzo(a)anthracene	1	27	83	0.120	0.010 J	0.021 J	5.1	0.011 U	26	1.3	0.140 U	0.930	0.130	0.012 U	0.012 J	0.013 J	0.011 U	120	42
Benzo(a)pyrene	1	27	94	0.091	0.0030 U	0.023 J	4	0.0030 U	22	1.1	0.039 U	0.760	0.100	0.0033 U	0.0084 J	0.0037 U	0.0031 U	120	44
Benzo(b)fluoranthene	1	12	32	0.038 J	0.0031 U	0.010 J	1.4	0.0032 U	14	0.750	0.041 U	0.360	0.066	0.0034 U	0.0031 U	0.0039 U	0.0032 U	53	21
Benzo(ghi)perylene	100	14.000 J	54.000 J	0.048 J	0.0043 U	0.0043 U	1.600 J	0.0044 U	9.200 J	0.480 J	0.057 U	0.320 J	0.047 J	0.0047 U	0.0043 U	0.0053 U	0.0045 U	71.000 J	31.000 J
Benzo(k)fluoranthene	3.9	19	55	0.060	0.0042 U	0.012 J	3.000 J	0.0043 U	19	0.980	0.055 U	0.690	0.088	0.0046 U	0.0042 U	0.0052 U	0.0044 U	81	30
Chrysene	3.9	24	80.000 J	0.120 J	0.0094 J	0.027 J	6.000 J	0.0051 U	25	1.300	0.066 U	0.840 J	0.120 J	0.0055 U	0.013 J	0.020 J	0.0052 U	120.000 J	42.000 J
Dibenz(a,h)anthracene	0.33	4.1	0.660 U	0.0027 U	0.0026 U	0.0026 U	0.520 J	0.0027 U	3.6	0.0058 U	0.035 U	0.120 J	0.0029 U	0.0029 U	0.0026 U	0.0033 U	0.0028 U	2.600 UJ	0.290 UJ
Fluoranthene	100	58.000	180	0.250 J	0.016 J	0.058 J	7.000 J	0.0013 U	65.000	3.700	0.240 J	1.800 J	0.370 J	0.075 J	0.023 J	0.031 J	0.018 J	310.000 J	110
Fluorene	100	50.000	160	0.130 J	0.0028 U	0.039 J	7.900 J	0.0028 U	42.000	2.100	1.900 J	1.800 J	0.064 J	0.120 J	0.0028 U	0.085 J	0.054 J	220.000 J	70.000
Indeno(1,2,3-cd)pyrene	0.5	11	37	0.034 J	0.0026 U	0.0026 U	1.3	0.0027 U	9.1	0.480	0.034 U	0.280	0.0029 U	0.0029 U	0.0026 U	0.0032 U	0.0027 U	45	20.000 J
Naphthalene	100	360	1300	0.021 J	0.017 J	0.280 J	120	0.0036 U	290	19.000	72.000	43.000	0.520	0.520	0.018 J	7.200	0.200 J	8100	850
Phenanthrene	100	180	600	0.650	0.0037 U	0.140 J	31.000	0.0038 U	120	6.100	1.900 J	4.300	0.500	0.240 J	0.053 J	0.150 J	0.098 J	770	250
Pyrene	100	69.000 J	260.000 J	0.300 J	0.014 J	0.062 J	12.000	0.0029 U	52.000	2.900	0.190 J	1.800 J	0.320 J	0.064 J	0.034 J	0.049 J	0.028 J	470	160
Total PAH	N/A	1076.1	3791	2.252	0.0774	0.832	285.82	ND	860.9	48.82	89.9	69.92	2.614	1.364	0.1824	8.962	0.5947	11826	2006

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21DT006 3/3/2004 21DT006-29 27-29	21DT006 3/3/2004 21DT006-39 37-39	21DT006 3/4/2004 21DT006-51 49-51	21ER001 2/13/2004 21ER001-33 31-33	21ER001 2/13/2004 21ER001-51 49-51	21ER002 3/15/2004 21ER002-26 24-26	21ER002 3/16/2004 21ER002-51 49-51	21ER003 2/25/2004 21ER003-33 31-33	21ER003 2/25/2004 21ER003-51 49-51	21GH001 1/29/2004 21GH001-25 23-25	21GH001 1/29/2004 21GH001-33 31-33	21GH001 1/30/2004 21GH001-51 49-51	21GH003 2/13/2004 21GH003-29 27-29	21GH003 2/13/2004 21GH003-51 49-51	21GH005 1/30/2004 21GH005-31 29-31	21GH005 1/30/2004 21GH005-51 49-51	21GH007 2/16/2004 21GH007-33 31-33	21GH007 2/17/2004 21GH007-39 37-39
SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	1.000 J	9.200 U	0.038 U	0.037 U	0.037 U	0.810 U	0.038 U	1.800 U	0.081 U	2.200 J	1.000 J	0.041 U	0.290 J	0.037 U	0.046 U	0.039 U	37.000 U	4.100 U
2-Chloronaphthalene	N/A	1.300 U	6.300 U	0.026 U	0.025 U	0.025 U	0.560 U	0.026 U	1.200 U	0.056 U	0.340 U	0.130 U	0.028 U	0.028 U	0.025 U	0.032 U	0.027 U	25.000 U	2.800 U
2-Methylphenol	100	1.800 U	9.100 U	0.037 U	0.036 U	0.036 U	0.800 U	0.037 U	1.700 U	0.032 J	1.200 J	0.580 J	0.040 U	0.100 J	0.036 U	0.045 U	0.038 U	36.000 U	4.000 U
4-Methylphenol	100	2.000 U	9.900 U	0.041 U	0.040 U	0.040 U	0.870 U	0.041 U	1.900 U	0.046 J	3.400 J	1.700 J	0.0087 J	0.087 J	0.040 U	0.050 U	0.042 U	40.000 U	4.400 U
4-Nitrophenol	N/A	0.610 U	3.100 U	0.012 U	0.012 U	0.012 U	0.270 U	0.012 U	0.570 U	0.027 U	0.160 U	0.060 U	0.013 U	0.027 U	0.014 U	0.015 U	0.013 U	12.000 U	1.400 U
bis(2-Ethylhexyl) phthalate	N/A	1.200 U	6.100 U	0.025 U	0.024 U	0.024 U	0.530 U	0.025 U	1.200 U	0.053 U	0.320 U	0.120 U	0.330 J	0.027 U	0.130 U	0.110 J	0.140 J	24.000 U	2.700 U
Butyl benzyl phthalate	N/A	0.810 U	4.100 U	0.017 U	0.016 U	0.016 U	0.360 U	0.017 U	0.770 U	0.036 U	0.220 U	0.081 U	0.018 U	0.018 U	0.016 U	0.020 U	0.017 U	16.000 U	1.800 U
Carbazole	N/A	7.500 J	3.300 J	0.023 J	0.0029 U	0.013 J	0.300 J	0.0030 U	14.000 J	2.300	4.200 J	2.000	0.054 J	0.740	0.0029 U	0.094 J	0.120 J	2.900 U	4.200 J
Dibenzofuran	59	19.000 J	13.000 J	0.013 J	0.021 U	0.022 J	1.200 J	0.021 U	34.000	1.300	2.000 J	1.400 J	0.044 J	0.069 J	0.021 U	0.052 J	0.023 J	23.000 J	10.000 J
Diethyl phthalate	N/A	0.540 U	2.700 U	0.011 U	0.011 U	0.011 U	0.240 U	0.011 U	0.510 U	0.024 U	0.140 U	0.054 U	0.098 J	0.012 U	0.011 U	0.014 U	0.011 U	11.000 U	1.200 U
Phenol	100	2.700 U	13.000 U	0.055 U	0.054 U	0.054 U	1.200 U	0.055 U	2.600 U	0.120 U	1.300 J	0.600 J	0.059 U	0.210 J	0.054 U	0.067 U	0.056 U	54.000 U	5.900 U
Metals (mg/Kg)																			
Aluminum	N/A	NS	NS	NS	5250	4260	8980	2530 J	5900	2360	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	NS	NS	NS	0.95 UJ	0.93 UJ	1.5 UJ	1.4 U	1.3 UJ	1.5 UJ	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	NS	NS	NS	1.6 J	0.81 U	2.2	0.79 U	1.4 J	0.85 UJ	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	NS	NS	NS	30.6 J	40.0 J	10.8 J	39.2 J	28.3 J	153	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	NS	NS	NS	0.38 J	0.29 J	0.38 J	0.15 J	0.28 J	0.17 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	NS	NS	NS	0.097 U	0.096 U	0.11 U	0.099 U	0.36 J	0.12 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	NS	NS	NS	1010 J	9140	266 J	4230 J	761 J	3840 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	NS	NS	NS	15.3	11.2	12.1	7.3	10.6	6.7	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	NS	NS	NS	4.0 J	4.9 J	5.1 J	3.7 J	4.5 J	4.0 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	NS	NS	NS	10.3 J	10.2 J	15.4 J	6.4 J	11.5	7.5	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	NS	NS	NS	12500 J	9980 J	15900	7390 J	15300	6660	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	NS	NS	NS	3.6	3.2	7.4	2.9	6.8	1.9	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	NS	NS	NS	2110	5080	3700	3350	2600	3440	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	NS	NS	NS	70.8	255	128 J	134 J	115	103	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	NS	NS	NS	0.020 U	0.020 U	0.022 U	0.021 U	0.019 U	0.022 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	NS	NS	NS	14.1	17.6	13.4 J	12.2 J	13.3	14.9	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	NS	NS	NS	1060 J	1120 J	822 J	551 J	558 J	501 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	NS	NS	NS	0.95 U	0.93 U	1.1 U	1.0 U	0.95 U	1.1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	NS	NS	NS	0.17 U	0.17 U	0.37 U	0.35 U	0.32 U	0.37 U	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	NS	NS	NS	165 J	191 J	320 J	171 J	121 J	107 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	NS	NS	NS	14.3	11.8 J	17.8	9.9 J	12.0	9.0 J	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	NS	NS	NS	24.8	25.6	51.9	16.0	38.4	16.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																			
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH007 2/17/2004 21GH007-41 39-41	21GH007 2/17/2004 21GH007-43 41-43	21GH007 2/17/2004 21GH007-51 49-51	21GH007 2/17/2004 21GH007-51DUP 49-51	21GH009 2/5/2004 21GH009-37 35-37	21GH009 2/5/2004 21GH009-49 47-49	21GH011 2/12/2004 21GH011-29 27-29	21GH011 2/12/2004 21GH011-51 49-51	21GH013 2/3/2004 21GH013-31 29-31	21GH013 2/3/2004 21GH013-51 49-51	21GH014 2/18/2004 21GH014-29 27-29	21GH014 2/19/2004 21GH014-40 39-40.3	21GH015 2/10/2004 21GH015-31 29-31	21GH015 2/11/2004 21GH015-35 33-35	21GH016 2/9/2004 21GH016-37 35-37	21GH016 2/10/2004 21GH016-51 49-51	21GH023 2/10/2004 21GH023-26 24-26
BTEX (mg/Kg)																		
Benzene	4.8	2.300	0.027 U	0.037	0.015	0.460	0.040	4.700	0.014	3.400	1.800	0.012	81	0.470	87	0.044	0.230	13
Ethylbenzene	41	1.000	0.044 J	0.036	0.0069	0.190 J	0.0096	100	0.020	1.000	4.500	0.014	88	12.000	130	0.033	0.320 J	1.400
Toluene	100	1.700	0.070 J	0.044	0.013	0.020 U	0.0058 J	19.000	0.012	0.023 U	0.022 U	0.0027 J	230	0.540 J	240	0.0008 J	0.021 U	0.240 J
Xylene (Total)	100	1.800	0.140 J	0.072	0.012	0.140 J	0.0019 J	110	0.026	0.031 U	0.660	0.018	340	10.000	340	0.014	0.110 J	1.200
Total BTEX	N/A	6.8	0.254	0.189	0.0469	0.79	0.0573	233.7	0.072	4.4	6.96	0.0467	739	23.01	797	0.0918	0.66	15.84
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.260 U	0.260 U	0.0013 U	0.0013 U	0.230 U	0.0012 U	2.400 U	0.0013 U	0.270 R	0.250 R	0.0011 R	9.100 U	0.220 R	4.800 R	0.0011 R	0.240 R	0.260 R
4-Methyl-2-pentanone	N/A	0.150 U	0.150 U	0.00096 U	0.00095 U	0.130 U	0.00092 UJ	1.400 U	0.00095 U	0.150 U	0.140 U	0.00081 U	5.200 U	0.130 U	2.700 U	0.00081 U	0.140 U	0.150 U
Acetone	100	0.250 UJ	0.240 UJ	0.110 J	0.087 J	0.220 UJ	0.0030 U	2.300 U	0.048	0.260 R	0.240 R	0.160	8.700 UJ	0.210 U	4.500 UJ	0.031 J	0.230 U	0.250 U
Carbon Disulfide	N/A	0.034 U	0.033 U	0.0012 J	0.0006 J	0.030 U	0.00037 U	0.310 U	0.0011 J	0.035 UJ	0.033 UJ	0.0030 J	1.200 UJ	0.130 J	0.620 U	0.0082 J	0.032 U	0.220 J
Carbon Tetrachloride	2.4	0.052 U	0.050 U	0.00027 U	0.00027 U	0.044 U	0.00026 U	0.460 U	0.00027 U	0.052 U	0.050 U	0.00023 U	1.800 U	0.084 J	0.910 U	0.00023 U	0.048 U	0.050 U
Chloroform	49	0.023 U	0.022 U	0.00030 U	0.00029 U	0.020 U	0.00028 U	0.210 U	0.00029 U	0.023 U	0.022 U	0.00025 U	0.780 U	0.019 U	0.400 U	0.00025 U	0.021 U	0.022 U
cis-1,2-Dichloroethene	100	0.029 U	0.029 U	0.00039 U	0.00038 U	0.026 U	0.00037 U	0.270 U	0.0022 J	0.030 U	0.028 U	0.00033 U	1.000 U	0.025 U	0.530 U	0.00033 U	0.027 U	0.029 U
Methylene Chloride	100	0.017 U	0.017 U	0.0018 U	0.0014 U	0.014 U	0.00028 U	0.160 U	0.0011 U	0.017 U	0.016 U	0.0029 U	0.600 U	0.014 U	0.300 U	0.0003 U	0.016 U	0.017 U
Styrene	N/A	0.950	0.110 J	0.034	0.0053 J	0.019 U	0.00015 U	0.200 U	0.00015 U	0.022 U	0.021 U	0.0013 J	66.000	0.018 U	160.000	0.00013 U	0.020 U	0.021 U
Tetrachloroethene	19	0.044 U	0.044 U	0.00022 U	0.00022 U	0.040 U	0.00020 U	0.400 U	0.00022 U	0.047 U	0.044 U	0.00019 U	1.600 U	0.037 U	0.810 U	0.00019 U	0.040 U	0.044 U
Trichloroethene	21	0.032 U	0.032 U	0.00035 U	0.00035 U	0.030 U	0.00032 U	0.300 U	0.00035 U	0.035 U	0.032 U	0.00030 U	1.200 U	0.027 U	0.600 U	0.00030 U	0.030 U	0.032 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	58.000	120.000	0.920	0.170 J	0.200 J	0.011 J	950.000	0.019 J	1.800	0.021 U	1.100	48.000	24.000	460.000	0.170 J	0.110 J	0.480
Acenaphthene	100	6.100 J	14.000 J	0.130 J	0.013 J	0.081 J	0.0036 U	220	0.027 J	0.520 J	0.0038 U	1.800	16.000 J	11.000	42.000	0.055 J	0.045 J	0.280 J
Acenaphthylene	100	28.000	63.000	0.600	0.062 J	0.0035 U	0.0036 U	98.000 J	0.028 J	0.0081 U	0.0038 U	2.200	5.800 J	3.700 J	170	0.0032 U	0.0036 U	0.047 J
Anthracene	100	10.000 J	21.000 J	0.300 J	0.034 J	0.0032 U	0.0032 U	96.000 J	0.034 J	0.0074 U	0.0035 U	2.600	28.000	10.000	130	0.040 J	0.019 J	0.310 J
Benzo(a)anthracene	1	12	26	0.330	0.042 J	0.011 U	0.011 U	72	0.037 J	0.026 U	0.012 U	4.1	30	7	90	0.0089 J	0.011 U	0.370
Benzo(a)pyrene	1	12	26	0.360	0.036 J	0.0030 U	0.0031 U	46	0.027 J	0.0071 U	0.0033 U	4.4	22	4.1	70	0.0028 U	0.0031 U	0.250
Benzo(b)fluoranthene	1	5.9	11	0.130	0.015 J	0.0032 U	0.0032 U	53	0.010 J	0.0074 U	0.0035 U	2.5	13	1.8	30	0.0029 U	0.0032 U	0.190
Benzo(ghi)perylene	100	8.400 J	19.000 J	0.220 J	0.0046 U	0.0044 U	0.0045 U	19.000 J	0.0047 U	0.010 U	0.0048 U	2.200	12.000 J	1.400 J	28.000 J	0.0041 U	0.0045 U	0.093 J
Benzo(k)fluoranthene	3.9	7.4	19	0.240	0.023 J	0.0043 U	0.0044 U	10.000 J	0.021 J	0.010 U	0.0047 U	3.700	23	3.400	53	0.0040 U	0.0044 U	0.250
Chrysene	3.9	12	27.000 J	0.340 J	0.040 J	0.0051 U	0.0052 U	78.000 J	0.042 J	0.012 U	0.0056 U	4.4	30	6.2	93	0.0047 U	0.0052 U	0.330 J
Dibenz(a,h)anthracene	0.33	0.073 UJ	0.280 UJ	0.0028 UJ	0.0028 UJ	0.0027 U	0.0028 U	1.400 U	0.0029 U	0.0063 U	0.0030 U	0.61	0.140 UJ	0.51	6.5	0.0025 U	0.0028 U	0.048
Fluoranthene	100	30.000	69.000	0.820	0.092 J	0.0013 U	0.0014 U	130.000 J	0.070 J	0.0031 U	0.0014 U	7.400	66.000	13.000	210	0.042 J	0.016 J	0.730
Fluorene	100	20.000	43.000 J	0.540	0.065 J	0.025 J	0.0029 U	140.000 J	0.0030 U	0.0066 U	0.0031 U	1.200	23.000	16.000	210	0.084 J	0.110 J	0.310 J
Indeno(1,2,3-cd)pyrene	0.5	5.700 J	11.000 J	0.160	0.0028 U	0.0027 U	0.0027 U	12.000 J	0.0029 U	0.0062 U	0.0029 U	1.8	11.000 J	1.2	24	0.0025 U	0.0027 U	0.096
Naphthalene	100	260	660	2.200	0.520	1.000	0.200 J	2600	0.024 J	13.000	2.000	5.600	350	27.000	650	0.680	0.330 J	2.100
Phenanthrene	100	71.000	160	2.000	0.240 J	0.035 J	0.018 J	410	0.160 J	0.0088 U	0.0041 U	7.500	100	47.000	680	0.240 J	0.130 J	1.200
Pyrene	100	45.000	100	1.300	0.140 J	0.0029 U	0.0030 U	200.000 J	0.110 J	0.0068 U	0.0032 U	10.000 J	58.000	18.000	290	0.049 J	0.021 J	0.720
Total PAH	N/A	591.5	1389	10.59	1.492	1.341	0.229	5134	0.609	15.32	2	63.11	835.8	195.31	3236.5	1.3689	0.781	7.804

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons

SVOCs - Semivolatile Organic Compounds

VOCs - Volatile Organic Compounds

mg/kg - milligrams per kilogram

DL - Detection Limit

ND = calculated totals are not detected

NA = Not Available

N/A = Not Applicable

mg/Kg = milligram per kilogram

NS = Not Sampled

Bold = compound was detected

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 or absence of the analyte cannot be verified.

Bold Italics = ND value exceeds soil cleanup objective for that compound.

Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH007 2/17/2004 21GH007-41 39-41	21GH007 2/17/2004 21GH007-43 41-43	21GH007 2/17/2004 21GH007-51 49-51	21GH007 2/17/2004 21GH007-51DUP 49-51	21GH009 2/5/2004 21GH009-37 35-37	21GH009 2/5/2004 21GH009-49 47-49	21GH011 2/12/2004 21GH011-29 27-29	21GH011 2/12/2004 21GH011-51 49-51	21GH013 2/3/2004 21GH013-31 29-31	21GH013 2/3/2004 21GH013-51 49-51	21GH014 2/18/2004 21GH014-29 27-29	21GH014 2/19/2004 21GH014-40 39-40.3	21GH015 2/10/2004 21GH015-31 29-31	21GH015 2/11/2004 21GH015-35 33-35	21GH016 2/9/2004 21GH016-37 35-37	21GH016 2/10/2004 21GH016-51 49-51	21GH023 2/10/2004 21GH023-26 24-26
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	1.000 U	4.000 U	0.040 U	0.040 U	0.0092 J	0.039 U	19.000 U	0.041 U	0.089 U	0.042 U	0.070 U	1.900 U	0.360 U	3.900 U	0.035 U	0.039 U	0.043 U
2-Chloronaphthalene	N/A	0.700 U	2.700 U	0.027 U	0.027 U	0.026 U	0.027 U	13.000 U	0.028 U	0.061 U	0.028 U	0.048 U	1.300 U	0.250 U	2.700 U	0.024 U	0.027 U	0.030 U
2-Methylphenol	100	1.000 U	3.900 U	0.039 U	0.039 U	0.037 U	0.038 U	19.000 U	0.040 U	0.087 U	0.041 U	0.069 U	1.900 U	0.350 U	3.800 U	0.034 U	0.038 U	0.043 U
4-Methylphenol	100	1.100 U	4.300 U	0.043 U	0.043 U	0.041 U	0.042 U	21.000 U	0.044 U	0.095 U	0.044 U	0.075 U	2.100 U	0.390 U	4.200 U	0.038 U	0.042 U	0.046 U
4-Nitrophenol	N/A	0.340 U	1.300 U	0.013 U	0.013 U	0.012 U	0.013 U	6.500 U	0.014 U	0.029 U	0.014 U	0.023 U	0.630 UJ	0.120 U	1.300 U	0.011 U	0.013 U	0.014 U
bis(2-Ethylhexyl) phthalate	N/A	0.670 U	2.600 U	0.160 J	0.140 J	0.160 U	0.170 U	13.000 U	0.130 J	0.058 U	0.027 U	0.190 U	1.300 U	0.240 U	2.500 U	0.093 J	0.310 U	0.360 U
Butyl benzyl phthalate	N/A	0.450 U	1.700 U	0.017 U	0.017 U	0.017 U	0.017 U	8.500 U	0.018 U	0.039 U	0.018 U	0.031 U	0.850 U	0.160 U	1.700 U	0.015 U	0.017 U	0.019 U
Carbazole	N/A	1.100 J	2.200 J	0.028 J	0.0032 U	0.037 J	0.0031 U	6.600 J	0.0032 U	0.0071 U	0.0033 U	0.430 J	11.000 J	1.000 J	13.000 J	0.023 J	0.060 J	0.210 J
Dibenzofuran	59	2.500 J	5.700 J	0.061 J	0.022 U	0.020 J	0.022 U	22.000 J	0.023 U	0.054 J	0.023 U	1.700	15.000 J	2.000 J	37.000 J	0.018 J	0.015 J	0.230 J
Diethyl phthalate	N/A	0.300 U	1.200 U	0.012 U	0.012 U	0.011 U	0.011 U	5.700 U	0.012 U	0.026 U	0.012 U	0.020 U	0.570 U	0.100 U	1.100 U	0.010 U	0.011 U	0.013 U
Phenol	100	1.500 U	5.800 U	0.058 U	0.058 U	0.042 J	0.170 J	28.000 U	0.059 U	0.130 U	0.150 J	0.100 U	2.800 U	0.520 U	5.600 U	0.051 U	0.056 U	0.240 J
Metals (mg/Kg)																		
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH023 2/10/2004 21GH023-36 34-36	21GH023 2/10/2004 21GH023-50 48-50	21GH024 2/5/2004 21GH024-29 27-29	21GH024 2/5/2004 21GH024-35 33-35	21GH024 2/5/2004 21GH024-51 49-51	21GH026 2/16/2004 21GH026-25 23-25	21GH026 2/16/2004 21GH026-29 27-29	21GH026 2/16/2004 21GH026-51 49-51	21GH027 2/2/2004 21GH027-25 23-25	21GH027A 3/23/2004 21GH027A-119 117-119	21GH027A 3/17/2004 21GH027A-31 29-31	21GH027A 3/19/2004 21GH027A-91 89-91	21GN001 2/17/2004 21GN001-33 31-33	21GN001 2/17/2004 21GN001-51 49-51	21GN002 2/18/2004 21GN002-31 29-31	21GN002 2/18/2004 21GN002-51 49-51	21GT001 3/2/2004 21GT001-27 25-27
BTEX (mg/Kg)																		
Benzene	4.8	0.039	0.00021 U	22	25	7.1	21	1100	0.063	1.200	0.0007 J	33	0.0056	0.022	0.00028 U	0.0096	0.00028 U	96
Ethylbenzene	41	0.010	0.00017 U	24.000	54	2.000	110	570	0.0061	6.700	0.00022 U	5.700	0.00028 U	0.0047 J	0.00024 U	0.00025 U	0.00023 U	310
Toluene	100	0.0055 J	0.00018 U	61.000	85.000	0.160 J	110	1500	0.010	3.700	0.0010 J	34.000	0.0020 J	0.0053 J	0.00024 U	0.0013 J	0.00024 U	230
Xylene (Total)	100	0.0086	0.00042 U	160	160	0.660	190	1400	0.0080	9.900	0.00052 U	32.000	0.00065 U	0.011	0.00058 U	0.00060 U	0.00057 U	450
Total BTEX	N/A	0.0631	ND	267	324	9.92	431	4570	0.0871	21.5	0.0017	104.7	0.0076	0.043	ND	0.0109	ND	1086
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.0011 R	0.0045 J	1.200 U	2.300 U	0.240 U	2.500 U	48.000 R	0.010	0.230 U	0.0011 R	0.590 R	0.0013 R	0.0012 U	0.0012 U	0.0064 J	0.0058 J	8.700 R
4-Methyl-2-pentanone	N/A	0.00086 U	0.00065 U	0.778 U	1.300 U	0.140 U	1.400 U	27.000 U	0.00086 U	0.130 U	0.00080 U	0.340 U	0.0010 U	0.00090 U	0.00090 U	0.00093 U	0.00087 U	5.000 U
Acetone	100	0.032	0.032	1.150 U	2.200 U	0.230 UJ	2.400 U	45.000 R	0.100	0.220 UJ	0.033 J	0.570 UJ	0.0033 U	0.110 J	0.120 J	0.130	0.120	8.300 U
Carbon Disulfide	N/A	0.0010 J	0.0011 J	0.150 U	0.300 U	0.032 U	0.330 U	6.200 U	0.0012 J	0.030 UJ	0.0006 J	0.077 U	0.00041 U	0.0010 J	0.0007 J	0.0014 J	0.00035 U	1.100 U
Carbon Tetrachloride	2.4	0.00024 U	0.00018 U	0.234 U	0.460 U	0.048 U	0.500 U	9.500 U	0.00024 U	0.046 U	0.00023 U	0.110 U	0.00028 U	0.00025 U	0.00025 U	0.00026 U	0.00025 U	1.700 U
Chloroform	49	0.00027 U	0.00020 U	0.102 U	0.200 U	0.021 U	0.220 U	4.000 U	0.00027 U	0.020 U	0.00025 U	0.051 U	0.00031 U	0.00028 U	0.00028 U	0.00029 U	0.00027 U	0.740 U
cis-1,2-Dichloroethene	100	0.00035 U	0.0008 J	0.132 U	0.260 U	0.027 U	0.280 U	5.300 U	0.00035 U	0.026 U	0.00032 U	0.066 U	0.00041 U	0.00036 U	0.00036 U	0.00038 U	0.00035 U	0.970 U
Methylene Chloride	100	0.0007 U	0.00020 U	0.0768 U	0.150 U	0.016 U	0.160 U	3.200 U	0.0024 U	0.015 U	0.0021 U	0.038 U	0.0014 U	0.0015 U	0.0015 U	0.0011 U	0.0011 U	0.550 UJ
Styrene	N/A	0.0008 J	0.00010 U	47.000	5.200 J	0.020 U	31.000	680.000	0.0022 J	0.240 J	0.00013 U	0.600 J	0.00016 U	0.00015 U	0.00015 U	0.00015 U	0.00014 U	0.710 U
Tetrachloroethene	19	0.00020 U	0.00015 U	0.204 U	0.400 U	0.040 U	0.440 U	8.400 U	0.00020 U	0.040 U	0.00019 U	0.100 U	0.00024 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	1.500 U
Trichloroethene	21	0.00032 U	0.0019	0.150 U	0.300 U	0.030 U	0.320 U	6.200 U	0.00032 U	0.030 U	0.00030 U	0.074 U	0.00038 U	0.00032 U	0.00032 U	0.00032 U	0.00032 U	1.100 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.032 J	0.020 J	24.000	14.000	0.048 J	440.000	440.000	0.140 J	2.800	0.053 J	58.000	0.019 J	0.270 J	0.021 J	0.021 U	0.019 U	600.000
Acenaphthene	100	0.038 J	0.011 J	3.100 J	4.000	0.0037 U	53.000 J	64.000 J	0.019 J	0.100 J	0.043 J	19.000	0.0039 U	0.062 J	0.0035 U	0.0037 U	0.0035 U	130
Acenaphthylene	100	0.0035 U	0.021 J	11.000	6.100	0.029 J	170.000 J	180	0.082 J	0.260 J	0.048 J	17.000	0.0039 U	0.095 J	0.0035 U	0.0037 U	0.0035 U	54.000 J
Anthracene	100	0.044 J	0.050 J	15.000	7.200	0.038 J	96.000 J	130	0.060 J	0.330 J	0.100 J	22.000	0.010 J	0.079 J	0.0032 U	0.0034 U	0.0032 U	52.000 J
Benzo(a)anthracene	1	0.054	0.033 J	15	5.8	0.033 J	120	160	0.065	0.410	0.082	18	0.016 J	0.130	0.011 U	0.012 U	0.011 U	32
Benzo(a)pyrene	1	0.035 J	0.024 J	11	3.7	0.022 J	110	110	0.069	0.290	0.064	10	0.0034 U	0.092	0.0030 U	0.0033 U	0.0030 U	29
Benzo(b)fluoranthene	1	0.027 J	0.016 J	6.4	2	0.013 J	57	59	0.030 J	0.210	0.036 J	6	0.0036 U	0.048	0.0032 U	0.0034 U	0.0032 U	10
Benzo(ghi)perylene	100	0.018 J	0.0041 U	5.000	1.400 J	0.0047 U	63.000 J	54.000 J	0.033 J	0.200 J	0.026 J	5.000 J	0.0049 U	0.047 J	0.0044 U	0.0047 U	0.0044 U	11.000 J
Benzo(k)fluoranthene	3.9	0.033 J	0.020 J	10	3.400	0.021 J	75	100	0.056	0.260	0.065	9.8	0.0048 U	0.094	0.0043 U	0.0046 U	0.0043 U	18
Chrysene	3.9	0.050 J	0.032 J	14	4.8	0.027 J	110.000 J	130	0.062 J	0.460 J	0.087 J	15	0.012 J	0.130 J	0.0051 U	0.0055 U	0.0051 U	32.000 J
Dibenz(a,h)anthracene	0.33	0.0027 U	0.0025 U	2.1	0.61	0.0029 U	14.000 J	16	0.0026 U	0.0055 U	0.0025 U	1.7	0.0030 U	0.0028 UJ	0.0027 UJ	0.0029 U	0.0027 U	0.500 U
Fluoranthene	100	0.100 J	0.080 J	21.000	8.700	0.056 J	290	310	0.170 J	0.700 J	0.170 J	34.000	0.018 J	0.300 J	0.013 J	0.016 J	0.0013 U	51.000 J
Fluorene	100	0.040 J	0.044 J	15.000	8.200	0.033 J	170.000 J	220	0.100 J	0.270 J	0.120 J	29.000	0.0032 U	0.190 J	0.0028 U	0.0030 U	0.0028 U	80.000
Indeno(1,2,3-cd)pyrene	0.5	0.015 J	0.0025 U	4.4	1.2	0.0029 U	43	45	0.025 J	0.180	0.022 J	4.3	0.0030 U	0.034 J	0.0027 U	0.0029 U	0.0027 U	8.9
Naphthalene	100	0.200 J	0.035 J	88.000	40.000	0.180 J	2300	1800	0.500	14.000	0.056 J	150	0.064 J	1.500	0.096 J	0.020 J	0.0036 U	900
Phenanthrene	100	0.170 J	0.120 J	41.000	20.000	0.120 J	610	650	0.360 J	1.200	0.380 J	70.000	0.037 J	0.760	0.051 J	0.039 J	0.022 J	230
Pyrene	100	0.094 J	0.082 J	22.000	9.000	0.056 J	390	350	0.230 J	0.840	0.190 J	36.000	0.019 J	0.350 J	0.020 J	0.027 J	0.011 J	80.000
Total PAH	N/A	0.95	0.588	308	140.11	0.676	5111	4818	2.001	22.51	1.542	504.8	0.195	4.181	0.201	0.102	0.033	2317.9

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
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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.
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J+ = (Inorganics) The result is an estimated quantity, but the result may be biased high.
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Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GH023 2/10/2004 21GH023-36 34-36	21GH023 2/10/2004 21GH023-50 48-50	21GH024 2/5/2004 21GH024-29 27-29	21GH024 2/5/2004 21GH024-35 33-35	21GH024 2/5/2004 21GH024-51 49-51	21GH026 2/16/2004 21GH026-25 23-25	21GH026 2/16/2004 21GH026-29 27-29	21GH026 2/16/2004 21GH026-51 49-51	21GH027 2/2/2004 21GH027-25 23-25	21GH027A 3/23/2004 21GH027A-119 117-119	21GH027A 3/17/2004 21GH027A-31 29-31	21GH027A 3/19/2004 21GH027A-91 89-91	21GN001 2/17/2004 21GN001-33 31-33	21GN001 2/17/2004 21GN001-51 49-51	21GN002 2/18/2004 21GN002-31 29-31	21GN002 2/18/2004 21GN002-51 49-51	21GT001 3/2/2004 21GT001-27 25-27
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.038 U	0.035 U	0.960 J	0.200 J	0.041 U	20.000 U	9.200 U	0.037 U	0.077 U	0.035 U	9.300 J	0.042 U	0.039 U	0.038 U	0.041 U	0.038 U	6.900 U
2-Chloronaphthalene	N/A	0.026 U	0.024 U	0.270 U	0.130 U	0.028 U	14.000 U	6.300 U	0.025 U	0.052 U	0.024 U	0.630 U	0.029 U	0.027 U	0.026 U	0.028 U	0.026 U	4.800 U
2-Methylphenol	100	0.037 U	0.034 U	0.630 J	0.190 J	0.040 U	20.000 U	9.100 U	0.036 U	0.073 J	0.034 U	4.200 J	0.042 U	0.038 U	0.037 U	0.040 U	0.037 U	6.800 U
4-Methylphenol	100	0.041 U	0.038 U	1.700 J	0.950 J	0.044 U	22.000 U	9.900 U	0.040 U	0.130 J	0.038 U	13.000	0.046 U	0.042 U	0.041 U	0.044 U	0.041 U	7.400 U
4-Nitrophenol	N/A	0.012 U	0.011 U	0.130 U	0.064 U	0.013 U	6.500 U	3.100 U	0.012 U	0.025 U	0.011 U	0.300 U	0.014 U	0.013 U	0.012 U	0.013 U	0.012 U	2.300 U
bis(2-Ethylhexyl) phthalate	N/A	0.180 U	0.410 U	0.250 U	0.130 U	0.120 J	13.000 U	6.100 U	0.024 U	0.320 J	0.190 U	0.600 U	0.028 U	0.110 J	0.120 J	0.140 J	0.120 U	4.500 U
Butyl benzyl phthalate	N/A	0.017 U	0.015 U	0.170 U	0.085 U	0.018 U	8.900 U	4.100 U	0.016 U	0.034 U	0.015 U	0.400 U	0.019 U	0.017 U	0.017 U	0.018 U	0.017 U	3.000 U
Carbazole	N/A	0.016 J	0.014 J	3.800 J	3.300	0.016 J	36.000 J	62.000 J	0.022 J	0.140 J	0.036 J	16.000	0.0034 U	0.024 J	0.0030 U	0.0032 U	0.0030 U	2.900 J
Dibenzofuran	59	0.025 J	0.019 J	9.600	5.300	0.022 J	65.000 J	120	0.038 J	0.140 J	0.060 J	20.000	0.024 U	0.056 J	0.021 U	0.023 U	0.021 U	12.000 J
Diethyl phthalate	N/A	0.011 U	0.010 U	0.110 U	0.057 U	0.012 U	5.900 U	2.700 U	0.011 U	0.022 U	0.010 U	0.270 U	0.012 U	0.011 U	0.011 U	0.012 U	0.011 U	2.000 U
Phenol	100	0.340 J	0.051 U	1.000 J	0.250 J	0.059 U	30.000 U	13.000 U	0.054 U	0.190 J	0.051 U	2.900 J	0.062 U	0.056 U	0.055 U	0.059 U	0.055 U	10.000 U
Metals (mg/Kg)																		
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	5570	4880	NS	NS	NS
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.97 UJ	0.97 UJ	NS	NS	NS
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.9 J	0.84 U	NS	NS	NS
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	14.3 J	36.9 J	NS	NS	NS
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.30 J	0.32 J	NS	NS	NS
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.100 U	0.099 U	NS	NS	NS
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1000 J	12000	NS	NS	NS
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	10.7 J	11.2 J	NS	NS	NS
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4.4 J	5.4 J	NS	NS	NS
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	12.1 J	10.9 J	NS	NS	NS
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	13200	11100	NS	NS	NS
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4.9 J	3.8 J	NS	NS	NS
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2760 J	5820 J	NS	NS	NS
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	91.9	333	NS	NS	NS
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.021 UJ	0.021 UJ	NS	NS	NS
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	13.1	18.9	NS	NS	NS
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1010 J	1440	NS	NS	NS
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.97 U	0.97 U	NS	NS	NS
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.17 U	0.17 U	NS	NS	NS
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	250 J	454 J	NS	NS	NS
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	14.1	13.5	NS	NS	NS
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	30.9	27.2	NS	NS	NS
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

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Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21GT001 3/2/2004 21GT001-51 49-51	21GT002 3/4/2004 21GT002-27 25-27	21GT002 3/5/2004 21GT002-43 41-43	21GT002 3/5/2004 21GT002-51 49-51	21MH001 2/18/2004 21MH001-33 31-33	21MH001 2/18/2004 21MH001-51 49-51	21OT001C 3/15/2004 21OT001C-31 29-31	21OT001C 3/15/2004 21OT001C-51 49-51	21OT002A 3/10/2004 21OT002A-33 31-33	21OT002A 3/10/2004 21OT002A-47 45-47	21OT002A 3/10/2004 21OT002A-51 49-51	21OT003 3/10/2004 21OT003-29 27.5-29	21OT003 3/10/2004 21OT003-29DUP 27.5-29	21OT003 3/10/2004 21OT003-51 49-51	21OT004 3/11/2004 21OT004-31 29-31	21OT004 3/11/2004 21OT004-31DUP 29-31	21OT004 3/11/2004 21OT004-45 43-45
BTEX (mg/Kg)																		
Benzene	4.8	0.017	96	0.160	0.00034 U	0.00028 U	0.0035	1.200	0.041	25	0.490 J	0.0024	3.000	1.100	0.0015	0.750	0.630	0.025 U
Ethylbenzene	41	0.017	460	3.400	0.081	0.00023 U	0.00024 U	2.800	0.010	480	21.000	0.018	19.000	12.000	0.0027 J	14.000	40.000	0.039 J
Toluene	100	0.019	120	0.062 J	0.0021 J	0.0011 J	0.0012 J	5.400	0.0029 J	94.000	0.210 U	0.0038 J	27.000	12.000	0.0039 J	4.700	3.800	0.020 U
Xylene (Total)	100	0.030	650	3.500	0.088	0.00057 U	0.00060 U	13.000	0.014	460	5.700 J	0.016	130	65.000	0.015	39.000	41.000	0.027 U
Total BTEX	N/A	0.083	1326	7.122	0.1711	0.0011	0.0047	22.4	0.0679	1059	27.19	0.0402	179	90.1	0.0231	58.45	85.43	0.039
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.0011 R	5.500 R	0.240 R	0.0015 R	0.0012 R	0.0012 R	0.230 R	0.0012 R	5.900 R	2.400 R	0.0012 R	0.440 R	0.230 R	0.0011 R	0.950 UJ	0.480 UJ	0.230 UJ
4-Methyl-2-pentanone	N/A	0.00086 U	3.200 U	0.140 U	0.0011 U	0.00087 U	0.00092 U	0.130 U	0.00087 U	3.400 U	1.400 U	0.00093 U	0.250 U	0.130 U	0.00080 U	0.540 U	0.270 U	0.130 U
Acetone	100	0.0028 UJ	5.300 U	0.230 U	0.0037 U	0.047	0.045	0.220 UJ	0.046	5.700 UJ	2.300 UJ	0.0030 UJ	0.420 UJ	0.220 UJ	0.0026 UJ	0.910 U	0.450 U	0.220 U
Carbon Disulfide	N/A	0.00035 U	0.720 U	0.031 UJ	0.00046 U	0.00035 U	0.0007 J	0.030 U	0.00035 UJ	0.770 U	0.310 U	0.00038 U	0.056 U	0.030 U	0.00032 U	0.120 U	0.062 U	0.030 U
Carbon Tetrachloride	2.4	0.00024 U	1.100 U	0.046 U	0.00031 U	0.00025 U	0.00026 U	0.044 U	0.00025 U	1.200 U	0.460 U	0.00026 U	0.089 U	0.044 U	0.00023 U	0.180 U	0.095 U	0.044 U
Chloroform	49	0.00027 U	0.470 U	0.020 U	0.00035 U	0.00027 U	0.00028 U	0.020 U	0.00027 U	0.510 U	0.200 U	0.00029 U	0.037 U	0.020 U	0.00025 U	0.081 U	0.040 U	0.020 U
cis-1,2-Dichloroethene	100	0.0008 J	0.620 U	0.026 U	0.00046 U	0.0014 J	0.0014 J	0.026 U	0.0009 J	0.660 U	0.260 U	0.0009 J	0.048 U	0.026 U	0.00032 U	0.100 U	0.053 U	0.026 U
Methylene Chloride	100	0.002 U	0.360 U	0.015 U	0.0025 U	0.0016 U	0.0014 U	0.014 U	0.0024 U	0.390 U	0.150 U	0.0015 U	0.029 U	0.015 U	0.0021 U	0.060 U	0.031 U	0.014 U
Styrene	N/A	0.0020 J	14.000	0.019 U	0.00018 U	0.00014 U	0.00015 U	1.600	0.00014 U	13.000 J	0.190 U	0.00015 U	14.000	4.000	0.0009 J	0.077 U	0.039 U	0.019 U
Tetrachloroethene	19	0.00020 U	0.950 U	0.040 U	0.00025 U	0.00020 U	0.00020 U	0.040 U	0.00020 U	1.000 U	0.400 U	0.00020 U	0.078 U	0.040 U	0.00019 U	0.160 U	0.081 U	0.040 U
Trichloroethene	21	0.0010 J	0.690 U	0.030 U	0.00040 U	0.00032 U	0.00032 U	0.030 U	0.00032 U	0.770 U	0.300 U	0.00032 U	0.057 U	0.030 U	0.00030 U	0.120 U	0.060 U	0.030 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.018 J	1100.000	69.000	0.022 J	0.012 J	0.020 UJ	58.000	0.014 J	900.000	17.000 J	0.026 J	52.000	82.000	0.021 J	28.000 J	490.000	0.740 J
Acenaphthene	100	0.0035 U	330	62.000	0.260 J	0.0035 U	0.0036 UJ	7.100 J	0.039 J	310	540	0.480	18.000	14.000	0.028 J	24.000 J	120	4.300
Acenaphthylene	100	0.0035 U	110.000 J	13.000	0.120 J	0.0035 U	0.0036 UJ	23.000	0.016 J	250.000 J	100.000 J	0.120 J	22.000	41.000	0.064 J	55.000 J	320	4.100
Anthracene	100	0.0032 U	200.000 J	33.000	0.220 J	0.0032 U	0.0032 UJ	19.000	0.030 J	460	120	0.250 J	34.000	45.000	0.200 J	21.000 J	160	2.900
Benzo(a)anthracene	1	0.011 U	150	22	0.170	0.011 U	0.011 UJ	16	0.029 J	210	120	0.180	19	32	0.130	16.000 J	120	2.2
Benzo(a)pyrene	1	0.0030 U	140	19	0.130	0.0030 U	0.0031 UJ	15	0.024 J	170	150	0.200	14	23	0.089	20.000 J	110	2.2
Benzo(b)fluoranthene	1	0.0032 U	74	8.9	0.056	0.0032 U	0.0032 UJ	7.7	0.0097 J	86	49	0.078	7.4	13	0.051	7.800 J	46	0.840
Benzo(ghi)perylene	100	0.0044 U	93.000 J	9.300 J	0.057 J	0.0044 U	0.0045 UJ	7.000 J	0.0044 U	72.000 J	87.000 J	0.094 J	5.800 J	9.400 J	0.031 J	12.000 J	57.000 J	1.200 J
Benzo(k)fluoranthene	3.9	0.0043 U	110	13	0.100	0.0043 U	0.0044 UJ	15.000 J	0.024 J	160	96	0.140	16	22	0.086	15.000 J	93.000 J	1.400 J
Chrysene	3.9	0.0051 U	150.000 J	20	0.150 J	0.0051 U	0.0052 UJ	15	0.026 J	250.000 J	120	0.210 J	20	28	0.140 J	17.000 J	120	2.200
Dibenz(a,h)anthracene	0.33	0.0027 U	45	2.5	0.0027 U	0.0027 U	0.0028 UJ	2.6	0.0027 U	41	13	0.0029 U	0.065 U	4.1	0.0024 U	2.100 J	20	0.280
Fluoranthene	100	0.0013 U	290	47.000	0.370 J	0.012 J	0.0014 UJ	36.000	0.073 J	580	420	0.570	51.000	64.000	0.290 J	46.000 J	300	5.400
Fluorene	100	0.0028 U	300	40.000	0.240 J	0.0028 U	0.0029 UJ	25.000	0.033 J	440	340	0.330 J	41.000	55.000	0.180 J	35.000 J	250	4.900
Indeno(1,2,3-cd)pyrene	0.5	0.0027 U	77	7	0.041	0.0027 U	0.0027 UJ	6.3	0.0027 U	66	53	0.066	5.6	8.9	0.029 J	7.700 J	41	0.75
Naphthalene	100	0.037 J	2200	160	0.045 J	0.051 J	0.0037 UJ	120	0.043 J	2600	12.000 J	0.045 J	51.000	98.000	0.055 J	13.000 J	1000	0.220 J
Phenanthrene	100	0.028 J	850	130	0.970	0.041 J	0.0039 UJ	110	0.120 J	1400	1000	1.400	100	160	0.650	130.000 J	710	15.000
Pyrene	100	0.0029 U	300	64.000	0.480	0.014 J	0.0030 UJ	34.000	0.081 J	510	570	0.790	40.000	63.000	0.290 J	62.000 J	380	8.400
Total PAH	N/A	0.083	6519	719.7	3.431	0.13	ND	516.7	0.5617	8505	3807	4.979	496.8	762.4	2.334	511.6	4337	57.03

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SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	0.038 U	22.000 U	0.920 U	0.038 U	0.038 U	0.039 UJ	1.200 J	0.038 U	24.000 U	9.200 U	0.041 U	0.900 U	0.920 U	0.034 U	0.920 R	7.500 U	0.180 U	
2-Chloronaphthalene	N/A	0.026 U	15.000 U	0.630 U	0.026 U	0.026 U	0.027 UJ	0.510 U	0.026 U	16.000 U	6.300 U	0.028 U	0.620 U	0.630 U	0.023 U	0.630 R	5.100 U	0.120 U	
2-Methylphenol	100	0.037 U	22.000 U	0.910 U	0.037 U	0.037 U	0.038 UJ	0.730 U	0.037 U	24.000 U	9.100 U	0.040 U	0.890 U	0.910 U	0.034 U	0.900 R	7.400 U	0.170 U	
4-Methylphenol	100	0.041 U	24.000 U	0.990 U	0.041 U	0.041 U	0.042 UJ	0.790 U	0.041 U	26.000 U	9.900 U	0.044 U	0.970 U	0.990 U	0.037 U	0.980 R	8.000 U	0.190 U	
4-Nitrophenol	N/A	0.012 U	7.200 U	0.310 U	0.012 U	0.012 U	0.013 UJ	0.240 U	0.012 U	7.600 U	3.100 U	0.013 U	0.300 U	0.310 U	0.011 U	0.300 R	2.400 U	0.059 U	
bis(2-Ethylhexyl) phthalate	N/A	0.096 J	14.000 U	0.610 U	0.025 U	0.200 U	0.093 J	0.480 U	0.025 U	16.000 U	6.100 U	0.027 U	0.590 U	0.610 U	0.022 U	0.600 R	4.900 U	0.120 U	
Butyl benzyl phthalate	N/A	0.017 U	9.700 U	0.410 U	0.017 U	0.017 U	0.017 UJ	0.320 U	0.017 U	10.000 U	4.100 U	0.018 U	0.400 U	0.410 U	0.015 U	0.400 R	3.300 U	0.077 U	
Carbazole	N/A	0.0030 U	38.000 J	1.800 J	0.028 J	0.0030 U	0.0031 UJ	9.100	0.011 J	140.000 J	5.000 J	0.038 J	11.000	14.000	0.045 J	3.200 J	32.000 J	0.210 J	
Dibenzofuran	59	0.021 U	110.000 J	5.500 J	0.022 J	0.021 U	0.022 UJ	19.000	0.021 U	240.000 J	18.000 J	0.048 J	25.000	36.000	0.070 J	10.000 J	86	0.660 J	
Diethyl phthalate	N/A	0.011 U	6.500 U	0.270 U	0.011 U	0.011 U	0.011 UJ	0.220 U	0.011 U	7.000 U	2.700 U	0.012 U	0.260 U	0.270 U	0.010 U	0.270 R	2.200 U	0.051 U	
Phenol	100	0.055 U	32.000 U	1.300 U	0.055 U	0.055 U	0.056 UJ	1.100 U	0.055 U	35.000 U	13.000 U	0.059 U	1.300 U	1.300 U	0.050 U	1.300 R	11.000 U	0.260 U	
Metals (mg/Kg)																			
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Barium	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Chromium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Copper	270	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Lead	400	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Nickel	310	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Selenium	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Silver	180	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
Cyanide (mg/Kg)																			
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	

Notes:
PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21OT004 3/11/2004 21OT004-51 49-51	21OT005 3/10/2004 21OT005-25 23-25	21OT005 3/10/2004 21OT005-51 49-51	21OT006 3/24/2004 21OT006-27 25-27	21OT006 3/25/2004 21OT006-51 49-51	21OT007 3/18/2004 21OT007-27 25-27	21OT007 3/19/2004 21OT007-51 49-51	21PF001 2/18/2004 21PF001-31 29-31	21PF001 2/18/2004 21PF001-51 49-51	21PF002 2/23/2004 21PF002-31 29-31	21PF002 2/23/2004 21PF002-51 49-51	21PF003 2/24/2004 21PF003-35 33-35	21PF003 2/24/2004 21PF003-51 49-51	21PF004 2/24/2004 21PF004-31 29-31	21PF004 2/24/2004 21PF004-51 49-51	21PF005 2/24/2004 21PF005-31 29-31	21PF005 2/24/2004 21PF005-51 49-51	21PF006 2/20/2004 21PF006-35 33-35
BTEX (mg/Kg)																			
Benzene	4.8	0.0008 J	0.046 J	0.00025 U	0.290	0.00025 U	0.027	0.00028 U	0.0021	0.0008 J	0.0048	0.0088	0.0043	0.0019	0.0009 J	0.0007 J	0.0019	0.0017	0.140
Ethylbenzene	41	0.00025 U	0.710	0.00022 U	7.800	0.00023 U	0.064	0.00024 U	0.00025 U	0.00025 U	0.00023 U	0.00026 U	0.00027 U	0.00025 U	0.00025 U	0.00024 U	0.0034 J	0.00022 U	2.800
Toluene	100	0.00025 U	0.300 J	0.00022 U	2.500	0.0014 J	0.023	0.00024 U	0.0012 J	0.0012 J	0.00023 U	0.00026 U	0.0009 J	0.00025 U	0.00026 U	0.00024 U	0.0012 J	0.00022 U	0.160 J
Xylene (Total)	100	0.00060 U	3.000	0.00052 U	22.000	0.00055 U	0.150	0.00058 U	0.00060 U	0.00060 U	0.0013 J	0.00063 U	0.00064 U	0.00060 U	0.00061 U	0.00058 U	0.0031 J	0.00054 U	2.500
Total BTEX	N/A	0.0008	4.056	ND	32.59	0.0014	0.264	ND	0.0033	0.002	0.0061	0.0088	0.0052	0.0019	0.0009	0.0007	0.0096	0.0017	5.6
VOC (mg/Kg)																			
2-Butanone (Methyl Ethyl Ke	100	0.0012 UJ	0.230 R	0.0011 R	0.230 R	0.0011 R	0.0011 R	0.0012 R	0.0012 R	0.0012 R	0.0090	0.011	0.0013 U	0.0012 U	0.0013 R	0.0012 R	0.011 J	0.0011 R	0.240 R
4-Methyl-2-pentanone	N/A	0.00092 U	0.130 U	0.00080 U	0.130 U	0.00084 U	0.00084 U	0.00089 U	0.00093 U	0.00092 U	0.00084 U	0.00098 U	0.00099 U	0.00092 U	0.00095 U	0.00089 U	0.00083 U	0.00083 U	0.140 U
Acetone	100	0.029	0.220 UJ	0.0026 UJ	0.220 U	0.059 J	0.026	0.033 J	0.057	0.047	0.061 J	0.084 J	0.033 J	0.032 J	0.028 J	0.033 J	0.018 J	0.018 J	0.230 UJ
Carbon Disulfide	N/A	0.00037 U	0.030 U	0.00032 U	0.030 U	0.00034 U	0.0011 J	0.0006 J	0.00038 U	0.0009 J	0.0020 J	0.00040 U	0.0010 J	0.0010 J	0.0014 J	0.0012 J	0.0072	0.0016 J	0.031 U
Carbon Tetrachloride	2.4	0.00026 U	0.046 U	0.00023 U	0.044 U	0.00024 U	0.00024 U	0.00025 U	0.00026 U	0.00026 U	0.00024 U	0.00027 U	0.00028 U	0.00026 U	0.00027 U	0.00025 U	0.00023 U	0.00023 U	0.046 U
Chloroform	49	0.00028 U	0.020 U	0.00025 U	0.020 U	0.00026 U	0.00026 U	0.00028 U	0.00029 U	0.00028 U	0.00026 U	0.00030 U	0.00031 U	0.00028 U	0.00029 U	0.00028 U	0.00026 U	0.00026 U	0.021 U
cis-1,2-Dichloroethene	100	0.00037 U	0.026 U	0.00032 U	0.026 U	0.00034 U	0.00034 U	0.00036 U	0.0007 J	0.00037 U	0.00034 U	0.00040 U	0.0012 J	0.00037 U	0.0016 J	0.0013 J	0.0009 J	0.0019 J	0.027 U
Methylene Chloride	100	0.0023 U	0.015 U	0.0018 U	0.015 U	0.0008 U	0.0012 U	0.00028 U	0.0011 U	0.0012 U	0.0012 U	0.00030 U	0.00031 U	0.00028 U	0.00030 U	0.00028 U	0.001 U	0.0007 U	0.015 U
Styrene	N/A	0.00015 U	0.120 J	0.00013 U	0.410 J	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00015 U	0.00014 U	0.00016 U	0.00016 U	0.00016 U	0.00015 U	0.00015 U	0.00014 U	0.0008 J	0.00013 U
Tetrachloroethene	19	0.0023	0.040 U	0.00019 U	0.040 U	0.00019 U	0.00019 U	0.00020 U	0.00020 U	0.00020 U	0.00019 U	0.00022 U	0.00022 U	0.00020 U	0.00022 U	0.00020 U	0.00019 U	0.00019 U	0.040 U
Trichloroethene	21	0.0019	0.030 U	0.00030 U	0.030 U	0.00030 U	0.00030 U	0.00032 U	0.0011 J	0.00032 U	0.0007 J	0.00035 U	0.0018	0.00032 U	0.0021	0.00032 U	0.0021	0.0019	0.030 U
PAH (mg/Kg)																			
2-Methylnaphthalene	N/A	0.065 J	42.000	0.021 J	100.000	0.017 J	260.000	0.019 U	0.021 U	0.020 UJ	0.018 U	0.021 U	0.022 U	0.020 U	0.021 U	0.020 U	0.370 U	0.035 J	5.100
Acenaphthene	100	0.210 J	17.000 J	0.098 J	63.000	0.022 J	44.000	0.0035 U	0.0037 U	0.0036 UJ	0.0033 U	0.0037 U	0.0039 U	0.0036 U	0.0038 U	0.0036 U	38.000	0.200 J	3.200
Acenaphthylene	100	0.230 J	19.000	0.080 J	17.000 J	0.043 J	180	0.0035 U	0.0037 U	0.0036 UJ	0.0033 U	0.0037 U	0.0039 U	0.0036 U	0.0038 U	0.0036 U	27.000	0.530	1.700 J
Anthracene	100	0.120 J	28.000	0.210 J	57.000	0.062 J	180	0.0032 U	0.0034 U	0.0032 UJ	0.0030 U	0.0034 U	0.0036 U	0.0033 U	0.0035 U	0.0032 U	25.000	0.330 J	2.100 J
Benzo(a)anthracene	1	0.100	19	0.210	48	0.072	120	0.011 U	0.012 U	0.011 UJ	0.011 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	33	0.470	1.7
Benzo(a)pyrene	1	0.100	15	0.130	36	0.053	92	0.0030 U	0.0033 U	0.0031 UJ	0.0029 U	0.0033 U	0.0034 U	0.0032 U	0.0033 U	0.0031 U	33	0.490	1.2
Benzo(b)fluoranthene	1	0.039 J	7.3	0.076	20	0.032 J	48	0.0032 U	0.0034 U	0.0032 UJ	0.0030 U	0.0034 U	0.0036 U	0.0033 U	0.0035 U	0.0032 U	17	0.230	0.640
Benzo(ghi)perylene	100	0.054 J	5.400 J	0.049 J	17.000 J	0.034 J	30.000 J	0.0044 U	0.0047 U	0.0045 UJ	0.0042 U	0.0047 U	0.0049 U	0.0046 U	0.0048 U	0.0045 U	18.000	0.240 J	0.670 J
Benzo(k)fluoranthene	3.9	0.060 J	14	0.120	31	0.051	86	0.0043 U	0.0046 U	0.0044 UJ	0.0041 U	0.0046 U	0.0048 U	0.0045 U	0.0047 U	0.0044 U	20	0.300	1.000
Chrysene	3.9	0.110 J	18	0.210 J	42	0.076 J	110	0.0051 U	0.0055 U	0.0052 UJ	0.0048 U	0.0055 U	0.0057 U	0.0053 U	0.0056 U	0.0052 U	29	0.450	1.500 J
Dibenz(a,h)anthracene	0.33	0.0028 U	0.066 U	0.0025 U	7.4	0.012 J	14	0.0027 U	0.0029 U	0.0028 UJ	0.0026 U	0.0029 U	0.0030 U	0.0028 U	0.0030 U	0.0028 U	4	0.058	0.014 UJ
Fluoranthene	100	0.290 J	39.000	0.400	100	0.130 J	230	0.0013 U	0.0014 U	0.0014 UJ	0.0013 U	0.0014 U	0.0015 U	0.0014 U	0.0014 U	0.0014 U	85.000	1.300	3.900
Fluorene	100	0.240 J	37.000	0.100 J	81.000	0.062 J	220	0.0028 U	0.0030 U	0.0029 UJ	0.0027 U	0.0030 U	0.0032 U	0.0030 U	0.0031 U	0.0029 U	40.000	0.480	2.800
Indeno(1,2,3-cd)pyrene	0.5	0.032 J	4.8	0.046	16	0.026 J	29	0.0027 U	0.0029 U	0.0027 UJ	0.0025 U	0.0029 U	0.0030 U	0.0028 U	0.0029 U	0.0027 U	12	0.140	0.460 J
Naphthalene	100	0.200 J	64.000	0.063 J	290	0.030 J	710	0.0036 U	0.0039 U	0.0037 UJ	0.0034 U	0.0039 U	0.0041 U	0.0038 U	0.0040 U	0.0037 U	0.220 J	0.066 J	24.000
Phenanthrene	100	0.870	110	0.480	310	0.280 J	600	0.014 J	0.0040 U	0.0039 UJ	0.0036 U	0.0040 U	0.0042 U	0.0040 U	0.0041 U	0.0039 U	130	1.800	8.900
Pyrene	100	0.490	42.000 J	0.460	88.000	0.160 J	220	0.015 J	0.0031 U	0.0030 UJ	0.0028 U	0.0031 U	0.0032 U	0.0030 U	0.013 J	0.0030 U	100	1.500	4.200
Total PAH	N/A	3.21	481.5	2.753	1323.4	1.162	3173	0.029	ND	ND	ND	ND	ND	ND	0.013	ND	611.22	8.619	63.07

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons

SVOCs - Semivolatile Organic Compounds

VOCs - Volatile Organic Compounds

mg/kg - milligrams per kilogram

DL - Detection Limit

ND = calculated totals are not detected

NA = Not Available

N/A = Not Applicable

mg/Kg = milligram per kilogram

NS = Not Sampled

Bold = compound was detected

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 or absence of the analyte cannot be verified.

Bold Italics = ND value exceeds soil cleanup objective for that compound.

Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21OT004 3/11/2004 21OT004-51 49-51	21OT005 3/10/2004 21OT005-25 23-25	21OT005 3/10/2004 21OT005-51 49-51	21OT006 3/24/2004 21OT006-27 25-27	21OT006 3/25/2004 21OT006-51 49-51	21OT007 3/18/2004 21OT007-27 25-27	21OT007 3/19/2004 21OT007-51 49-51	21PF001 2/18/2004 21PF001-31 29-31	21PF001 2/18/2004 21PF001-51 49-51	21PF002 2/23/2004 21PF002-31 29-31	21PF002 2/23/2004 21PF002-51 49-51	21PF003 2/24/2004 21PF003-35 33-35	21PF003 2/24/2004 21PF003-51 49-51	21PF004 2/24/2004 21PF004-31 29-31	21PF004 2/24/2004 21PF004-51 49-51	21PF005 2/24/2004 21PF005-31 29-31	21PF005 2/24/2004 21PF005-51 49-51	21PF006 2/20/2004 21PF006-35 33-35
SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	0.040 U	0.920 U	0.035 U	1.800 U	0.035 U	3.700 U	0.038 U	0.041 U	0.039 UJ	0.036 U	0.041 U	0.042 U	0.040 U	0.042 U	0.039 U	0.730 U	0.037 U	0.190 U
2-Chloronaphthalene	N/A	0.027 U	0.630 U	0.024 U	1.300 U	0.024 U	2.500 U	0.026 U	0.028 U	0.027 UJ	0.025 U	0.028 U	0.029 U	0.027 U	0.028 U	0.027 U	0.500 U	0.025 U	0.130 U
2-Methylphenol	100	0.039 U	0.910 U	0.034 U	1.800 U	0.034 U	3.600 U	0.037 U	0.040 U	0.038 UJ	0.035 U	0.040 U	0.042 U	0.039 U	0.041 U	0.038 U	0.720 U	0.036 U	0.190 U
4-Methylphenol	100	0.043 U	0.990 U	0.038 U	2.000 U	0.038 U	4.000 U	0.041 U	0.044 U	0.042 UJ	0.039 U	0.044 U	0.046 U	0.043 U	0.044 U	0.042 U	0.780 U	0.040 U	0.210 U
4-Nitrophenol	N/A	0.013 U	0.310 U	0.011 U	0.600 U	0.011 U	1.200 U	0.012 U	0.014 U	0.013 UJ	0.012 U	0.014 U	0.014 U	0.013 U	0.014 U	0.013 U	0.240 U	0.012 U	0.065 U
bis(2-Ethylhexyl) phthalate	N/A	0.026 U	0.610 U	0.160 J	1.200 U	0.090 J	2.400 U	0.120 J	0.027 U	0.088 J	0.160 J	0.150 J	0.190 J	0.026 U	0.180 J	0.025 U	0.480 U	0.089 J	0.130 U
Butyl benzyl phthalate	N/A	0.017 U	0.410 U	0.015 U	0.810 U	0.015 U	1.600 U	0.017 U	0.018 U	0.017 UJ	0.016 U	0.018 U	0.019 U	0.017 U	0.018 U	0.017 U	0.320 U	0.016 U	0.085 U
Carbazole	N/A	0.0032 U	11.000	0.039 J	16.000 J	0.015 J	46.000	0.0030 U	0.0032 U	0.0031 UJ	0.0029 U	0.0032 U	0.0034 U	0.0032 U	0.0033 U	0.0031 U	0.490 J	0.011 J	0.680 J
Dibenzofuran	59	0.015 J	22.000	0.038 J	49.000	0.026 J	130	0.021 U	0.023 U	0.022 UJ	0.020 U	0.023 U	0.024 U	0.022 U	0.023 U	0.022 U	9.900	0.089 J	1.400 J
Diethyl phthalate	N/A	0.012 U	0.270 U	0.010 U	0.540 U	0.010 U	1.100 U	0.011 U	0.012 U	0.011 UJ	0.010 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.210 U	0.011 U	0.057 U
Phenol	100	0.058 U	1.300 U	0.051 U	2.700 U	0.051 U	5.400 U	0.055 U	0.059 U	0.056 UJ	0.052 U	0.059 U	0.062 U	0.058 U	0.060 U	0.056 U	1.100 U	0.054 U	0.280 U
Metals (mg/Kg)																			
Aluminum	N/A	NS	NS	NS	NS	NS	NS	NS	7050	3710	3830 J	6240 J	4570	5360	5870 J	4310 J	4320 J	3280 J	6650 J
Antimony	N/A	NS	NS	NS	NS	NS	NS	NS	1.5 UJ	1.5 UJ	0.92 UJ	1.0 UJ	1.6 UJ	1.5 UJ	1.0 U	0.97 U	0.92 U	0.93 U	1.5 UJ
Arsenic	16	NS	NS	NS	NS	NS	NS	NS	0.85 U	0.80 U	0.80 J	0.95 J	0.86 J	0.82 UJ	1.6 J	0.85 U	7.7	0.81 U	1.0 J
Barium	400	NS	NS	NS	NS	NS	NS	NS	28.6 J	51.6	21.3 J	88.0	34.5 J	55.4	59.6	43.3 J	21.0 J	25.4 J	34.1 J
Beryllium	72	NS	NS	NS	NS	NS	NS	NS	0.40 J	0.25 J	0.21 J	0.37 J	0.30 J	0.34 J	0.38 J	0.27 J	0.30 J	0.20 J	0.43 J
Cadmium	4.3	NS	NS	NS	NS	NS	NS	NS	0.11 U	0.10 U	0.095 U	0.11 U	0.11 U	0.10 U	0.11 U	0.100 U	0.094 U	0.096 U	0.10 U
Calcium	N/A	NS	NS	NS	NS	NS	NS	NS	882 J	8860 J	745 J	13400	1020 J	11700 J	1050 J	10800	1000 J	6550	1320
Chromium	180	NS	NS	NS	NS	NS	NS	NS	12.6 J	8.9 J	7.7 J	14.1 J	11.6	13.4	12.5	9.7	12.6	6.9	15.6
Cobalt	N/A	NS	NS	NS	NS	NS	NS	NS	5.1 J	4.6 J	3.2 J	6.3 J	3.6 J	6.2 J	4.0 J	4.7 J	4.4 J	4.1 J	5.3 J
Copper	270	NS	NS	NS	NS	NS	NS	NS	13.4 J	9.9 J	7.2	12.8	9.0	9.8	9.2	11.5	10.4	9.8	13.3
Iron	N/A	NS	NS	NS	NS	NS	NS	NS	15800	8080	10500	14500	11500	12300	13200 J	10100 J	12200 J	7860 J	16000 J
Lead	400	NS	NS	NS	NS	NS	NS	NS	6.4 J	2.6 J	2.1	4.9	3.1	4.6	4.3	4.1	3.3	2.5	6.0
Magnesium	N/A	NS	NS	NS	NS	NS	NS	NS	3060	4380	1610	6850	2120	6290	2410	5360	2230	3610	3070
Manganese	2000	NS	NS	NS	NS	NS	NS	NS	104	273	58.5 J	359 J	62.8	311	80.9	283	79.1	201	118 J
Mercury	0.81	NS	NS	NS	NS	NS	NS	NS	0.022 UJ	0.021 UJ	0.020 U	0.022 U	0.023 U	0.021 U	0.022 U	0.021 U	0.020 U	0.020 U	0.04 J
Nickel	310	NS	NS	NS	NS	NS	NS	NS	15.2 J	16.8 J	9.7	20.3	14.9	21.0	14.7	16.5	32.6	13.1	19.3
Potassium	N/A	NS	NS	NS	NS	NS	NS	NS	915 J	1020 J	636 J	1860 J	876 J	1350 J	1390	1260	645 J	728 J	1460
Selenium	180	NS	NS	NS	NS	NS	NS	NS	1.1 U	1.1 U	0.92 U	1.0 U	1.1 U	1.1 U	1.0 U	0.97 U	0.92 U	0.93 U	1.1 U
Silver	180	NS	NS	NS	NS	NS	NS	NS	0.37 U	0.35 U	0.17 U	0.18 U	0.38 U	0.36 U	0.19 U	0.17 U	0.17 U	0.17 U	0.36 U
Sodium	N/A	NS	NS	NS	NS	NS	NS	NS	166 J	228 J	85.4 U	316 J	131 J	356 J	102 J	263 J	85.2 U	104 J	204 J
Vanadium	N/A	NS	NS	NS	NS	NS	NS	NS	13.0 J	11.3 J	11.5	17.8	13.8	14.8	15.9	12.9	12.8	9.3 J	18.7
Zinc	10000	NS	NS	NS	NS	NS	NS	NS	40.1 J	23.3 J	19.4	32.5	23.0	30.8	23.0	23.7	26.0	17.8	31.9
Cyanide (mg/Kg)																			
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21PF006 2/20/2004 21PF006-51 49-51	21PF007 2/19/2004 21PF007-33 31-33	21PF007 2/19/2004 21PF007-51 49-51	21PF008 2/19/2004 21PF008-23 21-23	21PF008 2/19/2004 21PF008-31 29-31	21PF008 2/19/2004 21PF008-51 49-51	21PF009 2/20/2004 21PF009-33 31-33	21PF009 2/20/2004 21PF009-51 49-51	21PF010 2/23/2004 21PF010-29 27-29	21PF010 2/23/2004 21PF010-29DUP 27-29	21PF010 2/23/2004 21PF010-49 47-49	21PF011 2/20/2004 21PF011-33 31-33	21PF011 2/20/2004 21PF011-51 49-51	21PF011 2/20/2004 21PF011-51DUP 49-51	21PF012 2/19/2004 21PF012-31 29-31	21PF012 2/19/2004 21PF012-51 49-51	21RE001 2/27/2004 21RE001-29 27-29	
BTEX (mg/Kg)																			
Benzene	4.8	0.012	0.00028 U	0.0007 J	0.00028 U	0.00028 U	0.00028 U	0.00025 U	0.0008 J	0.0022	0.0042	0.0008 J	0.0008 J	0.0007 J	0.0003 J	0.00025 U	0.00028 U	78	
Ethylbenzene	41	0.055	0.00023 U	0.00023 U	0.00025 U	0.00024 U	0.00025 U	0.0006 J	0.00022 U	0.0040 J	0.0013 J	0.00024 U	0.0012 J	0.0011 J	0.0005 J	0.00022 U	0.00024 U	17.000	
Toluene	100	0.0036 J	0.00024 U	0.00023 U	0.00025 U	0.00024 U	0.00025 U	0.00022 U	0.00023 U	0.0049 J	0.0032 J	0.00024 U	0.00023 U	0.00024 U	0.00023 U	0.00022 U	0.00024 U	140	
Xylene (Total)	100	0.044	0.00057 U	0.00056 U	0.00060 U	0.00058 U	0.00060 U	0.0016 J	0.00055 U	0.0090	0.0040 J	0.00058 U	0.0022 J	0.0025 J	0.0016 J	0.00054 U	0.00058 U	180	
Total BTEX	N/A	0.1146	ND	0.0007	ND	ND	ND	0.0022	0.0008	0.0201	0.0127	0.0008	0.0042	0.0043	0.0024	ND	ND	415	
VOC (mg/Kg)																			
2-Butanone (Methyl Ethyl Ke	100	0.0011 R	0.0012 U	0.0011 U	0.0012 U	0.0012 U	0.0012 U	0.0089 J	0.0011 R	0.017	0.011	0.0012 U	0.0011 R	0.0012 R	0.0011 R	0.0011 U	0.0012 U	5.500 U	
4-Methyl-2-pentanone	N/A	0.00084 U	0.00087 U	0.00086 U	0.00093 U	0.00089 U	0.00092 U	0.00083 U	0.00084 U	0.00089 U	0.00089 U	0.00089 U	0.00086 U	0.00090 U	0.00086 U	0.00083 U	0.00090 U	3.200 U	
Acetone	100	0.042 J	0.042	0.034	0.0030 UJ	0.0029 UJ	0.0030 UJ	0.041 J	0.030 J	0.087 J	0.070 J	0.060 J	0.047 J	0.045 J	0.051 J	0.040	0.044	5.300 U	
Carbon Disulfide	N/A	0.0007 J	0.0013 J	0.0013 J	0.0016 J	0.00036 UJ	0.00037 UJ	0.00034 U	0.0015 J	0.0053 J	0.041	0.00036 U	0.0098	0.00036 U	0.00035 U	0.0030 J	0.0008 J	0.720 U	
Carbon Tetrachloride	2.4	0.00024 U	0.00025 U	0.00024 U	0.00026 U	0.00025 U	0.00026 U	0.00023 U	0.00024 U	0.00025 U	0.00025 U	0.00025 U	0.00024 U	0.00025 U	0.00024 U	0.00023 U	0.00025 U	1.100 U	
Chloroform	49	0.00026 U	0.00027 U	0.00027 U	0.00029 U	0.00028 U	0.00028 U	0.00026 U	0.00026 U	0.00028 U	0.00028 U	0.00028 U	0.00027 U	0.00028 U	0.00027 U	0.00026 U	0.00028 U	0.470 U	
cis-1,2-Dichloroethene	100	0.0038 J	0.00035 U	0.0012 J	0.00038 U	0.00036 U	0.00037 U	0.00034 U	0.00034 U	0.0007 J	0.00036 U	0.0009 J	0.00035 U	0.0007 J	0.0004 J	0.00034 U	0.00036 U	0.620 U	
Methylene Chloride	100	0.0028 U	0.0007 U	0.0008 U	0.00029 U	0.00028 U	0.00028 U	0.0008 U	0.0013 U	0.0004 U	0.0012 U	0.0006 U	0.001 U	0.0015 U	0.001 U	0.0005 U	0.0008 U	0.360 U	
Styrene	N/A	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00014 U	0.00015 U	0.00013 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00014 U	0.00015 U	0.00014 U	0.00013 U	0.00015 U	36.000	
Tetrachloroethene	19	0.00019 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U	0.00019 U	0.00019 U	0.00020 U	0.00020 U	0.0020	0.00020 U	0.0014	0.0008 J	0.00019 U	0.0014	0.950 U	
Trichloroethene	21	0.00030 U	0.00032 U	0.0020	0.00032 U	0.00032 U	0.00032 U	0.00030 U	0.00030 U	0.00032 U	0.00032 U	0.0026	0.00032 U	0.0026	0.0014	0.00030 U	0.0024	0.690 U	
PAH (mg/Kg)																			
2-Methylnaphthalene	N/A	2.300	0.019 U	0.022 J	0.020 U	0.019 U	0.020 U	0.018 U	0.019 U	0.019 U	0.019 U	0.013 J	0.019 U	0.019 U	0.019 U	0.019 U	0.012 J	0.019 U	1000.000
Acenaphthene	100	1.800	0.0035 U	0.0034 U	0.0036 U	0.0034 U	0.0036 U	0.0033 U	0.0034 U	0.0035 U	0.0036 U	0.0035 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U	0.058 J	0.0035 U	140.000 J
Acenaphthylene	100	0.640	0.029 J	0.029 J	0.0036 U	0.0034 U	0.0036 U	0.0033 U	0.0034 U	0.0035 U	0.0036 U	0.0035 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U	0.041 J	0.0035 U	210.000 J
Anthracene	100	1.200	0.019 J	0.022 J	0.0032 U	0.0031 U	0.0033 U	0.0030 U	0.0031 U	0.0032 U	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0031 U	0.0031 U	0.054 J	0.0032 U	380
Benzo(a)anthracene	1	0.840	0.039 J	0.031 J	0.011 U	0.011 U	0.012 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.310	0.011 U	370
Benzo(a)pyrene	1	0.700	0.035 J	0.031 J	0.0031 U	0.0030 U	0.0032 U	0.0029 U	0.0030 U	0.0030 U	0.0031 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.0030 U	0.700	0.0030 U	300
Benzo(b)fluoranthene	1	0.350	0.017 J	0.011 J	0.0032 U	0.0031 U	0.0033 U	0.0030 U	0.0031 U	0.0032 U	0.0032 U	0.0032 U	0.0031 U	0.0032 U	0.0031 U	0.0031 U	0.350	0.0032 U	160
Benzo(ghi)perylene	100	0.330 J	0.021 J	0.018 J	0.0045 U	0.0043 U	0.0046 U	0.0042 U	0.0043 U	0.0044 U	0.0045 U	0.0044 U	0.0043 U	0.0044 U	0.0043 U	0.0043 U	0.360 J	0.0044 U	120.000 J
Benzo(k)fluoranthene	3.9	0.640	0.025 J	0.020 J	0.0044 U	0.0042 U	0.0045 U	0.0041 U	0.0042 U	0.0043 U	0.0044 U	0.0043 U	0.0042 U	0.0043 U	0.0042 U	0.0042 U	0.590	0.0043 U	290
Chrysene	3.9	0.810	0.044 J	0.034 J	0.0052 U	0.0050 U	0.0053 U	0.0048 U	0.0050 U	0.0051 U	0.0052 U	0.0051 U	0.0050 U	0.0051 U	0.0050 U	0.0050 U	0.300 J	0.0051 U	310
Dibenz(a,h)anthracene	0.33	0.0026 U	0.0027 U	0.0026 U	0.0028 U	0.0026 U	0.0028 U	0.0026 U	0.0026 U	0.0027 U	0.0028 U	0.0027 U	0.0026 U	0.0027 U	0.0026 U	0.0026 U	0.210	0.0027 U	48
Fluoranthene	100	1.700	0.080 J	0.062 J	0.0014 U	0.0013 U	0.0014 U	0.0013 U	0.0013 U	0.0013 U	0.011 J	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.220 J	0.0013 U	660
Fluorene	100	1.300	0.0028 U	0.027 J	0.0029 U	0.0028 U	0.0030 U	0.0027 U	0.0028 U	0.0028 U	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.032 J	0.0028 U	520
Indeno(1,2,3-cd)pyrene	0.5	0.270	0.014 J	0.010 J	0.0027 U	0.0026 U	0.0028 U	0.0025 U	0.0026 U	0.0027 U	0.0027 U	0.0027 U	0.0026 U	0.0027 U	0.0026 U	0.0026 U	0.380	0.0027 U	120
Naphthalene	100	9.400	0.0036 U	0.036 J	0.0037 U	0.0035 U	0.0038 U	0.0034 U	0.0035 U	0.0036 U	0.023 J	0.0036 U	0.0035 U	0.0036 U	0.0035 U	0.0035 U	0.043 J	0.0036 U	3200
Phenanthrene	100	5.200	0.130 J	0.140 J	0.0039 U	0.0037 U	0.0040 U	0.0036 U	0.0037 U	0.0038 U	0.030 J	0.021 J	0.016 J	0.0038 U	0.0037 U	0.140 J	0.013 J	1800	
Pyrene	100	2.100	0.130 J	0.100 J	0.0030 U	0.0028 U	0.0030 U	0.0028 U	0.0028 U	0.0029 U	0.019 J	0.012 J	0.011 J	0.0029 U	0.0028 U	0.260 J	0.0029 U	690	
Total PAH	N/A	29.58	0.583	0.593	ND	ND	ND	ND	ND	ND	0.096	0.033	0.027	ND	ND	4.06	0.013	10318	

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons

SVOCs - Semivolatile Organic Compounds

VOCs - Volatile Organic Compounds

mg/kg - milligrams per kilogram

DL - Detection Limit

ND = calculated totals are not detected

NA = Not Available

N/A = Not Applicable

mg/Kg = milligram per kilogram

NS = Not Sampled

Bold = compound was detected

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 or absence of the analyte cannot be verified.

Bold Italics = ND value exceeds soil cleanup objective for that compound.

Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21PF006 2/20/2004 21PF006-51 49-51	21PF007 2/19/2004 21PF007-33 31-33	21PF007 2/19/2004 21PF007-51 49-51	21PF008 2/19/2004 21PF008-23 21-23	21PF008 2/19/2004 21PF008-31 29-31	21PF008 2/19/2004 21PF008-51 49-51	21PF009 2/20/2004 21PF009-33 31-33	21PF009 2/20/2004 21PF009-51 49-51	21PF010 2/23/2004 21PF010-29 27-29	21PF010 2/23/2004 21PF010-29DUP 27-29	21PF010 2/23/2004 21PF010-49 47-49	21PF011 2/20/2004 21PF011-33 31-33	21PF011 2/20/2004 21PF011-51 49-51	21PF011 2/20/2004 21PF011-51DUP 49-51	21PF012 2/19/2004 21PF012-31 29-31	21PF012 2/19/2004 21PF012-51 49-51	21RE001 2/27/2004 21RE001-29 27-29	
SVOC (mg/Kg)																			
2,4-Dimethylphenol	N/A	0.037 U	0.038 U	0.037 U	0.039 U	0.037 U	0.040 U	0.036 U	0.037 U	0.038 U	0.039 U	0.038 U	0.037 U	0.038 U	0.037 U	0.035 U	0.038 U	72.000 J	
2-Chloronaphthalene	N/A	0.025 U	0.026 U	0.025 U	0.027 U	0.025 U	0.027 U	0.025 U	0.025 U	0.026 U	0.027 U	0.026 U	0.025 U	0.026 U	0.025 U	0.024 U	0.026 U	16.000 U	
2-Methylphenol	100	0.036 U	0.037 U	0.036 U	0.038 U	0.036 U	0.039 U	0.035 U	0.036 U	0.037 U	0.038 U	0.037 U	0.036 U	0.037 U	0.036 U	0.034 U	0.037 U	23.000 U	
4-Methylphenol	100	0.040 U	0.041 U	0.040 U	0.042 U	0.040 U	0.043 U	0.039 U	0.040 U	0.041 U	0.042 U	0.041 U	0.040 U	0.041 U	0.041 U	0.040 U	0.038 U	0.041 U	31.000 J
4-Nitrophenol	N/A	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.013 U	0.012 U	0.012 U	0.012 U	0.012 U	0.011 U	0.012 U	7.500 U	
bis(2-Ethylhexyl) phthalate	N/A	0.024 U	0.190 J	0.120 J	0.025 U	0.024 U	0.026 U	0.024 U	0.130 J	0.140 J	0.130 J	0.140 J	0.024 U	0.180 J	0.180 J	0.086 J	0.095 J	15.000 U	
Butyl benzyl phthalate	N/A	0.016 U	0.017 U	0.016 U	0.017 U	0.016 U	0.017 U	0.016 U	0.016 U	0.017 U	0.017 U	0.017 U	0.016 U	0.017 U	0.016 U	0.015 U	0.017 U	10.000 U	
Carbazole	N/A	0.350 J	0.0030 U	0.0029 U	0.0031 U	0.0029 U	0.0032 U	0.0029 U	0.0029 U	0.0030 U	0.0031 U	0.0030 U	0.0029 U	0.0030 U	0.0029 U	0.017 J	0.0030 U	170.000 J	
Dibenzofuran	59	0.710	0.021 U	0.021 U	0.022 U	0.021 U	0.022 U	0.020 U	0.021 U	0.021 U	0.022 U	0.021 U	0.021 U	0.021 U	0.021 U	0.021 U	0.0079 J	0.021 U	390
Diethyl phthalate	N/A	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.012 U	0.010 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.010 U	0.011 U	6.800 U	
Phenol	100	0.054 U	0.055 U	0.054 U	0.056 U	0.054 U	0.058 U	0.052 U	0.054 U	0.055 U	0.056 U	0.055 U	0.054 U	0.055 U	0.054 U	0.051 U	0.055 U	34.000 U	
Metals (mg/Kg)																			
Aluminum	N/A	3450 J	4630 J	4510 J	7520 J	4410 J	3270 J	5250 J	3480 J	5610 J	6810 J	4270 J	3110 J	4770 J	5400 J	4470 J	3800 J	11100 J	
Antimony	N/A	1.4 UJ	1.4 U	1.4 U	1.5 U	1.4 U	1.5 U	1.4 UJ	1.4 UJ	0.97 UJ	0.98 UJ	0.97 UJ	1.4 UJ	1.4 UJ	1.4 UJ	1.3 U	1.4 U	1.7 UJ	
Arsenic	16	0.76 U	0.82 J	0.88 J	0.95 J	1.4 J	1.1 J	0.75 U	0.76 U	3.8 J	2.9 J	0.84 U	1.6	0.78 U	0.77 U	1.1 J	0.79 UJ	8.2	
Barium	400	35.4 J	19.7 J	42.3 J	29.5 J	37.6 J	30.0 J	51.5	35.3 J	38.7 J	35.7 J	52.7	32.5 J	60.1	44.0 J	22.1 J	32.0 J	45.2 J	
Beryllium	72	0.21 J	0.20 J	0.29 J	0.28 J	0.34 J	0.24 J	0.35 J	0.18 J	0.21 J	0.15 J	0.21 J	0.13 J	0.28 J	0.31 J	0.24 J	0.25 J	0.65	
Cadmium	4.3	0.095 U	0.098 U	0.096 U	0.10 U	0.097 U	0.10 U	0.094 U	0.095 U	0.099 U	0.10 U	0.099 U	0.096 U	0.098 U	0.11 J	0.091 U	0.099 U	0.12 U	
Calcium	N/A	7240	631 J	11300 J	236 J	1020 J	9090 J	1050 J	4160	500 J	449 J	5830	385 J	11500	15600	509 J	8160 J	4100 J	
Chromium	180	9.7	10.7 J	11.0 J	12.6 J	11.4 J	7.8 J	13.3	9.5	8.7 J	9.4 J	9.2 J	9.3	11.7	13.1	8.9 J	9.8 J	21.8	
Cobalt	N/A	5.0 J	2.7 J	5.1 J	3.2 J	3.7 J	4.0 J	4.4 J	3.3 J	3.1 J	3.0 J	3.7 J	1.7 J	5.6 J	6.1 J	3.1 J	4.4 J	8.3 J	
Copper	270	12.5	7.7 J	12.4 J	9.1 J	9.2 J	8.6 J	9.1	6.7	8.4	7.3	8.0	2.4 J	11.5	15.1	9.0 J	9.8 J	24.7 J	
Iron	N/A	8770 J	8170	10800	10800	12800	7920	12600 J	8460 J	12300	12000	9800	5870 J	10800 J	12200 J	8980	9300	25600 J	
Lead	400	2.7	3.8 J	4.6 J	5.5 J	3.9 J	2.6 J	4.3	3.1	4.1	4.8	2.8	2.5	4.0	5.1	7.4 J	3.8 J	93.2	
Magnesium	N/A	3940	1780	5530	2600	1860	4460	2320	2920	2170	2600	3870	1300	5680	6590	1740	4600	5300	
Manganese	2000	267 J	58.8 J	262 J	69.4 J	59.7 J	233 J	75.1 J	136 J	71.6 J	77.1 J	172 J	33.1 J	294 J	437 J	82.1 J	216 J	485	
Mercury	0.81	0.020 U	0.020 U	0.020 U	0.018 U	0.020 U	0.021 U	0.019 U	0.020 U	0.02 J	0.021 U	0.021 U	0.020 U	0.020 U	0.020 U	0.04 J	0.019 U	0.018 U	
Nickel	310	17.8	9.2 J	15.8	10.5	13.5	14.6	16.5	12.1	11.3	9.2 J	13.0	7.0 J	17.7	20.0	9.1	15.8	21.4	
Potassium	N/A	877 J	547 J	1200 J	810 J	798 J	855 J	1250	617 J	681 J	751 J	893 J	731 J	1320	1400	564 J	882 J	1800 J	
Selenium	180	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.1 U	0.98 U	1.00 U	0.97 U	0.98 U	0.97 U	1.0 U	1.0 U	1.0 U	0.96 U	1.0 U	1.2 U	
Silver	180	0.33 U	0.34 U	0.34 U	0.36 U	0.34 U	0.36 U	0.33 U	0.33 U	0.17 U	0.18 U	0.17 U	0.34 U	0.34 U	0.34 U	0.32 U	0.35 U	0.42 U	
Sodium	N/A	176 J	151 J	262 J	205 J	182 J	317 J	175 J	165 J	89.5 U	90.7 U	89.4 U	436 J	275 J	273 J	173 J	217 J	1260 J	
Vanadium	N/A	12.3	13.1	13.1	14.6	14.7	9.6 J	14.9	10.0 J	13.3	13.1	12.1 J	9.3 J	14.9	16.2	11.2 J	12.1 J	29.6	
Zinc	10000	20.2	19.2 J	26.5 J	25.3 J	22.6 J	17.3 J	24.6	19.2	25.3	27.8	22.3	14.2	25.5	31.4	22.7 J	19.5 J	67.0	
Cyanide (mg/Kg)																			
Cyanide, Total	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.99	0.5 U	0.5 U	0.5 U	NS	

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RE001 2/27/2004 21RE001-51 49-51	21RE002 3/1/2004 21RE002-29 27-29	21RE002 3/1/2004 21RE002-51 49-51	21RE003 2/26/2004 21RE003-28 26-28	21RE003 2/26/2004 21RE003-50 48-50	21RE004 2/26/2004 21RE004-33 31-33	21RE004 2/26/2004 21RE004-41 39-41	21RE005 2/27/2004 21RE005-23 21-23	21RE005 2/27/2004 21RE005-29 27-29	21RE005 2/27/2004 21RE005-51 49-51	21RE006 3/2/2004 21RE006-31 29-31	21RE006 3/2/2004 21RE006-51 49-51	21RE007 3/3/2004 21RE007-31 29-31	21RE007 3/3/2004 21RE007-51 49-51	21RE008 3/1/2004 21RE008-31 29-31	21RE008 3/1/2004 21RE008-51 49-51	21RE009 3/4/2004 21RE009-31 29-31
BTEX (mg/Kg)																		
Benzene	4.8	0.012	12	0.013	0.240	0.0075	0.830	0.071 J	210	400	0.0094	25	0.0037	47	0.0033	3.400	0.0044	40
Ethylbenzene	41	0.0017 J	15.000	0.012	0.500	0.0011 J	0.140 J	0.380 J	420	900	0.0015 J	13.000	0.00024 U	28.000	0.00025 U	2.200	0.00024 R	20.000
Toluene	100	0.0062	38.000	0.0067	0.290 J	0.0022 J	0.130 J	0.220 J	480	710	0.0024 J	41.000	0.00024 U	94.000	0.0014 J	3.700	0.00024 R	100
Xylene (Total)	100	0.0031 J	75.000	0.014	1.100	0.0030 J	0.350 J	0.730	750	1400	0.0032 J	64.000	0.00058 U	200	0.00060 U	10.000	0.00058 R	190
Total BTEX	N/A	0.023	140	0.0457	2.13	0.0138	1.45	1.401	1860	3410	0.0165	143	0.0037	369	0.0047	19.3	0.0044	350
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	0.0080	2.800 R	0.0012 R	0.230 R	0.0012 R	0.230 R	0.210 R	9.100 U	11.000 U	0.0012 U	1.100 R	0.0012 R	2.400 R	0.0012 R	0.240 R	0.0012 R	1.100 R
4-Methyl-2-pentanone	N/A	0.00089 U	1.600 U	0.00089 U	0.130 U	0.00089 U	0.130 U	0.120 U	5.200 U	6.300 U	0.00092 U	0.630 U	0.00089 U	1.400 U	0.00093 U	0.140 U	0.00089 R	0.630 U
Acetone	100	0.048 U	2.600 UJ	0.0029 UJ	0.220 UJ	0.026 U	0.220 UJ	0.200 UJ	8.700 U	10.000 U	0.0030 UJ	1.000 U	0.0029 UJ	2.300 U	0.0030 UJ	0.230 UJ	0.049	1.000 U
Carbon Disulfide	N/A	0.0006 J	0.360 U	0.00036 U	0.030 UJ	0.0010 J	0.030 U	0.028 UJ	1.200 U	1.400 U	0.00037 U	0.140 U	0.0013 J	0.310 U	0.0016 J	0.031 U	0.00036 R	0.140 U
Carbon Tetrachloride	2.4	0.00025 U	0.540 U	0.00025 U	0.046 U	0.00025 U	0.044 U	0.042 U	1.800 U	2.100 U	0.00026 U	0.210 U	0.00025 U	0.460 U	0.00026 U	0.046 U	0.00025 R	0.210 U
Chloroform	49	0.00028 U	0.240 U	0.00028 U	0.020 U	0.00028 U	0.020 U	0.018 U	0.780 U	0.950 U	0.00028 U	0.095 U	0.00028 U	0.200 U	0.00029 U	0.021 U	0.00028 R	0.095 U
cis-1,2-Dichloroethene	100	0.00036 U	0.310 U	0.0010 J	0.026 U	0.0040 J	0.026 U	0.024 U	1.000 U	1.200 U	0.0044 J	0.120 U	0.0018 J	0.260 U	0.00038 U	0.027 U	0.0008 J	0.120 U
Methylene Chloride	100	0.017 U	0.180 U	0.0017 U	0.015 U	0.0013 U	0.015 U	0.014 U	0.600 U	0.680 U	0.0006 U	0.072 UJ	0.0015 U	0.150 U	0.0012 U	0.016 U	0.00028 U	0.072 U
Styrene	N/A	0.00014 U	9.800	0.00014 U	0.019 U	0.00014 U	0.019 U	0.050 J	260.000	88.000	0.0003 J	12.000	0.00014 U	20.000	0.00015 U	0.240 J	0.00014 R	28.000
Tetrachloroethene	19	0.00020 U	0.470 U	0.00020 U	0.040 U	0.00020 U	0.040 U	0.037 U	1.600 U	1.800 U	0.00020 U	0.190 U	0.00020 U	0.400 U	0.00022 U	0.040 U	0.00020 R	0.180 U
Trichloroethene	21	0.0035	0.350 U	0.00032 U	0.030 U	0.00032 U	0.030 U	0.027 U	1.200 U	1.400 U	0.00032 U	0.140 U	0.00032 U	0.300 U	0.00035 U	0.030 U	0.00032 R	0.140 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	0.057 J	110.000	0.064 J	320.000	0.023 J	0.400	6.300	1200.000	2000.000	0.025 J	40.000 J	0.100 J	780.000	0.024 J	64.000	0.019 U	300.000
Acenaphthene	100	0.022 J	14.000 J	0.0035 U	41.000 J	0.0036 U	0.100 J	0.770	67.000 J	120.000 J	0.0037 U	4.300 J	0.031 J	92.000 J	0.020 J	13.000	0.0035 U	38.000 J
Acenaphthylene	100	0.037 J	41.000	0.030 J	47.000	0.0036 U	0.230 J	2.400	300	500	0.025 J	12.000 J	0.072 J	120.000 J	0.0036 U	8.300 J	0.0035 U	62.000 J
Anthracene	100	0.081 J	45.000	0.020 J	110	0.0032 U	0.240 J	2.100	110.000 J	200	0.025 J	10.000 J	0.090 J	320	0.062 J	26.000	0.0032 U	94.000 J
Benzo(a)anthracene	1	0.093	27	0.014 J	98	0.0090 J	0.190	1.6	70	130	0.029 J	11.000 J	0.110	240	0.087	22	0.011 U	96
Benzo(a)pyrene	1	0.064	24	0.0030 U	62	0.0031 U	0.150	1.3	55	110	0.022 J	10.000 J	0.099	220	0.0031 U	20	0.0030 U	81
Benzo(b)fluoranthene	1	0.044	11	0.0032 U	36	0.0032 U	0.077	0.640	23	40	0.0093 J	6.400 J	0.054	120	0.0032 U	12	0.0032 U	43
Benzo(ghi)perylene	100	0.033 J	10.000 J	0.0044 U	20.000 J	0.0045 U	0.0043 U	0.590 J	20.000 J	38.000 J	0.0047 U	3.200 J	0.0045 U	100.000 J	0.0045 U	7.300 J	0.0044 U	36.000 J
Benzo(k)fluoranthene	3.9	0.055	21	0.0043 U	56	0.0044 U	0.120	1.100	37	79	0.021 J	10.000 J	0.077	200	0.0044 U	20	0.0043 UJ	76
Chrysene	3.9	0.084 J	30	0.020 J	88	0.0052 U	0.180 J	1.600	68.000 J	130.000 J	0.031 J	9.800 J	0.100 J	260	0.087 J	24	0.0051 U	92.000 J
Dibenz(a,h)anthracene	0.33	0.014 J	1.700 J	0.0027 U	10	0.0028 U	0.0026 U	0.200	6.600 J	13.000 J	0.0029 U	0.065 UJ	0.0028 U	1.300 U	0.0028 U	2.9	0.0027 U	0.620 U
Fluoranthene	100	0.170 J	69.000	0.026 J	200	0.018 J	0.390 J	3.700	110.000 J	200	0.052 J	24.000 J	0.220 J	520	0.190 J	54.000	0.020 J	220
Fluorene	100	0.080 J	62.000	0.0028 U	160	0.0029 U	0.330 J	3.100	160.000 J	300	0.018 J	21.000 J	0.140 J	400	0.051 J	41.000	0.0028 U	160
Indeno(1,2,3-cd)pyrene	0.5	0.030 J	8.2	0.0027 U	19	0.0027 U	0.047	0.55	18.000 J	33	0.0029 U	3.200 J	0.0027 U	98	0.0027 U	7	0.0027 U	33
Naphthalene	100	0.130 J	390	0.092 J	750	0.059 J	0.330 J	9.800	2200	3800	0.048 J	120.000 J	0.100 J	2900	0.055 J	240	0.050 J	1200
Phenanthrene	100	0.370 J	170	0.082 J	470	0.042 J	1.100	9.300	480	880	0.110 J	68.000 J	0.540	1300	0.240 J	140	0.040 J	470
Pyrene	100	0.200 J	66.000	0.044 J	190	0.023 J	0.390 J	3.500	180.000 J	330	0.063 J	22.000 J	0.220 J	470.000 J	0.160 J	42.000	0.020 J	180
Total PAH	N/A	1.564	1099.9	0.392	2677	0.174	4.274	48.55	5104.6	8903	0.4783	374.9	1.953	8140	0.976	743.5	0.13	3181

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
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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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RE001 2/27/2004 21RE001-51 49-51	21RE002 3/1/2004 21RE002-29 27-29	21RE002 3/1/2004 21RE002-51 49-51	21RE003 2/26/2004 21RE003-28 26-28	21RE003 2/26/2004 21RE003-50 48-50	21RE004 2/26/2004 21RE004-33 31-33	21RE004 2/26/2004 21RE004-41 39-41	21RE005 2/27/2004 21RE005-23 21-23	21RE005 2/27/2004 21RE005-29 27-29	21RE005 2/27/2004 21RE005-51 49-51	21RE006 3/2/2004 21RE006-31 29-31	21RE006 3/2/2004 21RE006-51 49-51	21RE007 3/3/2004 21RE007-31 29-31	21RE007 3/3/2004 21RE007-51 49-51	21RE008 3/1/2004 21RE008-31 29-31	21RE008 3/1/2004 21RE008-51 49-51	21RE009 3/4/2004 21RE009-31 29-31
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	0.038 U	11.000 J	0.038 U	6.400 J	0.039 U	0.200 J	0.190 J	18.000 U	18.000 U	0.041 U	1.400 J	0.039 U	44.000 J	0.039 U	0.920 U	0.038 U	13.000 J
2-Chloronaphthalene	N/A	0.026 U	1.400 U	0.026 U	2.700 U	0.027 U	0.025 U	0.047 U	13.000 U	12.000 U	0.028 U	0.630 UJ	0.027 U	13.000 U	0.027 U	0.630 U	0.026 U	6.000 U
2-Methylphenol	100	0.037 U	0.580 J	0.037 U	1.600 J	0.038 U	0.036 U	0.067 U	18.000 U	17.000 U	0.040 U	0.900 UJ	0.038 U	18.000 U	0.038 U	0.910 U	0.037 U	8.500 U
4-Methylphenol	100	0.041 U	3.300 J	0.041 U	3.500 J	0.042 U	0.040 U	0.078 J	20.000 U	19.000 U	0.044 U	0.980 UJ	0.042 U	20.000 U	0.042 U	0.990 U	0.041 U	9.300 U
4-Nitrophenol	N/A	0.012 U	0.710 U	0.012 U	1.300 U	0.013 U	0.012 U	0.023 U	6.200 U	5.800 U	0.013 U	0.300 UJ	0.013 U	6.200 U	0.013 U	0.320 U	0.012 U	2.900 U
bis(2-Ethylhexyl) phthalate	N/A	0.025 U	1.400 U	0.025 U	2.500 U	0.025 U	0.024 U	0.045 U	12.000 U	12.000 U	0.027 U	0.600 UJ	0.025 U	12.000 U	0.025 U	0.610 U	0.100 J	5.700 U
Butyl benzyl phthalate	N/A	0.017 U	0.930 U	0.017 U	1.700 U	0.017 U	0.016 U	0.030 U	8.100 U	7.700 U	0.018 U	0.400 UJ	0.017 U	8.100 U	0.017 U	0.410 U	0.017 U	3.800 U
Carbazole	N/A	0.044 J	28.000	0.0030 U	58.000	0.0031 U	0.140 J	0.980	5.800 J	16.000 J	0.0032 U	6.500 J	0.050 J	180.000 J	0.027 J	20.000	0.0030 U	84.000 J
Dibenzofuran	59	0.046 J	38.000	0.021 U	97	0.022 U	0.150 J	1.600	38.000 J	73.000 J	0.023 U	13.000 J	0.077 J	280	0.023 J	34.000	0.021 U	120
Diethyl phthalate	N/A	0.011 U	0.620 U	0.011 U	1.100 U	0.011 U	0.011 U	0.020 U	5.400 U	5.100 U	0.012 U	0.270 UJ	0.011 U	5.400 U	0.011 U	0.270 U	0.011 U	2.500 U
Phenol	100	0.055 U	3.100 U	0.055 U	5.600 U	0.056 U	0.054 U	0.099 U	27.000 U	26.000 U	0.059 U	1.300 UJ	0.056 U	27.000 U	0.056 U	1.300 U	0.055 U	13.000 U
Metals (mg/Kg)																		
Aluminum	N/A	4150 J	11000 J	5630 J	5420 J	2370 J	5670 J	1970 J	5350 J	4040 J	2760 J	5090 J	2690 J	7370	2760	7930 J	3060	4000 J
Antimony	N/A	1.4 UJ	1.6 UJ	1.4 UJ	1.5 U	1.5 U	1.4 U	1.3 U	1.4 UJ	1.3 UJ	1.5 UJ	0.93 U	0.98 U	1.4 U	1.5 U	1.5 UJ	0.96 UJ	1.1 UJ
Arsenic	16	0.78 U	15.1	0.90 J	1.9	0.81 U	1.6	0.71 U	2.8	2.1	0.84 U	3.5 J	0.85 U	6.9	0.82 U	3.9	0.84 U	5.2 J
Barium	400	54.2	45.5 J	100	32.6 J	27.0 J	28.0 J	29.6 J	40.7 J	31.3 J	36.4 J	21.0 J	38.8 J	31.1 J	48.1 J	39.1 J	39.9 J	22.3 J
Beryllium	72	0.28 J	0.69	0.42 J	0.38 J	0.18 J	0.38 J	0.13 J	0.34 J	0.26 J	0.18 J	0.29 J	0.22 J	0.38 J	0.17 J	0.44 J	0.025 U	0.23 J
Cadmium	4.3	0.098 U	0.11 U	0.098 U	0.10 U	0.10 U	0.096 U	0.089 U	0.098 U	0.091 U	0.10 U	0.095 U	0.10 U	0.50 J	0.10 U	0.10 U	0.099 U	0.11 U
Calcium	N/A	10800 J	4120 J	11900 J	2150	6500	1170 J	454 J	6050 J	5570 J	8990 J	2290	7470	2510	7480	8540 J	7690	2650
Chromium	180	10.6	20.7	14.0	13.4	6.7	14.4	5.2	15.1	9.3	7.5	10.5	7.9	16.7	8.2	14.0	7.9	7.2
Cobalt	N/A	4.6 J	9.2 J	7.4 J	5.9 J	3.1 J	6.1 J	2.0 J	6.0 J	4.0 J	3.4 J	4.8 J	3.6 J	5.8 J	3.4 J	6.9 J	4.1 J	3.0 J
Copper	270	8.8 J	32.1	11.1	17.6	5.4 J	11.7	5.1 J	21.2 J	15.3 J	7.1 J	7.4 J	11.4 J	14.0	7.0	16.8	0.52 U	10.3
Iron	N/A	9890 J	26900 J	13200 J	16400	5810	14100	5710	12800 J	8820 J	7320 J	12600 J	6610 J	16100	8350	18800 J	7910	9180 J
Lead	400	3.8 J	175	5.4	34.1 J	2.1 J	5.1 J	1.2 J	34.7	27.4	2.5	10.1	2.0	50.8	2.9	35.2	2.7	25.4
Magnesium	N/A	5150	4940	6270	2280	3530	2890	1580	3230	1980	4140	2440	3710	3470	4010	4650	4020	1650
Manganese	2000	338	838	451	276 J	185 J	87.9 J	45.3 J	434	234	253	153	223	344	203	309	269 J	224
Mercury	0.81	0.017 U	0.60	0.021 U	0.15	0.021 U	0.020 U	0.019 U	0.04 J	0.08	0.022 U	0.04	0.021 U	0.17	0.021 U	0.20	0.021 U	0.08
Nickel	310	17.3	20.0	22.1	12.5	15.2	18.8	9.1	18.2	10.8	15.1	11.7	13.7	13.3	13.8	15.0	15.7	7.5 J
Potassium	N/A	992 J	2040	1490	781 J	483 J	1170 J	348 J	1150 J	690 J	541 J	870 J	682 J	1350	598 J	1220 J	26.2 U	1050 J
Selenium	180	1.0 U	1.2 U	1.0 U	1.1 U	1.1 U	1.0 U	0.93 U	1.0 U	0.96 U	1.1 U	0.93 U	0.98 U	1.0 U	1.1 U	1.1 U	0.96 U	1.1 U
Silver	180	0.34 U	0.39 U	0.34 U	0.35 U	0.35 U	0.33 U	0.31 U	0.34 U	0.32 U	0.37 U	0.17 U	0.18 U	0.34 U	0.36 U	0.35 U	0.17 U	0.20 U
Sodium	N/A	221 J	1360 J	162 J	115 J	99.6 U	276 J	92.0 J	117 J	111 J	104 U	381 J	90.2 U	666 J	155 J	571 J	98.0 J	241200
Vanadium	N/A	12.1	29.4	16.7	34.6	7.2 J	16.5	8.8 J	16.6	11.7	9.2 J	12.4	8.9 J	19.1	13.0	21.5	10.2 J	10.0 J
Zinc	10000	22.0	76.9	32.0	33.9	13.7	30.1	12.3	60.7	43.5	15.3	28.2	15.9	40.8	15.7	50.4	17.0	22.1
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
N/A = Not Applicable
mg/Kg = milligram per kilogram
NS = Not Sampled
Bold = compound was detected

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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RE009 3/4/2004 21RE009-31DUP 29-31	21RE009 3/4/2004 21RE009-33 31-33	21RE009 3/4/2004 21RE009-51 49-51	21RE010 3/1/2004 21RE010-29 27-29	21RE010 3/1/2004 21RE010-29DUP 27-29	21RE010 3/1/2004 21RE010-51 49-51	21RE011 2/26/2004 21RE011-29 27-29	21RE011 2/26/2004 21RE011-51 49-51	21RE012 2/27/2004 21RE012-31 29-31	21RE012 2/27/2004 21RE012-31DUP 29-31	21RE012 2/27/2004 21RE012-51 49-51	21RS005 2/9/2004 21RS005-27 25-27	21RS005 2/9/2004 21RS005-31 29-31	21RS005 2/10/2004 21RS005-39 37-39	21SC001 2/25/2004 21SC001-25 23-25	21SC001 2/25/2004 21SC001-51 49-51	21SC002 2/27/2004 21SC002-25 23-25
BTEX (mg/Kg)																		
Benzene	4.8	66	1.700	0.0066	180	230	0.0046	0.880	0.022 U	47	140	0.015	8.4	0.052	0.0098	24	0.033	0.150
Ethylbenzene	41	19.000	2.300	0.00026 U	560	590	0.00024 U	1.500	0.020 U	21.000	92	0.0018 J	0.180 J	0.0010 J	0.00022 U	68	0.0007 J	2.900
Toluene	100	150	1.100	0.0021 J	430	520	0.0020 J	3.300	0.020 U	99.000	230	0.0070	0.690 J	0.0035 J	0.0037 U	40.000	0.0094	0.510 J
Xylene (Total)	100	240	4.400	0.00061 U	820	990	0.00058 U	11.000	0.026 U	150	370	0.0086	0.770 J	0.00091 U	0.00054 U	120	0.0016 J	3.400
Total BTEX	N/A	475	9.5	0.0087	1990	2330	0.0066	16.68	ND	317	832	0.0324	10.04	0.0565	0.0098	252	0.0447	6.96
VOC (mg/Kg)																		
2-Butanone (Methyl Ethyl Ke	100	2.400 R	0.240 R	0.0013 R	9.100 R	9.900 R	0.0012 R	0.440 R	0.220 R	2.300 U	8.300 U	0.0012 U	0.480 R	0.012 J	0.0011 R	2.400 U	0.0012 U	0.240 U
4-Methyl-2-pentanone	N/A	1.400 U	0.140 J	0.00095 U	5.200 U	5.600 U	0.00089 U	0.250 U	0.130 U	1.300 U	4.700 U	0.00092 U	0.270 U	0.0014 U	0.00083 U	1.400 U	0.00092 U	0.140 U
Acetone	100	2.300 U	0.230 U	0.0031 UJ	8.700 UJ	9.400 UJ	0.035 J	0.420 UJ	0.220 UJ	2.200 U	7.900 U	0.021 U	0.450 U	0.068 J	0.0027 U	2.300 U	0.028 J	0.230 U
Carbon Disulfide	N/A	0.310 U	0.031 U	0.00038 U	1.200 U	1.300 U	0.00036 U	0.056 U	0.029 U	0.300 U	1.100 U	0.0008 J	0.062 U	0.024	0.0017 J	0.320 U	0.0010 J	0.032 U
Carbon Tetrachloride	2.4	0.460 U	0.046 U	0.00027 U	1.800 U	1.900 U	0.00025 U	0.085 U	0.044 U	0.460 U	1.600 U	0.00026 U	0.091 U	0.00040 U	0.00023 U	0.480 U	0.00026 U	0.048 U
Chloroform	49	0.210 U	0.021 U	0.00029 U	0.780 U	0.840 U	0.00028 U	0.037 U	0.019 U	0.200 U	0.710 U	0.00028 U	0.040 U	0.00044 U	0.00026 U	0.210 U	0.00028 U	0.021 U
cis-1,2-Dichloroethene	100	0.270 U	0.027 U	0.00038 U	1.000 U	1.100 U	0.00036 U	0.048 U	0.025 U	0.260 U	0.920 U	0.0014 J	0.053 U	0.00057 U	0.00034 U	0.270 U	0.0093	0.027 U
Methylene Chloride	100	0.160 U	0.015 U	0.0013 U	0.600 U	0.640 U	0.0039 U	0.028 U	0.014 U	0.150 U	0.550 U	0.0007 U	0.030 U	0.00044 U	0.0007 U	0.160 U	0.0005 U	0.016 U
Styrene	N/A	38.000	0.020 U	0.00015 U	71.000	85.000	0.00014 U	1.300	0.018 U	28.000	32.000	0.0021 J	0.039 U	0.00023 U	0.00013 U	150.000	0.00015 U	0.020 U
Tetrachloroethene	19	0.400 U	0.040 U	0.00022 U	1.500 U	1.700 U	0.00020 U	0.074 U	0.037 U	0.400 U	1.400 U	0.00020 U	0.078 U	0.00032 U	0.00019 U	0.400 U	0.00020 U	0.040 U
Trichloroethene	21	0.300 U	0.030 U	0.00035 U	1.100 U	1.300 U	0.00032 U	0.054 U	0.027 U	0.300 U	1.000 U	0.00032 U	0.057 U	0.00051 U	0.00030 U	0.300 U	0.00032 U	0.030 U
PAH (mg/Kg)																		
2-Methylnaphthalene	N/A	220.000	200.000	0.020 U	1100.000	950.000	0.130 J	390.000	0.110 J	54.000	820.000	0.017 J	1.600 J	0.670	4.100	910.000	0.013 J	160.000
Acenaphthene	100	26.000 J	43.000	0.011 J	100.000 J	88.000 J	0.070 J	40.000 J	0.025 J	5.600 J	93.000 J	0.0035 U	0.270 J	0.530 J	1.200	130.000 J	0.0085 J	5.600 J
Acenaphthylene	100	42.000 J	30.000 J	0.0036 U	270	220	0.180 J	92.000 J	0.067 J	14.000 J	210	0.032 J	0.220 J	0.230 J	1.000	1100	0.018 J	41.000
Anthracene	100	66.000	42.000	0.010 J	250	210.000 J	0.210 J	85.000 J	0.100 J	18.000 J	220	0.046 J	0.320 J	0.420 J	1.400	210	0.0032 U	14.000 J
Benzo(a)anthracene	1	62	49	0.012 J	200	170	0.180	100	0.120	18	280	0.068	0.390 J	0.430	1.6	160	0.011 U	8.9
Benzo(a)pyrene	1	51	39	0.0097 J	170	140	0.120	70	0.080	14	240	0.046	0.240 J	0.290	1.000	180	0.0031 U	6.4
Benzo(b)fluoranthene	1	28	22	0.0033 U	86	60	0.061	39	0.038 J	7.6	140	0.021 J	0.130 J	0.150	0.560	54	0.0032 U	2.6
Benzo(ghi)perylene	100	24.000 J	18.000 J	0.0046 U	81.000 J	64.000 J	0.0043 U	25.000 J	0.031 J	5.800 J	100.000 J	0.016 J	0.044 U	0.140 J	0.430 J	120.000 J	0.0045 U	2.300 J
Benzo(k)fluoranthene	3.9	44	35	0.0089 J	170	130	0.120	68	0.068	13	220	0.042	0.220 J	0.230	1.000	120	0.0044 U	3.800
Chrysene	3.9	60	43	0.012 J	190.000 J	190.000 J	0.180 J	93.000 J	0.096 J	17.000 J	230	0.074 J	0.350 J	0.350 J	1.500	160.000 J	0.0052 U	9.400 J
Dibenz(a,h)anthracene	0.33	9.1	7.3	0.0028 U	14.000 J	19.000 J	0.0026 U	12	0.0026 U	2	42	0.0027 U	0.027 U	0.050 J	0.180	1.300 U	0.0028 U	0.790 J
Fluoranthene	100	130	110	0.026 J	420	360	0.380 J	220	0.270 J	39.000	570	0.150 J	0.620 J	0.720	2.600	520	0.020 J	12.000 J
Fluorene	100	100	77.000	0.016 J	420	350	0.320 J	170	0.150 J	27.000	410	0.042 J	0.680 J	0.580 J	2.600	460	0.0029 U	17.000 J
Indeno(1,2,3-cd)pyrene	0.5	20	16	0.0028 U	62	52	0.053	25	0.028 J	5.4	95	0.014 J	0.027 U	0.100	0.360	66	0.0027 U	1.800 J
Naphthalene	100	770	500	0.0097 J	3000	2300	0.140 J	1600	0.330 J	170	2900	0.041 J	4.400	2.000	10.000	3700	0.060 J	360
Phenanthrene	100	340	250	0.054 J	1100	940	0.940	460	0.560	100	1500	0.260 J	1.800 J	2.200	7.300	1300	0.052 J	51.000
Pyrene	100	120	92.000	0.025 J	390	340	0.400 J	230	0.240 J	38.000	570	0.150 J	0.750 J	1.000	2.800	690	0.025 J	21.000 J
Total PAH	N/A	2112.1	1573.3	0.1943	8023	6583	3.484	3719	2.313	548.4	8640	1.019	11.99	10.09	39.63	9880	0.1965	717.59

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
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NA = Not Available
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Bold = compound was detected

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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 or absence of the analyte cannot be verified.
Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21RE009 3/4/2004 21RE009-31DUP 29-31	21RE009 3/4/2004 21RE009-33 31-33	21RE009 3/4/2004 21RE009-51 49-51	21RE010 3/1/2004 21RE010-29 27-29	21RE010 3/1/2004 21RE010-29DUP 27-29	21RE010 3/1/2004 21RE010-51 49-51	21RE011 2/26/2004 21RE011-29 27-29	21RE011 2/26/2004 21RE011-51 49-51	21RE012 2/27/2004 21RE012-31 29-31	21RE012 2/27/2004 21RE012-31DUP 29-31	21RE012 2/27/2004 21RE012-51 49-51	21RS005 2/9/2004 21RS005-27 25-27	21RS005 2/9/2004 21RS005-31 29-31	21RS005 2/10/2004 21RS005-39 37-39	21SC001 2/25/2004 21SC001-25 23-25	21SC001 2/25/2004 21SC001-51 49-51	21SC002 2/27/2004 21SC002-25 23-25
SVOC (mg/Kg)																		
2,4-Dimethylphenol	N/A	14.000 J	3.700 J	0.040 U	8.600 J	19.000 U	0.037 U	5.800 J	0.037 U	4.700 J	46.000 J	0.038 U	0.380 U	0.062 U	0.340 J	18.000 U	0.039 U	2.000 U
2-Chloronaphthalene	N/A	2.700 U	2.600 U	0.027 U	13.000 U	13.000 U	0.025 U	6.000 U	0.025 U	1.300 U	12.000 U	0.026 U	0.260 U	0.014 J	0.049 U	13.000 U	0.027 U	1.400 U
2-Methylphenol	100	1.100 J	3.700 U	0.039 U	18.000 U	19.000 U	0.036 U	8.600 U	0.036 U	1.800 U	17.000 U	0.037 U	0.370 U	0.061 U	0.180 J	18.000 U	0.038 U	2.000 U
4-Methylphenol	100	4.300 U	4.100 U	0.043 U	20.000 U	21.000 U	0.040 U	9.400 U	0.040 U	1.800 J	13.000 J	0.041 U	44.000	7.600	0.440 J	20.000 U	0.042 U	2.200 U
4-Nitrophenol	N/A	5.000 J	4.600 J	0.013 U	6.100 U	6.500 U	0.012 U	2.900 U	0.012 U	0.610 U	5.700 U	0.012 U	0.120 U	0.020 U	0.024 U	6.200 U	0.013 U	0.660 U
bis(2-Ethylhexyl) phthalate	N/A	2.600 U	2.500 U	0.026 U	12.000 U	13.000 U	0.024 U	5.800 U	0.024 U	1.200 U	12.000 U	0.025 U	0.930 U	0.190 U	0.580 U	12.000 U	0.025 U	1.300 U
Butyl benzyl phthalate	N/A	1.700 U	1.700 U	0.017 U	8.100 U	8.500 U	0.016 U	3.800 U	0.016 U	0.810 U	7.700 U	0.017 U	0.170 U	0.027 U	0.031 U	8.100 U	0.017 U	0.890 U
Carbazole	N/A	48.000	24.000 J	0.0032 U	120.000 J	93.000 J	0.130 J	57.000 J	0.065 J	13.000 J	130.000 J	0.016 J	0.200 J	0.150 J	0.780	1.500 U	0.0031 U	0.160 U
Dibenzofuran	59	77	53.000	0.0098 J	260	230	0.160 J	110	0.082 J	19.000 J	300	0.017 J	0.390 J	0.240 J	1.300	10.000 U	0.022 U	3.000 J
Diethyl phthalate	N/A	1.200 U	1.100 U	0.012 U	5.400 U	5.700 U	0.011 U	2.600 U	0.011 U	0.540 U	5.100 U	0.011 U	0.110 U	0.018 U	0.021 U	5.400 U	0.011 U	0.590 U
Phenol	100	5.800 U	5.500 U	0.058 U	27.000 U	28.000 U	0.054 U	13.000 U	0.054 U	2.700 U	26.000 U	0.055 U	3.300 J	0.730	0.100 U	27.000 U	0.056 U	3.000 U
Metals (mg/Kg)																		
Aluminum	N/A	10900 J	5730 J	5550 J	5380 J	4990 J	3490 J	5210 J	4460 J	7060 J	6260 J	2860 J	10900 J	11300 J	2490	7540	4260	7710 J
Antimony	N/A	1.0 UJ	0.96 UJ	1.0 UJ	1.4 UJ	1.5 UJ	1.4 UJ	1.3 U	1.4 U	1.4 UJ	1.3 UJ	1.4 UJ	2.9 U	2.6 J	0.90 U	1.4 UJ	1.5 UJ	1.5 UJ
Arsenic	16	7.0	3.0 J	1.6 J	1.9	1.5	0.78 U	1.5	0.77 U	2.8	3.0	0.79 U	4.7	6.6	0.79 U	3.7 J	0.81 UJ	4.6
Barium	400	41.3 J	30.2 J	47.7 J	52.3	55.5	53.9	37.3 J	51.4	15.0 J	18.9 J	36.7 J	22.1 J	53.7 J	12.4 J	12.0 J	62.1	10.8 J
Beryllium	72	0.64	0.33 J	0.39 J	0.31 J	0.30 J	0.26 J	0.30 J	0.30 J	0.41 J	0.31 J	0.20 J	0.54 J	0.34 J	0.12 J	0.35 J	0.29 J	0.36 J
Cadmium	4.3	0.10 U	0.099 U	0.10 U	0.096 U	0.10 U	0.097 U	0.091 U	0.096 U	0.096 U	0.090 U	0.099 U	0.20 U	0.16 U	0.093 U	0.099 U	0.10 U	0.10 U
Calcium	N/A	5450	5200	10800	5800 J	9360 J	8010 J	2630	11300	992 J	705 J	8780 J	3780	1660 J	865 J	665 J	10600 J	787 J
Chromium	180	20.5	11.1	14.4	10.3	9.5	8.4	11.1	11.4	13.7	10.7	7.9	19.9	30.1	11.0	10.7	10.4	10.8
Cobalt	N/A	8.3 J	5.2 J	7.0 J	5.2 J	3.8 J	4.9 J	4.3 J	5.6 J	5.5 J	6.3 J	4.4 J	6.4 J	5.4 J	2.1 J	4.8 J	5.8 J	4.8 J
Copper	270	21.3	13.7	10.7	17.6	19.0	8.1	13.7	12.0	10.2 J	13.1 J	10.0 J	12.5	11.6	6.8	13.1	9.8	15.0 J
Iron	N/A	22300 J	12500 J	13600 J	11300 J	10200 J	9710 J	9080	10400	15900 J	15400 J	7000 J	18100 J	20600 J	6610	14700	9990	17100 J
Lead	400	64.5	24.4	4.6	75.8	105	3.7	21.6 J	3.8 J	5.9	11.1	2.9	8.4	4.2	2.4	7.5	3.8	7.3
Magnesium	N/A	4840	2840	6390	2480	2260	4500	2000	5360	3340	2790	4200	4590	3470	950 J	3110	5310	3280
Manganese	2000	671	235	285	214	208	296	153 J	424 J	182	158	257	99.3	176	92.8	108	354	116
Mercury	0.81	0.32	0.06	0.019 U	0.20	7.4	0.020 U	0.06	0.020 U	0.020 U	0.019 U	0.021 U	0.041 U	0.033 U	0.019 U	0.021 U	0.021 U	0.019 U
Nickel	310	19.4	12.8	23.9	10.1	9.3 J	15.3	12.8	19.5	15.6	15.6	16.2	16.5 J	19.6	6.6 J	13.1	18.8	14.8
Potassium	N/A	2180	1180 J	1790 J	1220	1020 J	859 J	973 J	987 J	826 J	641 J	615 J	1790 J	1420 J	550 J	595 J	900 J	502 J
Selenium	180	1.4	0.96 U	1.0 U	1.0 U	1.1 U	1.0 U	0.96 U	1.0 U	1.0 U	0.94 U	1.0 U	2.1 U	1.7 U	0.90 U	1.0 U	1.1 U	1.1 U
Silver	180	0.18 U	0.17 U	0.18 U	0.34 U	0.36 U	0.34 U	0.32 U	0.34 U	0.34 U	0.31 U	0.35 U	0.69 U	0.56 U	0.16 U	0.35 U	0.36 U	0.36 U
Sodium	N/A	989 J	254 J	122 J	803 J	709 J	147 J	294 J	446 J	258 J	252 J	110 J	2850	1400 J	82.1 J	134 J	165 J	124 J
Vanadium	N/A	26.4	14.9	17.5	15.9	14.2	12.2	14.5	12.9	16.5	12.1	9.0 J	32.2	30.3	9.4 J	14.7	11.9 J	13.7
Zinc	10000	59.9	33.3	28.4	34.4	32.0	21.2	24.0	25.4	41.5	40.0	16.7	43.0	37.5	11.2	36.2	24.0	45.2
Cyanide (mg/Kg)																		
Cyanide, Total	27	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.5 U	0.5 U	0.5 U

Notes:

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Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21SC002 2/27/2004 21SC002-31 29-31	21SC002 3/1/2004 21SC002-51 49-51	21SC003 2/23/2004 21SC003-35 33-35	21SC003 2/23/2004 21SC003-51 49-51	21SC004 2/25/2004 21SC004-29 27-29	21SC004 2/25/2004 21SC004-51 49-51	21VH001 2/26/2004 21VH001-29 27-29	21VH001 2/26/2004 21VH001-51 49-51	21VH002 2/24/2004 21VH002-31 29-31	21VH002 2/25/2004 21VH002-51 49-51
BTEX (mg/Kg)											
Benzene	4.8	0.0056	0.0035	0.0056	0.0032	0.770	0.0051	0.0019	0.0053	0.0068	0.012
Ethylbenzene	41	0.0037 J	0.0014 J	0.0096	0.0048 J	7.600	0.0063	0.00023 U	0.00023 U	0.011	0.0014 J
Toluene	100	0.0035 J	0.0015 J	0.0024 J	0.00024 U	7.700	0.0048 J	0.00023 U	0.00023 U	0.014	0.0031 J
Xylene (Total)	100	0.0049 J	0.0018 J	0.019	0.0094	20.000	0.012	0.00056 U	0.00056 U	0.041	0.00057 U
Total BTEX	N/A	0.0177	0.0082	0.0366	0.0174	36.07	0.0282	0.0019	0.0053	0.0728	0.0165
VOC (mg/Kg)											
2-Butanone (Methyl Ethyl Ke	100	0.0013 U	0.0012 R	0.0011 U	0.0012 U	0.230 U	0.0013 U	0.0011 R	0.0011 R	0.0012 R	0.0012 U
4-Methyl-2-pentanone	N/A	0.00096 U	0.00092 U	0.00084 U	0.00090 U	0.130 U	0.00095 U	0.00086 U	0.00086 U	0.00092 U	0.00087 U
Acetone	100	0.037 U	0.031 J	0.056 J	0.055 J	0.220 U	0.031 J	0.023 U	0.022 U	0.040 J	0.0028 UJ
Carbon Disulfide	N/A	0.0014 J	0.00037 U	0.0007 J	0.0009 J	0.030 UJ	0.00038 U	0.0014 J	0.0019 J	0.0032 J	0.0012 J
Carbon Tetrachloride	2.4	0.00027 U	0.00026 U	0.00024 U	0.00025 U	0.046 U	0.00027 U	0.00024 U	0.00024 U	0.00026 U	0.00025 U
Chloroform	49	0.00030 U	0.00028 U	0.00026 U	0.00028 U	0.020 U	0.00029 U	0.00027 U	0.00027 U	0.00028 U	0.00027 U
cis-1,2-Dichloroethene	100	0.00039 U	0.0020 J	0.0008 J	0.0022 J	0.026 U	0.0033 J	0.00035 U	0.00035 U	0.0016 J	0.00035 U
Methylene Chloride	100	0.0008 U	0.0035 U	0.0012 U	0.00028 U	0.015 U	0.00029 U	0.0014 U	0.0012 U	0.00028 U	0.0007 U
Styrene	N/A	0.00016 U	0.00015 U	0.0019 J	0.0008 J	20.000	0.0063 J	0.00014 U	0.00014 U	0.0022 J	0.00014 U
Tetrachloroethene	19	0.00022 U	0.00020 U	0.00019 U	0.00020 U	0.040 U	0.00022 U	0.00020 U	0.00020 U	0.00020 U	0.00020 U
Trichloroethene	21	0.00035 U	0.00032 U	0.0011 J	0.00032 U	0.030 U	0.0010 J	0.00032 U	0.00032 U	0.00032 U	0.00032 U
PAH (mg/Kg)											
2-Methylnaphthalene	N/A	0.016 J	0.032 J	2.000	0.043 J	420.000	0.840	0.019 U	0.019 U	0.012 J	0.019 U
Acenaphthene	100	0.0037 U	0.190 J	0.150 J	0.0035 U	57.000 J	0.180 J	0.0090 J	0.0034 U	0.050 J	0.0034 U
Acenaphthylene	100	0.016 J	0.130 J	0.730	0.0035 U	410	0.980	0.0034 U	0.0034 U	0.0036 U	0.0034 U
Anthracene	100	0.015 J	0.260 J	0.390 J	0.0032 U	130	0.500	0.0031 U	0.0031 U	0.016 J	0.0031 U
Benzo(a)anthracene	1	0.012 J	0.240	0.240	0.011 U	100	0.390	0.011 U	0.011 U	0.016 J	0.011 U
Benzo(a)pyrene	1	0.010 J	0.200	0.190	0.0030 U	92	0.350	0.0030 U	0.0030 U	0.0031 U	0.0030 U
Benzo(b)fluoranthene	1	0.0034 U	0.100	0.067	0.0032 U	39	0.140	0.0031 U	0.0031 U	0.0032 U	0.0031 U
Benzo(ghi)perylene	100	0.0047 U	0.110 J	0.082 J	0.0044 U	51.000 J	0.210 J	0.0043 U	0.0043 U	0.0045 U	0.0043 U
Benzo(k)fluoranthene	3.9	0.0046 U	0.190	0.120	0.0043 U	76	0.290	0.0042 U	0.0042 U	0.0044 U	0.0042 U
Chrysene	3.9	0.014 J	0.240 J	0.270 J	0.0051 U	100.000 J	0.390 J	0.0050 U	0.0050 U	0.013 J	0.0050 U
Dibenz(a,h)anthracene	0.33	0.0029 U	0.016 J	0.0026 U	0.0027 U	12	0.042 J	0.0026 U	0.0026 U	0.0028 U	0.0026 U
Fluoranthene	100	0.018 J	0.480	0.390 J	0.014 J	290	1.100	0.0013 U	0.0013 U	0.034 J	0.0083 J
Fluorene	100	0.0030 U	0.250 J	0.460	0.0028 U	210	0.720	0.0028 U	0.0028 U	0.023 J	0.0028 U
Indeno(1,2,3-cd)pyrene	0.5	0.0029 U	0.089	0.053	0.0027 U	37	0.140	0.0026 U	0.0026 U	0.0027 U	0.0026 U
Naphthalene	100	0.029 J	0.054 J	3.300	0.130 J	1900	1.900	0.0035 U	0.034 J	0.052 J	0.071 J
Phenanthrene	100	0.056 J	1.000	1.400	0.039 J	640	2.400	0.0037 U	0.0037 U	0.069 J	0.0037 U
Pyrene	100	0.032 J	0.550	0.700	0.023 J	290	1.200	0.031 J	0.0028 U	0.031 J	0.0028 U
Total PAH	N/A	0.218	4.131	10.542	0.249	4854	11.772	0.04	0.034	0.316	0.0793

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons

SVOCs - Semivolatile Organic Compounds

VOCs - Volatile Organic Compounds

mg/kg - milligrams per kilogram

DL - Detection Limit

ND = calculated totals are not detected

NA = Not Available

N/A = Not Applicable

mg/Kg = milligram per kilogram

NS = Not Sampled

Bold = compound was detected

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 or absence of the analyte cannot t

Bold Italics = ND value exceeds soil cleanup objective for that compound.

Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).



Table A-3
Concentrations of Compounds Detected in Deeper Saturated Zone (greater than 20 ft bgs) and Lower Fill/Natural Soil Analytical Samples
Former East 21st Street Works, New York, NY

Location ID Sample Date Sample ID Depth Interval	NYSDEC Part 375-6 Restricted- Residential	21SC002 2/27/2004 21SC002-31 29-31	21SC002 3/1/2004 21SC002-51 49-51	21SC003 2/23/2004 21SC003-35 33-35	21SC003 2/23/2004 21SC003-51 49-51	21SC004 2/25/2004 21SC004-29 27-29	21SC004 2/25/2004 21SC004-51 49-51	21VH001 2/26/2004 21VH001-29 27-29	21VH001 2/26/2004 21VH001-51 49-51	21VH002 2/24/2004 21VH002-31 29-31	21VH002 2/25/2004 21VH002-51 49-51
SVOC (mg/Kg)											
2,4-Dimethylphenol	N/A	0.041 U	0.039 U	0.036 U	0.038 U	9.200 U	0.040 U	0.037 U	0.037 U	0.039 U	0.037 U
2-Chloronaphthalene	N/A	0.028 U	0.027 U	0.025 U	0.026 U	6.300 U	0.027 U	0.025 U	0.025 U	0.027 U	0.025 U
2-Methylphenol	100	0.040 U	0.038 U	0.035 U	0.037 U	9.100 U	0.039 U	0.036 U	0.036 U	0.038 U	0.036 U
4-Methylphenol	100	0.044 U	0.042 U	0.039 U	0.041 U	9.900 U	0.043 U	0.040 U	0.040 U	0.042 U	0.040 U
4-Nitrophenol	N/A	0.013 U	0.013 U	0.012 U	0.012 U	3.100 U	0.013 U	0.012 U	0.012 U	0.013 U	0.012 U
bis(2-Ethylhexyl) phthalate	N/A	0.027 U	0.025 U	0.210 J	0.240 J	6.100 U	0.150 J	0.024 U	0.024 U	0.025 U	0.024 U
Butyl benzyl phthalate	N/A	0.018 U	0.017 U	0.016 U	0.017 U	4.100 U	0.017 U	0.016 U	0.016 U	0.017 U	0.016 U
Carbazole	N/A	0.0032 U	0.014 J	0.0029 U	0.0030 U	35.000 J	0.120 J	0.0029 U	0.0029 U	0.0031 U	0.0029 U
Dibenzofuran	59	0.023 U	0.063 J	0.058 J	0.021 U	75.000 J	0.160 J	0.021 U	0.021 U	0.022 U	0.021 U
Diethyl phthalate	N/A	0.012 U	0.011 U	0.010 U	0.011 U	2.700 U	0.012 U	0.011 U	0.011 U	0.011 U	0.100 J
Phenol	100	0.059 U	0.056 U	0.052 U	0.055 U	13.000 U	0.058 U	0.054 U	0.054 U	0.056 U	0.054 U
Metals (mg/Kg)											
Aluminum	N/A	7090 J	2570 J	5930 J	5500 J	7170	3780	NS	NS	NS	NS
Antimony	N/A	1.5 UJ	1.5 UJ	0.91 UJ	0.97 UJ	1.4 UJ	1.5 UJ	NS	NS	NS	NS
Arsenic	16	1.3 J	0.81 U	1.4 J	0.84 U	1.7 J	0.83 UJ	NS	NS	NS	NS
Barium	400	34.1 J	34.3 J	32.5 J	52.4	21.6 J	43.4 J	NS	NS	NS	NS
Beryllium	72	0.34 J	0.20 J	0.38 J	0.33 J	0.33 J	0.26 J	NS	NS	NS	NS
Cadmium	4.3	0.10 U	0.10 U	0.094 U	0.099 U	0.098 U	0.10 U	NS	NS	NS	NS
Calcium	N/A	950 J	6840 J	1270	15000	1010 J	9190 J	NS	NS	NS	NS
Chromium	180	11.5	6.0	13.5 J	12.0 J	13.5	9.0	NS	NS	NS	NS
Cobalt	N/A	5.5 J	3.3 J	4.5 J	6.5 J	5.7 J	5.0 J	NS	NS	NS	NS
Copper	270	13.8 J	6.0	10.7	11.8	15.6	8.7	NS	NS	NS	NS
Iron	N/A	17000 J	6260 J	15000	13500	16800	8810	NS	NS	NS	NS
Lead	400	6.5	2.1	4.9	4.3	8.4	3.3	NS	NS	NS	NS
Magnesium	N/A	3340	3460	2640	6590	3440	4800	NS	NS	NS	NS
Manganese	2000	107	217	89.8 J	387 J	142	277	NS	NS	NS	NS
Mercury	0.81	0.022 U	0.018 U	0.020 U	0.021 U	0.020 U	0.022 U	NS	NS	NS	NS
Nickel	310	15.9	11.7	16.3	19.4	15.6	18.0	NS	NS	NS	NS
Potassium	N/A	772 J	619 J	1480 J	1500 J	755 J	876 J	NS	NS	NS	NS
Selenium	180	1.1 U	1.1 U	0.91 U	0.97 U	1.0 U	1.1 U	NS	NS	NS	NS
Silver	180	0.37 U	0.35 U	0.16 U	0.17 U	0.34 U	0.37 U	NS	NS	NS	NS
Sodium	N/A	103 U	96.5 J	113 J	165 J	148 J	103 U	NS	NS	NS	NS
Vanadium	N/A	12.9 J	8.3 J	16.8	16.4	14.4	11.1 J	NS	NS	NS	NS
Zinc	10000	44.6	15.2	29.3	31.0	48.4	24.3	NS	NS	NS	NS
Cyanide (mg/Kg)											
Cyanide, Total	27	0.5 U	NS	0.5 U	0.5 U	0.5 U	0.5 U	NS	NS	NS	NS

Notes:

PAHs - Polynuclear Aromatic Hydrocarbons
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
mg/kg - milligrams per kilogram
DL - Detection Limit
ND = calculated totals are not detected
NA = Not Available
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mg/Kg = milligram per kilogram
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Bold = compound was detected

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.
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Bold Italics = ND value exceeds soil cleanup objective for that compound.
Shaded values exceed NYSDEC 6NYCRR Part 375-6 Restricted-Residential. Use Soil Cleanup Objectives Table 375-6.8(b).

Appendix B

Summary of Groundwater Results

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																		
		21MWS01			21MWD01			21MWS02			21MWD02			21MWS03				21MWD03	21MWDD03	
		N/A 4/20/2004	N/A 5/23/2006	N/A 8/28/2008	N/A 4/20/2004	N/A 5/23/2006	N/A 8/28/2008	N/A 4/19/2004	N/A 5/16/2006	N/A 8/29/2008	N/A 4/19/2004	N/A 5/16/2006	N/A 8/29/2008	N/A 4/22/2004	N/A 5/23/2006	DUP 5/23/2006	N/A 9/2/2008	N/A 5/23/2006	N/A 4/12/2006	N/A 5/23/2006
BTEx (ug/L)																				
Benzene	1	0.3 U	1.8 J	0.35 U	1.5	0.39 U	0.35 U	0.7	0.39 U	0.35 U	24	2.4 J	7.4	3.5	2.9 J	5.6	4.5	46000 D	3900 D	4100 D
Ethylbenzene	5	0.6	0.45 U	0.05 U	0.4 U	0.45 U	0.05 U	0.4 U	0.45 U	0.05 U	0.4 U	0.45 U	0.05 U	8.5	0.45 UJ	0.45 U	0.03 U	3900 D	1.00 U	24
m,p-Xylene	NA	NS	1.2 U	0.47 U	NS	1.2 U	0.47 U	NS	1.2 U	0.47 U	NS	1.2 U	0.47 U	NS	1.2 UJ	1.2 U	0.27 U	2700 D	32	19
o-Xylene	NA	NS	0.46 U	0.16 U	NS	0.46 U	0.16 U	NS	0.46 U	0.16 U	NS	0.46 U	0.16 U	NS	0.46 UJ	0.46 U	0.09 U	1200 D	14	6.8
Toluene	5	0.2 U	0.36 U	0.16 U	0.2 U	0.36 U	0.16 U	0.2 U	0.36 U	0.16 U	0.2 U	0.36 U	0.16 U	1.0	0.36 UJ	0.36 U	0.09 U	22000 D	45	29
Total Xylene (calculated)	5	4.1	0	0	0.2 U	0	0	0.2 U	0	0	0.4	0	0	5.2	0	0	0	3900	46	25.8
Volatile Organic Compounds (VOCs) (ug/L)																				
1,1,2-Trichloroethane	1	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.41 U	0.19 U	0.41 U	1.00 U	0.41 U
1,1-Dichloroethene	5	0.4 U	0.42 U	0.67 U	0.4 U	0.42 U	0.67 U	0.4 U	0.42 UJ	0.67 U	0.5	0.42 UJ	0.67 U	0.4 U	0.42 U	0.42 U	0.39 U	0.42 U	1.00 U	0.42 U
1,2-Dibromoethane (EDB)	0.6	NS	0.32 UJ	0.26 U	NS	0.32 UJ	0.26 U	NS	0.32 U	0.26 U	NS	0.32 U	0.26 U	NS	0.32 UJ	0.32 UJ	0.15 U	0.32 UJ	1.00 U	0.32 UJ
1,2-Dichloroethane	0.6	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.34 U	0.24 U	0.34 U	1.00 U	0.34 U
1,2-Dichloropropane	1	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.40 U	0.27 U	0.40 U	1.00 U	0.40 U
2-Butanone (Methyl Ethyl Ketone)	50	2.5 U	1.1 U	1.9 U	2.5 U	1.1 U	1.9 U	2.5 U	1.1 UJ	1.9 U	2.5 U	1.1 UJ	1.9 U	2.5 U	1.1 U	1.1 U	1.1 U	1.1 U	5.00 U	1.1 U
2-Hexanone	50	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.7 U	1.0 UJ	1.7 U	5.00 U	1.7 U
Acetone	50	1.0 U	2.3 U	2.2 U	1.0 U	2.3 U	2.2 U	1.0 U	2.3 R	2.2 U	1.0 U	2.3 R	2.2 U	1.0 U	2.3 U	2.3 U	1.3 U	2.3 U	5.00 U	2.3 U
Bromodichloromethane	50	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.33 U	0.13 U	0.33 U	1.00 U	0.33 U
Bromomethane	5	0.4 U	0.41 U	1.4 U	0.4 U	0.41 U	1.4 U	0.4 U	0.41 U	1.4 U	0.4 U	0.41 U	1.4 U	0.4 U	0.41 U	0.41 U	0.80 U	0.41 U	1.00 U	0.41 U
Carbon Disulfide	60	0.2 U	0.40 UJ	0.20 U	0.2 U	0.40 UJ	0.20 U	0.2 U	0.40 UJ	0.20 U	0.2 U	0.40 UJ	0.20 U	0.2 U	0.40 U	0.40 UJ	0.12 U	0.40 U	1.00 U	0.40 U
Chlorobenzene	5	0.2 U	0.47 U	0.28 U	0.7	0.47 U	0.28 U	0.2 U	0.47 U	0.28 U	0.2 U	0.47 U	0.28 U	0.2 U	0.47 U	0.47 U	0.16 U	0.47 U	1.00 U	0.47 U
Chloroform	7	0.2 U	0.33 U	0.45 U	0.2 U	0.33 U	0.45 U	0.2 U	0.33 U	0.45 U	0.2 U	0.33 U	0.45 U	0.2 U	0.33 U	0.33 U	0.26 U	0.33 U	1.00 U	0.33 U
Chloromethane	5	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.34 UJ	0.22 U	0.34 UJ	1.00 U	0.34 UJ
cis-1,2-Dichloroethene	5	0.2 U	0.29 U	0.72 U	1.7	0.29 U	0.72 U	0.2 U	0.29 U	0.72 U	5.0	16	25	0.2 U	0.29 U	0.29 U	0.42 U	0.29 U	1.00 U	0.29 U
cis-1,3-Dichloropropene	0.4	0.2 U	0.36 UJ	0.29 U	0.2 U	0.36 UJ	0.29 U	0.2 U	0.36 U	0.29 U	0.2 U	0.36 U	0.29 U	0.2 U	0.36 UJ	0.36 UJ	0.17 U	0.36 UJ	1.00 U	0.36 U
Cyclohexane	NA	NS	0.36 UJ	0.57 U	NS	0.36 UJ	0.57 U	NS	0.36 U	0.57 U	NS	0.36 U	0.57 U	NS	0.36 U	0.36 UJ	0.33 U	0.36 U	NS	0.36 U
Isopropylbenzene	5	NS	0.44 U	0.37 U	NS	0.44 U	0.37 U	NS	0.44 U	0.37 U	NS	0.44 U	0.37 U	NS	0.44 UJ	0.44 U	0.22 U	0.44 UJ	1.00 U	0.44 U
Methyl Acetate	NA	NS	0.20 U	0.45 U	NS	0.20 U	0.45 U	NS	0.20 UJ	0.45 U	NS	0.20 UJ	0.45 U	NS	0.20 U	0.20 U	0.26 U	0.20 U	NS	0.20 U
Methyl tert-butyl ether	10	NS	0.28 U	0.23 U	NS	0.28 U	0.23 U	NS	0.28 U	0.23 U	NS	0.28 U	0.23 U	NS	0.28 U	0.28 U	0.13 U	0.28 U	2.00 U	0.28 U
Methylcyclohexane	NA	NS	0.34 UJ	0.47 U	NS	1.4 J	0.47 U	NS	0.34 U	0.47 U	NS	0.34 U	0.47 U	NS	0.34 UJ	0.34 UJ	0.27 U	0.34 UJ	NS	0.34 U
Naphthalene	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	35	NS
Styrene	5	0.3 U	0.41 U	0.19 U	0.3 U	0.41 U	0.19 U	0.3 U	0.41 U	0.19 U	0.3 U	0.41 U	0.19 U	0.3 U	0.41 UJ	0.41 U	0.11 U	0.41 UJ	1.00 U	0.41 U
Tetrachloroethene	5	0.3 U	0.48 U	0.97 U	0.3 U	0.48 U	0.97 U	0.3 U	0.48 UJ	0.97 U	0.6	0.48 UJ	0.97 U	0.3 U	0.48 U	0.48 U	0.57 U	0.48 U	1.00 U	0.48 U
trans-1,2-Dichloroethene	5	0.2 U	0.40 U	0.44 U	0.2 U	0.40 U	0.44 U	0.2 U	0.40 UJ	0.44 U	0.3	0.40 UJ	0.44 U	0.2 UJ	0.40 U	0.40 U	0.26 U	0.40 U	1.00 U	0.40 U
trans-1,3-Dichloropropene	0.4	0.2 U	0.32 UJ	0.31 U	0.2 U	0.32 UJ	0.31 U	0.2 U	0.32 U	0.31 U	0.2 U	0.32 U	0.31 U	0.2 U	0.32 UJ	0.32 UJ	0.18 U	0.32 U	1.00 U	0.32 U
Trichloroethene	5	0.2 U	0.46 U	0.34 U	0.2 U	0.46 U	0.34 U	0.2 U	0.46 U	0.34 U	2.0	0.46 U	0.34 U	0.2 U	0.46 U	0.46 U	0.20 U	0.46 U	1.00 U	0.46 U
Vinyl Chloride	2	0.5 U	0.33 U	0.30 U	0.5 U	0.33 U	0.30 U	0.5 U	0.33 UJ	0.30 U	0.5 U	0.33 UJ	0.30 U	0.5 U	0.33 U	0.33 U	0.17 U	0.33 U	1.00 U	0.33 U
Total VOCs	NA	4.7	1.8	0	3.9	1.4	0	0.7	0	0	32.8	18.4	32.4	18.2	2.9	5.6	4.5	76367.3	4026	4178.8

NYSDEC Groundwater Standards - New York State Department of Environmental Conservation Ambient Water Quality Standards or Guidance Values (AWQSGVs) listed in Technical and Operations Guidance Series (TOGs) 1.1.1 (NYSDEC 1998)

Bold = Detected analytes

Bold and Italics=Not detect exceeds NYSDEC AWQSGVs

Yellow highlighted values exceed NYSDEC AWQSGVs

NA = Not Applicable

NS= Not Sampled

ug/L = micrograms per Liter

mg/L = milligrams per Liter

1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

U = Non-detected 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

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.

D = Diluted run

DL = Detection Limit

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																			
		21MWS01			21MWD01			21MWS02			21MWD02			21MWS03			21MWD03	21MWD03			
		N/A 4/20/2004	N/A 5/23/2006	N/A 8/28/2008	N/A 4/20/2004	N/A 5/23/2006	N/A 8/28/2008	N/A 4/19/2004	N/A 5/16/2006	N/A 8/29/2008	N/A 4/19/2004	N/A 5/16/2006	N/A 8/29/2008	N/A 4/22/2004	N/A 5/23/2006	DUP 5/23/2006	N/A 9/2/2008	N/A 5/23/2006	N/A 4/12/2006	N/A 5/23/2006	
Polynuclear Aromatic Hydrocarbons (PAHs) (ug/l)																					
Acenaphthene	20	1.4	1.4 U	0.330 U	3.7	1.4 U	0.330 U	7.7	2.6 J	4.3 J	51	45	84	49	16	18	33 J	31	NS	4.5 J	
Acenaphthylene	NA	0.070 U	1.3 U	0.360 U	1.2	1.3 U	0.360 U	0.070 U	1.3 U	0.360 U	0.071 U	1.3 U	1.8 U	0.070 U	1.3 U	1.3 U	1.8 U	110	NS	13	
Anthracene	50	0.1	1.4 U	1.4 U	0.080 U	1.4 U	1.4 U	0.5	1.4 U	0.081 U	1.4 U	7.2 U	3.2	1.4 U	1.4 U	7.3 U	5.6 J	NS	2.4 J		
Benzo(a)anthracene	0.002	0.2 U	1.1 U	1.3 U	0.2 U	1.1 U	1.3 U	0.2 U	1.1 U	1.3 U	0.2 U	1.1 U	6.6 U	0.2 U	1.1 U	1.1 U	6.7 U	1.1 U	NS	1.1 U	
Benzo(a)pyrene	NA	0.080 U	1.2 U	0.220 U	0.080 U	1.2 U	0.220 U	0.080 U	1.2 U	0.220 U	0.081 U	1.2 U	1.1 U	0.080 U	1.2 U	1.2 U	1.1 U	1.2 U	NS	1.2 U	
Benzo(b)fluoranthene	0.002	0.2 U	0.770 U	0.440 U	0.2 U	0.760 U	0.440 U	0.2 U	0.760 U	0.440 U	0.2 U	0.760 U	2.2 U	0.2 U	0.760 U	0.760 U	2.2 U	0.760 U	NS	0.760 U	
Benzo(ghi)perylene	NA	0.060 U	1.1 U	0.400 U	0.060 U	1.1 U	0.400 U	0.060 U	1.1 U	0.400 U	0.061 U	1.1 U	2.0 U	0.060 U	1.1 U	1.1 U	2.0 U	1.1 U	NS	1.1 U	
Benzo(k)fluoranthene	0.002	0.2 U	1.9 U	0.310 U	0.2 U	1.9 U	0.310 U	0.2 U	1.9 U	0.310 U	0.2 U	1.9 U	1.5 U	0.2 U	1.9 U	1.9 U	1.5 U	1.9 U	NS	1.9 U	
Chrysene	0.002	0.070 U	1.7 U	0.270 U	0.070 U	1.7 U	0.270 U	0.070 U	1.7 U	0.270 U	0.071 U	1.7 U	1.3 U	0.070 U	1.7 U	1.7 U	1.3 U	1.7 U	NS	1.7 U	
Dibenz(a,h)anthracene	NA	0.040 U	0.890 U	0.550 U	0.040 U	0.880 U	0.550 U	0.040 U	0.880 U	0.550 U	0.040 U	0.880 U	2.8 U	0.040 U	0.880 U	0.870 U	2.8 U	0.880 U	NS	0.870 U	
Fluoranthene	50	0.050 U	1.2 U	0.200 U	0.050 U	1.2 U	0.200 U	1.5	1.2 U	0.200 U	0.7	1.2 U	1.0 U	2.5 J	1.6 J	1.5 J	1.0 U	4.6 J	NS	3.0 J	
Fluorene	50	0.7	1.4 U	0.290 U	0.1 J	1.4 U	0.290 U	0.1 UJ	1.4 U	0.290 U	9.7 J	7.4 J	11 J	8.8	1.4 U	1.4 U	1.4 U	32	NS	10 J	
Indeno(1,2,3-cd)pyrene	0.002	0.080 U	0.850 U	0.670 U	0.080 U	0.840 U	0.670 U	0.080 U	0.840 U	0.670 U	0.081 U	0.840 U	3.4 U	0.080 U	0.840 UJ	0.840 U	3.4 U	0.840 UJ	NS	0.840 UJ	
Naphthalene	10	1.8	1.4 U	0.290 U	0.040 U	1.4 U	0.290 U	1.1	1.4 U	0.290 U	1.5	1.4 U	1.4 U	5.2	2.9 J	4.9 J	1.4 U	6000 D	NS	140 D	
Phenanthrene	50	0.6	1.5 U	1.4 U	0.4	1.4 U	1.4 U	1.3	1.4 U	1.4 U	0.1 U	1.4 U	6.9 U	11 J	1.4 U	1.4 U	7.0 U	37	NS	22	
Pyrene	50	0.070 U	1.5 U	1.4 U	0.1	1.5 U	1.4 U	2.0	1.5 U	1.4 U	0.4	1.5 U	7.2 U	4.2	2.3 J	2.3 J	7.3 U	6.8 J	NS	4.2 J	
Semivolatile Organic Compounds (SVOCs) (ug/L)																					
1,1-Biphenyl	5	NS	1.4 U	0.330 U	NS	1.4 U	0.330 U	NS	1.4 U	0.330 U	NS	1.4 U	1.6 U	NS	1.4 U	1.4 U	1.6 U	1.4 U	NS	11	
2,4-Dimethylphenol	50	0.8 U	1.2 U	0.780 U	0.8 U	1.2 U	0.780 U	0.8 U	1.2 U	0.780 U	0.8 U	1.2 U	3.9 U	0.8 U	1.2 U	1.2 U	3.9 U	90 D	NS	1.2 U	
2-Methylnaphthalene	NA	2.5	1.1 U	0.380 U	0.5 U	1.1 U	0.380 U	0.5 U	1.1 U	0.380 U	0.5 U	1.1 U	1.9 U	1.4	1.6 J	1.8 J	1.9 U	530 D	NS	31	
2-Methylphenol	NA	0.8 U	1.5 U	0.370 U	0.8 U	1.5 U	0.370 U	0.8 U	1.5 U	0.370 U	0.8 U	1.5 U	1.8 U	0.8 U	1.5 U	1.5 U	1.9 U	1.5 U	NS	1.5 U	
3+4-Methylphenols	NA	NS	1.3 U	0.400 U	NS	1.3 U	0.400 U	NS	1.3 U	0.400 U	NS	1.3 U	2.0 U	NS	1.3 U	NS	2.0 U	43	NS	2.1 J	
4-Methylphenol	NA	0.5 U	NS	NS	0.5 U	NS	NS	0.5 U	NS	NS	0.5 U	NS	NS	0.5 U	NS	NS	NS	NS	NS	NS	
bis(2-Ethylhexyl) phthalate	5	0.6	1.6 U	1.3 U	0.6 U	1.6 U	1.3 U	0.6 U	1.7 J	1.3 U	0.8 U	1.6 U	6.6 U	0.6 U	1.6 U	1.5 U	6.7 U	1.6 U	NS	1.5 U	
Butyl benzyl phthalate	50	0.4 U	1.5 U	0.430 U	0.4 U	1.5 U	0.430 U	0.4 U	1.5 U	0.430 U	0.4 U	1.5 U	2.1 U	0.4 U	1.5 U	1.4 U	2.2 U	1.5 U	NS	1.4 U	
Caprolactam	NA	NS	1.3 R	1.5 R	NS	1.3 R	1.5 R	NS	1.3 R	1.5 R	NS	1.3 R	7.6 R	NS	1.3 R	1.3 R	7.6 R	1.3 R	NS	1.3 R	
Carbazole	NA	0.2	1.3 U	0.240 U	0.080 U	1.3 U	0.240 U	0.080 U	1.3 U	0.240 U	0.081 U	1.3 U	1.2 U	0.9	1.3 U	1.3 U	1.2 U	91 J	NS	1.3 U	
Dibenzofuran	NA	0.3 U	1.3 U	0.320 U	0.3 U	1.3 U	0.320 U	0.3 U	1.3 U	0.320 U	0.3 U	1.3 U	1.6 U	2.0	1.3 U	1.3 U	1.6 U	8.3 J	NS	1.3 U	
Diethyl phthalate	50	0.2 U	1.4 U	0.330 UJ	0.2 U	1.4 U	0.330 UJ	0.2 U	1.4 U	0.330 UJ	0.3 U	1.4 U	1.6 UJ	0.2 U	1.4 U	1.3 U	1.6 U	1.4 U	NS	1.3 U	
Phenol	1	0.5 U	1.3 R	0.560 R	0.5 U	1.3 R	0.560 R	0.5 U	1.3 U	0.560 R	0.5 U	1.3 U	2.8 R	0.5 U	1.3 R	1.3 R	2.8 R	1.3 R	NS	3.7 J	
Total SVOCs	NA	7.9	0	0	5.5	0	0	14.1	4.3	4.3	63.3	52.4	95	100.8	24.4	28.5	33	6989.3	NS	246.9	
Metals (ug/L)																					
Aluminum	NA	1440	47.4 J	NS	1020	164 J	NS	435	200 U	NS	6110	439	NS	629	60.9 J	33.7 J	NS	105 J	NS	394	
Antimony	3	5.8 U	60 U	NS	5.8 U	60 U	NS	5.8 U	3.170 U	NS	3.9 U	118	NS	5.8 U	60 U	60 U	NS	60 U	NS	60 U	
Arsenic	25	4.7	3.3 U	NS	22.0	38.7	NS	3.2 U	3.320 U	NS	6.2	3.320 U	NS	4.1	3.3 U	3.3 U	NS	3.9 J	NS	3.3 U	
Barium	1000	262	45.5 J	NS	221	264 J	NS	154	304 J	NS	414	488 J	NS	324	245 J	265 J	NS	135 J	NS	69.2 J	
Beryllium	3	0.30 U	5 U	NS	0.30 U	5 U	NS	0.30 U	5 U	NS	0.40	5 U	NS	0.30 U	5 U	5 U	NS	5 U	NS	5 U	
Cadmium	5	0.40 U	0.33 U	NS	0.40 U	0.33 U	NS	0.40 U	5 U	NS	0.40 U	5 U	NS	0.40 U	0.33 U	0.33 U	NS	0.33 U	NS	0.33 U	
Calcium	NA	306000	255000	NS	81800	80600	NS	133000	187000 J	NS	23400	37500 J	NS	181000	124000	133000	NS	53500	NS	18600	
Chromium	50	5.0	174 J-	NS	4.2	115 J-	NS	1.6 U	10 U	NS	18.2	10 U	NS	2.1	338 J-	244 J-	NS	116 J-	NS	310 J-	
Cobalt	NA	1.7 U	50 U	NS	1.7 U	50 U	NS	1.7 U	50 U	NS	18.2	50 U	NS	1.7 U	50 U	50 U	NS	50 U	NS	50 U	
Copper	200	5.2	5.5 J	NS	5.2	3.6 U	NS	3.7 U	3.640 U	NS	28.1	9.470 J	NS	4.0	14.8 J	6.2 J	NS	3.6 U	NS	4.6 J	
Iron	300	10400	800 J-	NS	15700	22300 J-	NS	3640	3030	NS	57700	55500	NS	3950	1730 J-	1540 J-	NS	2460 J-	NS	3030 J-	
Lead	25	2.3 U	2.8 U	NS	3.5	5 U	NS	21.1	4.560 J	NS	17.0	4.160 J	NS	12.6	5 U	2.8 U	NS	2.8 U	NS	2.8 U	
Magnesium	35000	76900	51600	NS	41500	35100	NS	26800	32200 J	NS	11000	13500 J	NS	42700	20400	22200	NS	54200	NS	30500	
Manganese	300	1650	185	NS	1090	729	NS	347	323 J	NS	406	444 J	NS	389	168	187	NS	159	NS	275	
Mercury	0.7	0.10 U	0.2 U	NS	0.10 U	0.0300 U	NS	0.10 U	0.0300 UJ	NS	0.10 U	0.0300 UJ	NS	0.10 U	0.0300 U	0.2	NS	0.0300 U	NS	0.2 U	
Nickel	100	5.4	65.5 J-	NS	3.6	44.9 J-	NS	1.6 U	40 U	NS	19.1	40 U	NS	3.9	138 J-	113 J-	NS	42.1 J-	NS	113 J-	
Potassium	NA	52900	22400 J	NS	30000	47100 J	NS	10500	27400 J+	NS	26800	47100 J+	NS	16800	14300 J	16100 J	NS	53000 J	NS	48000 J	
Selenium	10	8.4 U	21.1	NS	4.2 U	3.040 U	NS	4.2 U	3.040 U	NS	7.8 U	3.040 U	NS	4.2 U	10 U	3.0 U	NS	3.0 U	NS	3.0 U	
Silver	50	2.8 U	1.6 U	NS	1.4 U	1.6 U	NS	1.4 U	1.640 U	NS	0.70 U	1.640 U	NS	1.4 U	1.6 U	1.6 U	NS	1.6 U	NS	1.6 U	
Sodium	20000	294000	84200	NS	311000	368000	NS	88700	177000 J	NS	162000	263000 J	NS	120000	53100	62500	NS	243000	NS	882000	
Thallium	0.5	4.7 U	3.1 U	NS	4.7 U	3.1 U	NS	4.7 U	19.7	NS	4.4 U	10 U	NS	4.7 U	3.1 U	3.1 U	NS	3.1 U	NS	3.1 U	
Vanadium	NA	5.6	50 U	NS	4.1	50 U	NS	1.8 U	50 U	NS	22.9	50 U	NS	1.8 U	50 U	50 U	NS	50 U	NS	50 U	
Zinc	2000	21.6	25.7 J	NS	12.9	24.7 J	NS	13.0	21.1 J	NS	51.2	27.7 J	NS	19.3	38.6 J	22.4 J	NS	45.8 J	NS	22.9 J	

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1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

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

U

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																		
			21MWS04				21MWD04	21MWDD04	21MWS05		21MWD05		21MWS06			21MWD06				
		N/A 9/2/2008	N/A 4/22/2004	N/A 5/25/2006	N/A 9/2/2008	N/A 5/25/2006	N/A 5/25/2006	N/A 4/21/2004	N/A 5/17/2006	N/A 9/4/2008	N/A 4/21/2004	N/A 5/17/2006	N/A 9/4/2008	N/A 4/21/2004	N/A 5/17/2006	N/A 9/11/2008	N/A 4/21/2004	N/A 5/17/2006	N/A 8/29/2008	N/A 4/21/2004
BTEX (ug/L)																				
Benzene	1	17000	540	330 D	11000	360 D	5500 JD	0.4	0.39 U	0.35 U	0.5	3.3 J	0.35 U	0.6	0.39 U	9.1	1.3	0.39 U	0.35 U	8.5
Ethylbenzene	5	8.6 J	380	110	1100	92 D	1600 JD	0.4 U	0.45 U	0.05 U	0.4 U	0.45 U	0.05 U	0.4 U	2.6 J	0.05 U	0.4 U	2.6 J	0.05 U	0.4 U
m,p-Xylene	NA	0.47 UJ	NS	28	70 J	57 JD	1100 JD	NS	1.2 U	0.47 U	NS	1.2 U	0.47 U	NS	1.2 U	0.47 U	NS	1.2 U	0.47 U	NS
o-Xylene	NA	0.16 UJ	NS	23	63 J	200	530 JD	NS	0.46 U	0.16 U	NS	0.46 U	0.16 U	NS	0.46 U	0.16 U	NS	0.46 U	0.16 U	NS
Toluene	5	0.16 UJ	8.7	3.2 J	21 J	150 D	94 J	0.2 U	0.36 U	0.16 U	0.2 U	0.36 U	0.16 U	0.2 U	0.36 U	0.16 U	0.4	0.36 U	0.16 U	0.2 U
Total Xylene (calculated)	5	0	120	51	133	257	1630	0.2 U	0	0	1.1	0	0	0.2 U	0	0	0.2 U	0	0	0.4
Volatile Organic Compounds (VOCs) (ug/L)																				
1,1,2-Trichloroethane	1	0.32 UJ	3.4 U	0.41 U	0.32 UJ	0.41 U	0.41 U	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.32 U	0.3 U	0.41 U	0.32 U	0.3 U
1,1-Dichloroethene	5	0.67 UJ	4.3 U	0.42 U	0.67 UJ	0.42 U	0.42 U	0.4 U	0.42 UJ	0.67 U	0.4 U	0.42 UJ	0.67 U	0.4 U	0.42 U	0.67 U	0.4 U	0.42 U	0.67 U	0.4 U
1,2-Dibromoethane (EDB)	0.6	0.26 UJ	NS	0.32 R	0.26 UJ	0.32 R	0.32 R	NS	0.32 U	0.26 U	NS	0.32 U	0.26 U	NS	0.32 U	0.26 U	NS	0.32 U	0.26 U	NS
1,2-Dichloroethane	0.6	0.41 UJ	2.6 U	0.34 U	0.41 UJ	0.34 U	60 J	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.41 U	0.3 U	0.34 U	0.41 U	0.3 U
1,2-Dichloropropane	1	0.46 UJ	2.3 U	0.40 U	0.46 UJ	0.40 U	0.40 U	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.46 U	0.2 U	0.40 U	0.46 U	0.2 U
2-Butanone (Methyl Ethyl Ketone)	50	1.9 UJ	25 U	1.1 U	1.9 UJ	1.1 U	1.1 U	2.5 U	1.1 UJ	1.9 U	2.5 U	1.1 UJ	1.9 U	2.5 U	1.1 U	1.9 U	2.5 U	1.1 U	1.9 U	2.5 U
2-Hexanone	50	1.8 UJ	9.7 U	1.7 U	1.8 UJ	1.7 U	1.7 U	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.8 U	1.0 U	1.7 U	1.8 U	1.0 U
Acetone	50	2.2 UJ	9.7 U	2.3 U	19 J	2.3 U	2.3 U	1.0 U	2.3 R	2.2 U	1.0 U	2.3 R	2.2 U	1.0 U	2.3 R	2.2 U	1.0 U	2.3 R	2.2 U	1.0 U
Bromodichloromethane	50	0.23 UJ	3.6 U	0.33 U	0.23 UJ	4.6 J	0.33 U	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.23 U	0.4 U	0.33 U	0.23 U	0.4 U
Bromomethane	5	1.4 UJ	4.4 U	0.41 U	1.4 UJ	0.41 U	0.41 U	0.4 U	0.41 U	1.4 U	0.4 U	0.41 U	1.4 U	0.4 U	0.41 UJ	1.4 U	0.4 U	0.41 UJ	1.4 U	0.4 U
Carbon Disulfide	60	0.20 UJ	2.4 UJ	0.40 U	0.20 UJ	0.40 U	0.40 U	0.2 U	0.40 UJ	0.20 U	0.2 U	0.40 UJ	0.20 U	0.2 U	0.40 U	0.20 U	0.2 U	0.40 U	0.20 U	0.2 U
Chlorobenzene	5	0.28 UJ	1.8 U	0.47 U	0.28 UJ	0.47 U	0.47 U	0.2 U	0.47 U	0.28 U	0.2 U	0.47 U	0.28 U	0.2 U	0.47 U	0.28 U	0.2 U	0.47 U	0.28 U	0.2 U
Chloroform	7	0.45 UJ	1.9 U	0.33 U	0.45 UJ	0.33 U	0.33 U	0.2 U	0.33 U	0.45 U	0.2 U	0.33 U	0.45 U	0.5	0.33 U	0.45 U	1.0	0.33 U	0.45 U	0.2 U
Chloromethane	5	0.37 UJ	4.6 U	0.34 U	0.37 UJ	0.34 U	0.34 U	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.37 U	0.5 U	0.34 UJ	0.37 U	0.5 U
cis-1,2-Dichloroethene	5	0.72 UJ	2.4 U	0.29 U	0.72 UJ	0.29 U	0.29 U	0.2 U	0.29 U	0.72 U	47	0.29 U	43 J	0.2 U	0.29 U	0.72 U	11	10 J	14	0.2 U
cis-1,3-Dichloropropene	0.4	0.29 UJ	2.4 U	0.36 UJ	0.29 UJ	0.36 UJ	0.36 UJ	0.2 U	0.36 U	0.29 U	0.2 U	0.36 U	0.29 U	0.2 U	0.36 U	0.29 U	0.2 U	0.36 U	0.29 U	0.2 U
Cyclohexane	NA	0.57 UJ	NS	0.36 U	78	0.36 U	0.36 U	NS	0.36 U	0.57 U	NS	0.36 U	0.57 U	NS	0.36 U	0.57 U	NS	0.36 U	0.57 U	NS
isopropylbenzene	5	0.37 UJ	NS	39	38 J	84	58 J	NS	1.8 J	0.37 U	NS	0.44 U	0.37 U	NS	0.44 U	8.3	NS	0.44 U	0.37 U	NS
Methyl Acetate	NA	0.45 UJ	NS	0.20 U	0.45 UJ	0.20 U	0.20 U	NS	0.20 UJ	0.45 U	NS	0.20 UJ	0.45 U	NS	0.20 UJ	0.45 U	NS	0.20 UJ	0.45 U	NS
Methyl tert-butyl ether	10	0.23 UJ	NS	0.28 U	0.23 UJ	0.28 U	0.28 U	NS	0.28 U	0.23 U	NS	0.28 U	0.23 U	NS	0.28 U	0.23 U	NS	0.28 U	0.23 U	NS
Methylcyclohexane	NA	0.47 UJ	NS	0.34 U	34 J	0.34 U	35 J	NS	0.34 U	0.47 U	NS	0.34 U	0.47 U	NS	0.34 U	0.47 U	NS	0.34 U	0.47 U	NS
Naphthalene	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	5	0.19 UJ	2.8 U	0.41 U	0.19 UJ	8.1	20 J	0.3 U	0.41 U	0.19 U	0.3 U	0.41 U	0.19 U	0.3 U	0.41 U	0.19 U	0.3 U	0.41 U	0.19 U	0.3 U
Tetrachloroethene	5	0.97 UJ	3.1 U	0.48 U	0.97 UJ	0.48 U	0.48 U	0.3 U	0.48 U	0.97 U	0.3 U	0.48 UJ	0.97 U	0.3 U	0.48 U	0.97 U	0.4	0.67 J	0.97 U	0.3 U
trans-1,2-Dichloroethene	5	0.44 UJ	2.5 U	0.40 U	0.44 UJ	0.40 U	0.40 U	0.2 U	0.40 UJ	0.44 U	2.4	0.40 UJ	0.44 U	0.2 U	0.40 U	0.44 U	0.4	0.40 U	0.44 U	0.2 U
trans-1,3-Dichloropropene	0.4	0.31 UJ	2.1 U	0.32 UJ	0.31 UJ	6.1 J	0.32 UJ	0.2 U	0.32 U	0.31 U	0.2 U	0.32 U	0.31 U	0.2 U	0.32 U	0.31 U	0.2 U	0.32 U	0.31 U	0.2 U
Trichloroethene	5	0.34 UJ	1.8 U	0.46 U	0.34 UJ	0.46 U	0.46 U	0.2 U	0.46 UJ	0.34 U	0.8	0.46 U	0.34 U	0.2 U	0.46 U	0.34 U	10	7.0 J	0.34 U	0.2 U
Vinyl Chloride	2	0.30 UJ	5.3 U	0.33 U	0.30 UJ	0.33 U	0.33 U	0.5 U	0.33 UJ	0.30 U	4	0.33 UJ	5.2 J	0.5 U	0.33 UJ	0.30 U	0.5 U	0.33 UJ	0.30 U	0.5 U
Total VOCs	NA	17008.6	1048.7	533.2	12423	961.8	8997	0.4	1.8	0	55.8	3.3	48.2	1.1	2.6	17.4	24.5	20.27	14	8.9

NYSDEC Groundwater Standards - New York State Department of Environmental Conservation Ambient Water Quality Standards or Guidance Values (AWQSGVs) listed in Technical and Operations Guidance Series (TOGs) 1.1.1 (NYSDEC 1998)

Bold = Detected analytes

Bold and Italics=Not detect exceeds NYSDEC AWQSGVs

Yellow highlighted values exceed NYSDEC AWQSGVs

NA = Not Applicable

NS= Not Sampled

ug/L = micrograms per Liter

mg/L = milligrams per Liter

1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

U = Non-detected 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

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.

D = Diluted run

DL = Detection Limit

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date		NYSDEC AWQSGVs	OU-1 Monitoring Wells																		
			21MWS04				21MWD04	21MWDD04	21MWS05			21MWD05			21MWS06			21MWD06			
			N/A 9/2/2008	N/A 4/22/2004	N/A 5/25/2006	N/A 9/2/2008	N/A 5/25/2006	N/A 5/25/2006	N/A 4/21/2004	N/A 5/17/2006	N/A 9/4/2008	N/A 4/21/2004	N/A 5/17/2006	N/A 9/4/2008	N/A 4/21/2004	N/A 5/17/2006	N/A 9/11/2008	N/A 4/21/2004	N/A 5/17/2006	N/A 8/29/2008	N/A 4/21/2004
Polynuclear Aromatic Hydrocarbons (PAHs) (ug/l)																					
Acenaphthene	20	1.6 U	76	49	46 J	210 D	110 D	0.1	1.4 U	0.330 U	2.3	1.4 U	0.330 U	7.8	1.4 U	1.5 J	0.3	1.4 U	0.330 U	18	
Acenaphthylene	NA	1.8 U	0.7 U	1.3 U	1.8 U	26	4.1 J	0.071 U	1.3 U	0.360 U	3.0	1.3 U	0.360 U	0.071 U	1.3 U	0.360 U	0.074 U	1.3 U	0.360 U	0.076 U	
Anthracene	50	7.3 U	9.7	7.1 J	7.3 U	17	7.9 J	0.081 U	1.4 U	1.4 U	5.0	1.4 U	1.4 U	0.2	1.4 U	1.4 U	0.084 U	1.4 U	1.4 U	0.8	
Benzo(a)anthracene	0.002	6.7 U	1.6 U	1.1 U	6.7 U	1.1 U	1.1 U	0.2 U	1.1 U	1.3 U	0.7	1.1 U	1.3 U	0.2 U	1.1 U	1.3 U	0.2 U	1.1 U	1.3 U	0.2 U	
Benzo(a)pyrene	NA	1.1 U	0.8 U	1.2 U	1.1 U	1.2 U	1.2 U	0.081 U	1.2 U	0.220 U	0.3	1.2 U	0.220 U	0.082 U	1.2 U	0.220 U	0.084 U	1.2 U	0.220 U	0.087 U	
Benzo(b)fluoranthene	0.002	2.2 U	1.7 U	0.760 U	2.2 U	0.760 U	0.760 U	0.2 U	0.760 U	0.440 U	0.1 J	0.760 U	0.440 U	0.2 U	0.760 U	0.440 U	0.2 U	0.760 U	0.440 U	0.2 U	
Benzo(ghi)perylene	NA	2.0 U	0.6 U	1.1 U	2.0 U	1.1 U	1.1 U	0.061 U	1.1 U	0.400 U	0.062 U	1.1 U	0.400 U	0.061 U	1.1 U	0.400 U	0.063 U	1.1 U	0.400 U	0.065 U	
Benzo(k)fluoranthene	0.002	1.5 U	1.7 U	1.9 U	1.5 U	1.9 U	1.9 U	0.2 U	1.9 U	0.310 U	0.2	1.9 U	0.310 U	0.2 U	1.9 U	0.310 U	0.2 U	1.9 U	0.310 U	0.2 U	
Chrysene	0.002	1.3 U	0.7 U	1.7 U	1.3 U	1.7 U	1.7 U	0.071 U	1.7 U	0.270 U	0.9	1.7 U	0.270 U	0.071 U	1.7 U	0.270 U	0.074 U	1.7 U	0.270 U	0.076 U	
Dibenz(a,h)anthracene	NA	2.8 U	0.4 U	0.870 U	2.8 U	0.870 U	0.870 U	0.040 U	0.880 U	0.550 U	0.041 U	0.880 U	0.550 U	0.041 U	0.880 U	0.550 U	0.042 U	0.880 U	0.550 U	0.043 U	
Fluoranthene	50	1.0 U	6.2 J	3.9 J	1.0 U	9.5 J	4.7 J	0.050 U	1.2 U	0.200 U	6.5	1.2 U	0.200 U	0.8	1.2 U	0.200 U	0.4	1.2 U	0.200 U	0.9	
Fluorene	50	1.4 U	27	22	18 J	69	39	0.1 U	1.4 U	0.290 U	6.0	1.4 U	0.290 U	0.1 U	1.4 U	0.290 U	0.3	1.4 U	0.290 U	4.0	
Indeno(1,2,3-cd)pyrene	0.002	3.4 U	0.8 U	0.840 U	3.4 U	0.840 U	0.840 U	0.081 U	0.840 U	0.670 U	0.082 U	0.840 U	0.670 U	0.082 U	0.840 U	0.670 U	0.084 U	0.840 U	0.670 U	0.087 U	
Naphthalene	10	5.4 J	1700	610 D	1200	2200 D	4300 D	0.2	1.4 U	0.290 U	15	1.4 U	0.290 U	1.0	1.4 U	0.290 U	1.1	1.4 U	0.290 U	5.6	
Phenanthrene	50	7.0 U	37 J	29	21 J	110 D	48	0.2	1.4 U	1.4 U	16	1.4 U	1.4 U	0.1 U	1.4 U	1.4 U	1.2	1.4 U	1.4 U	2.4	
Pyrene	50	7.3 U	9.2	5.2 J	7.3 U	13	6.5 J	0.071 U	1.5 U	1.4 U	6.4	1.5 U	1.4 U	1.0	1.5 U	1.4 U	0.6	1.5 U	1.4 U	0.8	
Semivolatile Organic Compounds (SVOCs) (ug/L)																					
1,1-Biphenyl	5	1.6 U	NS	5.6 J	6.1 J	61 D	50	NS	1.4 U	0.330 U	NS	1.4 U	0.330 U	NS	1.4 U	0.330 U	NS	1.4 U	0.330 U	NS	
2,4-Dimethylphenol	50	3.9 U	8.9 U	1.2 U	390	62 D	1.2 UJ	0.8 U	1.2 U	0.780 U	0.9 U	1.2 U	0.780 U	0.9 U	1.2 U	0.780 UJ	0.9 U	1.2 U	0.780 UJ	0.9 U	
2-Methylnaphthalene	NA	1.9 U	230	120 D	60	340 D	380 D	0.5 U	1.1 U	0.380 U	6.3	1.1 U	0.380 U	0.5 U	1.1 U	0.380 U	0.5 U	1.1 U	0.380 U	0.7	
2-Methylphenol	NA	1.9 U	8.9 U	1.5 U	25 J	19 J	1.5 U	0.8 U	1.5 U	0.370 U	0.9 U	1.5 U	0.370 U	0.9 U	1.5 U	0.370 UJ	0.9 U	1.5 U	0.370 UJ	0.9 U	
3+4-Methylphenols	NA	2.0 U	NS	1.3 U	44 J	19 J	7.9 J	NS	1.3 U	0.400 U	NS	1.3 U	0.400 U	NS	1.3 U	0.400 UJ	NS	1.3 U	0.400 UJ	NS	
4-Methylphenol	NA	NS	4.2 U	NS	NS	NS	NS	0.5 U	NS	NS	0.5 U	NS	NS	0.5 U	NS	NS	0.6 U	NS	NS	0.6 U	
bis(2-Ethylhexyl) phthalate	5	6.7 U	6.0 U	1.5 U	6.7 U	1.5 U	1.5 U	0.6 U	1.6 U	1.3 U	0.7 U	1.6 U	1.3 U	0.8 U	2.1 J	1.3 U	0.8 U	1.6 U	1.3 U	0.9 U	
Butyl benzyl phthalate	50	2.2 U	4.2 U	1.4 U	2.2 U	1.4 U	1.4 U	0.4 U	1.5 U	0.430 U	0.4 U	1.5 U	0.430 U	0.4 U	1.5 U	0.430 U	0.6	1.5 U	0.430 U	0.4 U	
Caprolactam	NA	7.6 R	NS	1.3 U	7.6 R	1.3 UJ	1.3 UJ	NS	1.3 R	1.5 U	NS	1.3 R	1.5 U	NS	1.3 R	1.5 R	NS	1.3 R	1.5 R	NS	
Carbazole	NA	1.2 U	17	14	14 J	97 D	18	0.081 U	1.3 U	0.240 U	1.7	1.3 U	0.240 U	0.099	1.3 U	0.240 U	0.4	1.3 U	0.240 U	13	
Dibenzofuran	NA	1.6 U	11	6.9 J	5.6 J	32	5.4 J	0.3 U	1.3 U	0.320 U	3.3	1.3 U	0.320 U	0.3 U	1.3 U	0.320 U	0.4 U	1.3 U	0.320 U	1.7	
Diethyl phthalate	50	1.6 U	3.7	1.3 U	1.6 U	1.3 U	1.3 U	0.3 U	1.4 U	0.330 U	0.3 U	1.4 U	0.330 U	0.3 U	1.4 U	0.330 UJ	0.3 U	1.4 U	0.330 UJ	0.3 U	
Phenol	1	2.8 R	21	9.5 J	8.1 J	3.0 J	18	0.5 U	1.3 U	0.560 UJ	0.5 U	1.3 U	0.560 UJ	0.5 U	1.3 U	0.560 R	0.6 U	1.3 U	0.560 R	0.6 U	
Total SVOCs	NA	5.4	2147.8	882.2	1837.8	3270.4	4999.5	0.5	0	0	73.7	0	0	10.899	2.1	1.5	4.9	0	0	47.9	
Metals (ug/L)																					
Aluminum	NA	NS	3370	504	NS	15.5 J	622	391	200 U	NS	488	463	NS	460	200 U	NS	1280	200 U	NS	233	
Antimony	3	NS	5.8 U	3.170 U	NS	60 U	3.170 U	5.8	3.170 U	NS	6	3.170 U	NS	6.2	3.170 U	NS	5.8 U	60.9	NS	5.8 U	
Arsenic	25	NS	5.6	3.320 U	NS	3.320 U	8.730 J	3.2 U	3.320 U	NS	6.4	17.0	NS	3.2 U	3.320 U	NS	24.1	20.8	NS	3.2 U	
Barium	1000	NS	92.7	200 U	NS	435 J-	200 U	333	268 J	NS	73.6	200 U	NS	137	200 U	NS	84.2	200 U	NS	139	
Beryllium	3	NS	0.30 U	0.090 U	NS	0.090 U	0.090 U	0.30 U	5 U	NS	0.30 U	5 U	NS	0.30 U	5 U	NS	0.30 U	5 U	NS	0.30 U	
Cadmium	5	NS	0.40 U	0.327 UJ	NS	0.327 UJ	0.327 UJ	0.40 U	5 U	NS	0.40 U	5 U	NS	0.40 U	5 U	NS	0.40 U	5 U	NS	0.40 U	
Calcium	NA	NS	100000	77100 J	NS	211000 J	197000 J	264000	215000 J	NS	49400	51300 J	NS	403000	182000 J	NS	70200	51500 J	NS	154000	
Chromium	50	NS	6.8	0.343 U	NS	0.500 J	10.1	1.8	10 U	NS	3.1	18.4	NS	2.5	10 U	NS	3.0	12.3	NS	2.2	
Cobalt	NA	NS	3.7	0.370 UJ	NS	0.370 UJ	0.690 J-	4.0	50 U	NS	1.7 U	50 U	NS	8.8	50 U	NS	1.7 U	50 U	NS	1.7 U	
Copper	200	NS	11.9	3.640 U	NS	3.640 U	3.640 U	5.5	5.260 J	NS	4.6	3.640 U	NS	3.7 U	3.640 U	NS	5.1	8.210 J	NS	3.7 U	
Iron	300	NS	4120	415 J-	NS	8140 J-	2750 J-	4560	805	NS	5080	6510	NS	1810	285	NS	46900	33100	NS	12700	
Lead	25	NS	18.3	2.180 U	NS	2.180 U	2.180 U	27.3	6.750	NS	2.3 U	2.370 J	NS	2.3 U	2.180 U	NS	2.3 U	2.180 U	NS	2.3 U	
Magnesium	35000	NS	3920	3800 J	NS	143000 J	348000 J	58900	41000 J	NS	31100	34200 J	NS	64200	23300 J	NS	26600	20600 J	NS	45200	
Manganese	300	NS	112	103 J-	NS	1180 J-	978 J-	607	322 J	NS	427	380 J	NS	3380	30.7 J	NS	844	497 J	NS	1880	
Mercury	0.7	NS	0.10 U	0.2 U	NS	0.2 U	0.2 U	0.15	0.0300 UJ	NS	0.10 U	0.0300 UJ	NS	0.10 U	0.0300 UJ	NS	0.10 U	0.0300 UJ	NS	0.10 U	
Nickel	100	NS	24.9	8.960 J-	NS	1.560 UJ	4.460 J-	3.5	40 U	NS	4.8	40 U	NS	15.0	40 U	NS	4.0	40 U	NS	3.0	
Potassium	NA	NS	14800	20700	NS	72900	92500	27800	36800 J+	NS	19100	30900 J+	NS	28200	25300 J+	NS	22400	27800 J+	NS	8260	
Selenium	10	NS	4.7	3.040 U	NS	3.040 U	3.040 U	8.4 U	3.040 U	NS	4.2 U	3.040 U	NS	8.4 U	3.040 U	NS	4.2 U	3.040 U	NS	4.2 U	
Silver	50	NS	1.4 U	1.640 U	NS	1.640 U	1.640 U	2.8 U	1.640 U	NS	1.4 U	1.640 U	NS	2.8 U	1.640 U	NS	1.4 U	1.640 U	NS	1.4 U	
Sodium	20000	NS	54800	51500	NS	652000	5120000 D	160000	157000 J	NS	132000	169000 J	NS	238000	265000 J	NS	104000	120000 J	NS	20700	
Thallium	0.5	NS	4.7 U	3.050 U	NS	3.050 U	3.050 U	4.7 U	3.050 U	NS	4.7 U										

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Bold = Detected analytes

Bold and Italics=Not detect exceeds NYSDEC AWQSGVs

Yellow highlighted values exceed NYSDEC AWQSGVs

NA = Not Applicable

NS= Not Sampled

ug/L = micrograms per Liter

mg/L = milligrams per Liter

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																		
		21MWS07		21MWD07		21MWS08		21MWD08		21MWDD08		21MWS09								
		N/A 5/18/2006	N/A 8/29/2008	N/A 4/21/2004	N/A 5/23/2006	N/A 4/20/2004	N/A 5/24/2006	N/A 8/28/2008	N/A 4/20/2004	N/A 5/24/2006	N/A 8/28/2008	N/A 5/24/2006	N/A 9/2/2008	N/A 4/20/2004	N/A 5/17/2006	N/A 8/29/2008	N/A 4/20/2004	N/A 5/17/2006	N/A 8/28/2008	N/A 4/22/2004
BTEX (ug/L)																				
Benzene	1	10	0.35U	6600	2300 D	580	720 D	720	7800	1000 D	1500	2200 D	5700	910	15 J	140	35000	25000 D	35000 J	73
Ethylbenzene	5	0.45 U	0.05U	990	180 JD	110	86	53	1000	130	93	50	8.6 J	44	2.7 J	2.3 J	4800	1200 J	4100	55
m,p-Xylene	NA	1.2 U	0.47U	NS	200 JD	NS	31	28	NS	48	33	67	5.2 J	NS	1.2 U	0.47 U	NS	1000 J	1700	NS
o-Xylene	NA	0.46 U	0.16U	NS	210 JD	NS	28	24	NS	15	9.2	42	7.4 J	NS	0.46 U	0.16 U	NS	410 J	560	NS
Toluene	5	0.36 U	0.16 U	590	120 JD	5.1	3.0 J	3.1 J	15 U	4.2 J	3.3 J	100	2.9 J	5.2	0.36 U	0.16 U	3300	700 J	1200	2.6
Total Xylene (calculated)	5	0	0	1700	410	64	59	52	740	63	42.2	109	12.6	35	0	0	4500	1410	2260	24
Volatile Organic Compounds (VOCs) (ug/L)																				
1,1,2-Trichloroethane	1	0.41 U	0.32 U	34 U	0.41 U	1.7 U	0.41 U	0.32 U	34 U	0.41 U	0.32 U	6.9 J	0.32 UJ	3.4 U	0.41 U	0.32 U	85 U	41 U	0.32 U	0.3 U
1,1-Dichloroethene	5	0.42 UJ	0.67 U	43 U	0.42 U	2.2 U	0.42 U	0.67 UJ	43 UJ	0.42 U	0.67 U	0.42 U	0.67 UJ	4.3 UJ	0.42 U	0.67 U	110 U	42 UJ	0.67 U	0.4 U
1,2-Dibromoethane (EDB)	0.6	0.32 U	0.26 U	NS	0.32 UJ	NS	0.32 R	0.26 U	NS	0.32 R	0.26 U	0.32 R	0.26 UJ	NS	0.32 U	0.26 U	NS	32 U	0.26 U	NS
1,2-Dichloroethane	0.6	0.34 U	0.41 U	26 U	0.34 U	1.3 U	0.34 U	0.41 UJ	26 U	0.34 U	0.41 U	54	0.41 UJ	2.6 U	0.34 U	0.41 U	65 U	34 U	0.41 U	0.3 U
1,2-Dichloropropane	1	0.40 U	0.46 U	23 U	0.40 U	1.2 U	0.40 U	0.46 U	23 U	0.40 U	0.46 U	0.40 U	0.46 UJ	2.3 U	0.40 U	0.46 U	58 U	40 U	0.46 U	0.2 U
2-Butanone (Methyl Ethyl Ketone)	50	1.1 UJ	1.9 U	250 U	1.1 U	12 U	1.1 U	1.9 UJ	250 U	1.1 U	1.9 U	1.1 U	1.9 UJ	25 U	1.1 U	1.9 U	620 U	110 UJ	1.9 U	2.5 U
2-Hexanone	50	1.7 U	1.8 U	97 U	1.7 U	4.8 U	1.7 UJ	1.8 U	97 U	1.7 UJ	1.8 U	1.7 UJ	1.8 UJ	9.7 U	1.7 U	1.8 U	240 U	170 U	1.8 U	1.0 U
Acetone	50	2.3 R	2.2 U	97 U	2.3 U	4.8 U	2.3 U	2.2 UJ	97 UJ	2.3 U	2.2 U	2.3 U	2.2 UJ	9.7 UJ	2.3 R	2.2 U	240 U	230 R	2.2 U	1.0 U
Bromodichloromethane	50	0.33 U	0.23 U	36 U	0.33 U	1.8 U	0.33 U	0.23 U	36 U	0.33 U	0.23 U	0.33 U	0.23 UJ	3.6 U	0.33 U	0.23 U	90 U	33 U	0.23 U	0.4 U
Bromomethane	5	0.41 U	1.4 U	44 U	0.41 U	2.2 U	0.41 U	1.4 UJ	44 U	0.41 U	1.4 U	3.2 J	1.4 UJ	4.4 U	0.41 UJ	1.4 U	110 U	41 UJ	1.4 U	0.4 U
Carbon Disulfide	60	0.40 UJ	0.20 U	24 U	0.40 UJ	1.2 U	0.87 J	0.20 UJ	24 UJ	0.40 U	0.20 U	0.40 U	0.20 UJ	2.4 UJ	0.40 U	0.20 U	60 U	40 U	0.20 U	0.2 U
Chlorobenzene	5	0.47 U	0.28 U	18 U	0.47 U	0.9 U	0.47 U	0.28 U	18 U	0.47 U	0.28 U	0.47 U	0.28 UJ	1.8 U	0.47 U	0.28 U	45 U	47 U	0.28 U	0.2 U
Chloroform	7	0.33 U	0.45 U	19 U	0.33 U	1.0 U	0.33 U	0.45 UJ	19 U	0.33 U	0.45 U	0.33 U	0.45 UJ	1.9 U	0.33 U	0.45 U	48 U	33 U	0.45 U	0.2 U
Chloromethane	5	0.34 UJ	0.37 U	46 U	0.34 UJ	2.3 U	0.34 UJ	0.37 UJ	46 U	0.34 UJ	0.37 U	1.4 J	0.37 UJ	4.6 U	0.34 UJ	0.37 U	120 U	34 UJ	0.37 U	0.5 U
cis-1,2-Dichloroethene	5	0.29 U	0.72 U	24 U	0.29 U	1.2 U	0.29 U	0.72 UJ	24 U	0.29 U	0.72 U	1.1 J	0.72 UJ	2.4 U	0.29 U	0.72 U	60 U	29 U	0.72 U	0.2 U
cis-1,3-Dichloropropene	0.4	0.36 U	0.29 U	24 U	0.36 UJ	1.2 U	0.36 UJ	0.29 U	24 U	0.36 UJ	0.29 U	6.2 J	0.29 UJ	2.4 U	0.36 U	0.29 U	60 U	36 U	0.29 U	0.2 U
Cyclohexane	NA	2.5 J	0.57 U	NS	0.36 UJ	NS	0.36 U	0.57 UJ	NS	0.36 U	0.57 U	1.4 J	0.57 UJ	NS	0.36 U	0.57 U	NS	36 U	17	NS
Isopropylbenzene	5	2.9 J	0.37 U	NS	39	NS	54 J	62	NS	7.1 J	5.1	55 J	34 J	NS	0.44 U	20	NS	44 U	110	NS
Methyl Acetate	NA	0.20 UJ	0.45 U	NS	0.20 U	NS	0.20 U	0.45 UJ	NS	0.20 U	0.45 U	11 J	0.45 UJ	NS	0.20 UJ	0.45 U	NS	20 UJ	0.45 U	NS
Methyl tert-butyl ether	10	0.28 U	0.23 U	NS	0.28 U	NS	0.28 U	0.23 UJ	NS	0.28 U	0.23 U	0.82 J	0.23 UJ	NS	0.28 U	0.23 U	NS	28 U	0.23 U	NS
Methylcyclohexane	NA	0.34 U	0.47 U	NS	3.4 J	NS	0.74 J	0.47 UJ	NS	0.34 UJ	3.7 J	1.8 J	0.47 UJ	NS	0.34 U	0.47 U	NS	34 U	0.47 U	NS
Naphthalene	10	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Styrene	5	0.41 U	0.19 U	28 U	6.2	1.4 U	0.59 J	0.19 U	28 U	0.41 UJ	0.19 U	37 J	0.19 UJ	2.8 U	0.41 U	0.19 U	70 U	41 U	0.19 U	0.3 U
Tetrachloroethene	5	0.48 UJ	0.97 U	31 U	0.48 U	1.6 U	0.48 U	0.97 U	31 U	0.48 U	0.97 U	0.48 U	0.97 UJ	3.1 U	0.48 U	0.97 U	78 U	48 UJ	0.97 U	0.3 U
trans-1,2-Dichloroethene	5	0.40 UJ	0.44 U	25 U	0.40 U	1.2 U	0.40 U	0.44 UJ	25 UJ	0.40 U	0.44 U	1.5 J	5.7 J	2.5 UJ	0.40 U	0.44 U	62 U	40 UJ	0.44 U	0.2 UJ
trans-1,3-Dichloropropene	0.4	0.32 U	0.31 U	21 U	0.32 U	1.0 U	0.32 UJ	0.31 U	21 U	0.32 UJ	0.31 U	0.32 UJ	0.31 UJ	2.1 U	0.32 U	0.31 U	52 U	32 U	0.31 U	0.2 U
Trichloroethene	5	0.46 U	0.34 U	18 U	0.46 U	0.9 U	0.46 U	0.34 U	18 U	0.46 U	0.34 U	0.46 U	0.34 UJ	1.8 U	0.46 U	0.34 U	45 U	46 U	0.34 U	0.2 U
Vinyl Chloride	2	0.33 UJ	0.30 U	53 U	0.33 U	2.6 U	0.33 U	0.30 UJ	53 U	0.33 U	0.30 U	2.8 J	0.30 UJ	5.3 U	0.33 UJ	0.30 U	130 U	33 UJ	0.30 U	0.5 U
Total VOCs	NA	15.4	0	9880	3058.6	759.1	924.2	890.1	9540	1204.3	1647.3	2643.12	5763.8	994.2	17.7	162.3	47600	28310	42687	154.6

NYSDEC Groundwater Standards - New York State Department of Environmental Conservation Ambient Water Quality Standards or Guidance Values (AWQSGVs) listed in Technical and Operations Guidance Series (TOGs) 1.1.1 (NYSDEC 1998)

Bold = Detected analytes

Bold and Italics=Not detect exceeds NYSDEC AWQSGVs

Yellow highlighted values exceed NYSDEC AWQSGVs

NA = Not Applicable

NS= Not Sampled

ug/L = micrograms per Liter

mg/L = milligrams per Liter

1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

U = Non-detected 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

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.

D = Diluted run

DL = Detection Limit

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																		
		21MWS07		21MWD07		21MWS08		21MWD08		21MWD08		21MWS09				21MWD09				
		N/A 5/18/2006	N/A 8/29/2008	N/A 4/21/2004	N/A 5/23/2006	N/A 4/20/2004	N/A 5/24/2006	N/A 8/28/2008	N/A 4/20/2004	N/A 5/24/2006	N/A 8/28/2008	N/A 5/24/2006	N/A 9/2/2008	N/A 4/20/2004	N/A 5/17/2006	N/A 8/29/2008	N/A 4/20/2004	N/A 5/17/2006	N/A 8/28/2008	N/A 4/22/2004
Polynuclear Aromatic Hydrocarbons (PAHs) (ug/l)																				
Acenaphthene	20	21	8.8 J	64	77	69	13	35 J	120	15	15 J	61	69	55	2.2 J	13 J	100	79	69	34
Acenaphthylene	NA	1.3 U	0.360 U	45	8.0 J	0.4 U	1.3 U	1.8 U	1.4 U	1.3 U	1.8 U	6.2 J	1.8 U	12	1.3 U	1.8 U	1.4 U	2.3 J	1.8 U	0.073 U
Anthracene	50	1.4 U	1.4 U	8.0 U	12	11	1.4 U	7.2 U	8.2	1.4 U	7.2 U	5.7 J	7.2 U	4.9	1.4 U	7.2 U	5.2	5.6 J	7.2 U	7.9
Benzo(a)anthracene	0.002	1.1 U	1.3 U	15 U	1.1 U	0.8 U	1.1 U	6.6 U	3.0 U	1.1 U	6.6 U	1.1 U	6.6 U	0.3 U	1.1 U	6.6 U	3.0 U	1.1 U	6.6 U	5.3
Benzo(a)pyrene	NA	1.2 U	0.220 U	8.0 U	1.2 U	0.9	1.2 U	1.1 U	1.6 U	1.2 U	1.1 U	1.2 U	1.1 U	0.2 U	1.2 U	1.1 U	1.6 U	1.2 U	1.1 U	4.2
Benzo(b)fluoranthene	0.002	0.760 U	0.440 U	16 U	0.760 U	0.8 J	0.760 U	2.2 U	3.2 U	0.760 U	2.2 U	0.760 U	2.2 U	0.3 U	0.760 U	2.2 U	3.2 U	0.760 U	2.2 U	2.1
Benzo(ghi)perylene	NA	1.1 U	0.400 U	6.0 U	1.1 U	2.6	1.1 U	2.0 U	1.2 U	1.1 U	2.0 U	1.1 U	2.0 U	0.1 U	1.1 U	2.0 U	1.2 U	1.1 U	2.0 U	2.1
Benzo(k)fluoranthene	0.002	1.9 U	0.310 U	16 U	1.9 U	0.8 U	1.9 UJ	1.5 U	3.2 U	1.9 UJ	1.5 U	1.9 UJ	1.5 U	0.3 U	1.9 U	1.5 U	3.2 U	1.9 U	1.5 U	3.8
Chrysene	0.002	1.7 U	0.270 U	7.0 U	1.7 U	0.4 U	1.7 U	1.3 U	1.4 U	1.7 U	1.3 U	1.7 U	1.3 U	0.1 U	1.7 U	1.3 U	1.4 U	1.7 U	1.3 U	5.4
Dibenz(a,h)anthracene	NA	0.880 U	0.550 U	4.0 U	0.880 U	2.3	0.870 U	2.8 U	0.8 U	0.870 U	2.8 U	0.880 U	2.8 U	0.082 U	0.880 U	2.8 U	0.8 U	0.880 U	2.8 U	0.042 U
Fluoranthene	50	1.2 U	0.200 U	5.0 U	6.9 J	9.7	5.4 J	9.3 J	4.2	1.5 J	1.0 U	5.6 J	1.0 U	3.5	1.2 U	1.0 U	3.9	4.6 J	1.0 U	19 J
Fluorene	50	3.4 J	1.1 J	87	58	38	1.4 U	28 J	19	1.4 U	1.4 U	42	7.7 J	19	1.4 U	1.4 U	29	40	27 J	60
Indeno(1,2,3-cd)pyrene	0.002	0.840 U	0.670 U	8.0 U	0.840 UJ	1.9	0.840 U	3.4 U	1.6 U	0.840 U	3.4 U	0.840 U	3.4 U	0.2 U	0.840 U	3.4 U	1.6 U	0.840 U	3.4 U	1.7
Naphthalene	10	1.4 U	0.290 U	13000	2200 D	520	1.4 U	1.4 U	2400	1.4 U	1.4 U	1.4 U	43 J	340	7.5 J	11 J	4200	2800 D	2800	140
Phenanthrene	50	1.4 U	1.4 U	98	65	63	1.4 U	19 J	42	1.4 U	11 J	37	9.3 J	25	1.4 U	6.9 U	30	44	23 J	110 J
Pyrene	50	1.5 U	1.4 U	7.0 U	8.3 J	9.7	6.1 J	7.4 J	8.1	2.4 J	7.2 U	4.8 J	7.2 U	3.4	1.5 U	7.2 U	4.9	3.9 J	7.2 U	21
Semivolatile Organic Compounds (SVOCs) (ug/L)																				
1,1-Biphenyl	5	1.4 U	0.330 U	NS	46	NS	1.4 U	1.6 U	NS	1.4 U	1.6 U	4.5 J	1.6 U	NS	1.4 U	1.6 U	NS	28	22 J	NS
2,4-Dimethylphenol	50	1.2 U	0.780 R	1700	410 D	4.2 U	1.2 U	3.9 U	17 U	1.2 U	3.9 U	1.2 U	3.9 UJ	1.7 U	1.2 U	3.9 U	230	170 D	77	0.9 U
2-Methylnaphthalene	NA	2.3 J	0.380 U	740	380 D	20	1.1 U	1.9 U	260	1.1 U	1.9 U	1.1 U	5.7 J	49	1.1 U	1.9 U	280	240 D	200	140
2-Methylphenol	NA	1.5 U	0.370 R	89	53	4.2 U	1.5 U	1.8 U	17 U	1.5 U	1.8 U	1.5 U	1.8 UJ	1.7 U	1.5 U	1.8 U	23	25	19 J	0.9 U
3+4-Methylphenols	NA	1.3 U	0.400 R	NS	80	NS	1.3 U	2.0 U	NS	1.3 U	2.0 U	1.3 U	2.0 UJ	NS	1.3 U	2.0 U	NS	39	27 J	NS
4-Methylphenol	NA	NS	NS	110	NS	2.6 U	NS	NS	11 U	NS	NS	NS	NS	1.1 U	NS	NS	41	NS	NS	0.6 U
bis(2-Ethylhexyl) phthalate	5	1.6 U	1.3 U	56 U	1.6 U	2.8 U	1.5 U	6.6 U	11 U	1.5 U	6.6 U	1.5 U	6.6 U	1.1 U	1.6 U	6.6 U	11 U	1.6 U	6.6 U	0.6 U
Butyl benzyl phthalate	50	1.5 U	0.430 U	40 U	1.5 U	2.0 U	1.4 U	2.1 U	8.0 U	1.4 U	2.1 U	1.5 U	2.1 U	0.8 U	1.5 U	2.1 U	8.0 U	1.5 U	2.1 U	0.4 U
Caprolactam	NA	1.3 R	1.5 R	NS	1.3 R	NS	1.3 R	7.6 R	NS	1.3 R	7.6 R	1.3 R	7.6 R	NS	1.3 R	7.6 R	NS	1.3 R	7.6 R	NS
Carbazole	NA	2.7 J	0.240 U	330	380 JD	17	7.3 J	16 J	8.5	1.3 U	1.2 U	62	1.2 U	15	1.3 U	1.2 U	140	96 JD	110	120
Dibenzofuran	NA	1.3 U	0.320 U	94	32	21	1.3 U	6.7 J	6.8 U	1.3 U	1.6 U	11	1.6 U	12	1.3 U	1.6 U	50	39	30 J	45
Diethyl phthalate	50	1.4 U	0.330 U	25 U	1.4 U	1.2 U	1.3 U	1.6 UJ	5.0 U	1.3 U	1.6 UJ	1.3 U	1.6 U	0.5 U	1.4 U	1.6 UJ	5.0 U	1.4 U	1.6 UJ	0.3 U
Phenol	1	1.3 U	0.560 R	52 U	1.3 R	2.6 U	1.4 J	2.8 R	16	1.3 R	26 J	7.0 J	5.6 J	1.1 U	1.3 U	2.8 R	38	120 JD	250	0.5 U
Total SVOCs	NA	29.4	9.9	16357	3816.2	786.9	33.2	121.4	2886	18.9	52	246.8	140.3	538.8	9.7	24	5175	3736.4	3654	721.5
Metals (ug/L)																				
Aluminum	NA	200 U	NS	4270	83.2 J	62.6 U	27.5 J	NS	476	24.0 J	NS	168 J	NS	64.9	200 U	NS	1460	200 U	NS	812
Antimony	3	60 U	NS	5.8 U	60 U	5.8 U	60 U	NS	5.8 U	64.6	NS	60 U	NS	5.8 U	3.170 U	NS	5.8 U	3.170 U	NS	5.8 U
Arsenic	25	3.320 U	NS	5.9	3.3 U	3.2 U	3.3 U	NS	3.2 U	3.3 U	NS	3.3 U	NS	3.2 U	3.320 U	NS	5.3	3.320 U	NS	3.2 U
Barium	1000	200 U	NS	165	74.5 J	144	170 J	NS	278	153 J	NS	273 J	NS	208	200 U	NS	648	664 J	NS	213
Beryllium	3	5 U	NS	0.30 U	5 U	0.30 U	5 U	NS	0.30 U	5 U	NS	5 U	NS	0.30 U	5 U	NS	0.30 U	5 U	NS	0.30 U
Cadmium	5	5 U	NS	0.40 U	0.33 U	0.40 U	0.33 U	NS	0.40 U	0.33 U	NS	0.33 U	NS	0.40 U	5 U	NS	0.40 U	5 U	NS	0.40 U
Calcium	NA	137000 J	NS	109000	77500	80500	93700	NS	64000	52000	NS	63500	NS	256000	225000 J	NS	63400	46100 J	NS	196000
Chromium	50	10 U	NS	11.7	183 J-	1.6 U	104 J-	NS	10.4	2170 J-	NS	124 J-	NS	1.6 U	10 U	NS	9.0	10 U	NS	3.0
Cobalt	NA	50 U	NS	3.0	50 U	1.7 U	50 U	NS	6.6	50 U	NS	50 U	NS	1.7 U	50 U	NS	7.0	50 U	NS	1.7 U
Copper	200	4.070 J	NS	14.5	3.6 U	3.7 U	3.6 U	NS	3.7 U	28.2	NS	4.4 J	NS	3.7 U	3.640 U	NS	7.4	7.920 J	NS	6.0
Iron	300	13700	NS	24600	11100 J-	531	1180 J-	NS	9280	16900 J-	NS	9980 J-	NS	1060	311	NS	8980	2610	NS	4000
Lead	25	2.180 U	NS	6.0	5 U	2.3 U	7.4	NS	2.3 U	18.3	NS	7.9	NS	6.6	13.9	NS	15.2	2.180 U	NS	44.1
Magnesium	35000	41000 J	NS	86300	49900	38500	41200	NS	88600	74900	NS	39000	NS	68700	63100 J	NS	45000	38600 J	NS	48200
Manganese	300	2310 J	NS	1660	983	198	263	NS	545	428	NS	1280	NS	655	63.5 J	NS	847	552 J	NS	392
Mercury	0.7	0.0300 UJ	NS	0.10 U	0.2 U	0.10 U	0.0300 U	NS	0.10 U	0.2 U	NS	0.0300 U	NS	0.10 U	0.0300 UJ	NS	0.10 U	0.0300 UJ	NS	0.10 U
Nickel	100	40 U	NS	14.9	78.2 J-	1.6 U	40 U	NS	3.6	1180 J-	NS	80.6 J-	NS	2.4	40 U	NS	5.8	40 U	NS	3.9
Potassium	NA	10000 J+	NS	30900	32300 J	18400	27400 J	NS	56100	51300 J	NS	25200 J	NS	27600	41200 J+	NS	28800	51500 J+	NS	32600
Selenium	10	3.040 U	NS	4.2 U	3.0 U	5.1 U	10 U	NS	4.2 U	10 U	NS	4.2 U	NS	8.4 U	3.040 U	NS	4.2 U	3.040 U	NS	4.2 U
Silver	50	1.640 U	NS	1.4 U	1.6 U	1.4 U	1.6 U	NS	1.4 U	1.6 U	NS	1.6 U	NS	2.8 U	1.640 U	NS	1.4 U	1.640 U	NS	1.4 U
Sodium	20000	27800 J	NS	350000	191000	44400	80000	NS	835000	492000	NS	119000	NS	178000	139000 J	NS	332000	481000 J	NS	193000
Thallium	0.5	3.050 U	NS	4.7 U	3.1 U	4.7 U	3.1 U	NS	4.7 U	3.1 U	NS	3.1 U	NS	4.7 U	10 U	NS	4.7 U	3.050 U	NS	4.7 U
Vanadium	NA	50 U	NS	10.6	50 U	1.8 U	0.70 U	NS	13.0	50 U	NS	50 U	NS	2.8	50 U	NS	8.3	50 U	NS	2.7
Zinc	2000	23.7 J	NS	45.5	25.7 J	5.8 U	32.2 J	NS	25.9	384 J	NS	29.5 J	NS	8.8	20.9 J	NS	22.8	24.1 J	NS	21.6
Cyanide (ug/L)																				
Available Cyanide	NA	1.5 U	NS	NS	1.5 U	NS	1.5 U	NS	NS	1.5 U	NS	1.5 U	NS	NS	1.5 U	NS	NS	1.5 U	NS	NS
Cyanide, Total	200	25	NS	46	24	180	117	NS												

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ug/L = micrograms per Liter

mg/L = milligrams per Liter

1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

U = Non-detected 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

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

Table B-1
Concentrations of Compounds Detected in SCS and RI Groundwater Analytical Samples OU1
Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																	
		21MWS10		21MWD10			23MWS11				23MWD11			23MWS12		23MWD12	23MWD12		
		N/A 5/18/2006	N/A 9/2/2008	N/A 4/22/2004	N/A 4/22/2004	N/A 5/19/2006	N/A 4/20/2006	N/A 5/25/2006	DUP 5/25/2006	N/A 9/8/2008	N/A 4/20/2006	N/A 5/25/2006	N/A 9/8/2008	N/A 5/22/2006	N/A 9/8/2008	N/A 5/22/2006	N/A 4/12/2006	N/A 5/22/2006	N/A 9/8/2008
BTEx (ug/L)																			
Benzene	1	13	13	420	390	350 D	1.00 U	0.39 UJ	0.39 U	0.35 U	1.00 U	0.39 U	9.9	120 D	3000	8000 D	1100 D	240 D	150
Ethylbenzene	5	9.1 J	0.05 U	93	97	23 J	1.00 U	0.45 UJ	0.45 U	0.05 U	1.00 U	0.45 U	0.05 U	68	420	300 JD	390 D	57 JD	63 J
m,p-Xylene	NA	1.2 U	0.47 U	NS	NS	31 J	2.00 U	1.2 U	1.2 U	0.47 U	2.00 U	1.2 U	0.47 U	180	760	1500 D	1100 D	190 JD	68 J
o-Xylene	NA	2.6 J	0.16 U	NS	NS	25 J	1.00 U	0.46 UJ	0.46 U	0.16 U	1.00 U	0.46 U	0.16 U	70	300	600 D	460 D	91 JD	67 J
Toluene	5	0.36 U	0.16 U	49	49	11 J	1.00 U	0.36 UJ	0.36 U	0.16 U	1.00 U	0.36 U	0.16 U	140 D	1800	4300 D	1500 D	280 D	91 J
Total Xylene (calculated)	5	2.6	0	160	160	56	0	0	0	0	0	0	0	250	1060	2100	1560	281	135
Volatile Organic Compounds (VOCs) (ug/L)																			
1,1,2-Trichloroethane	1	0.41 U	0.32 U	1.7 U	1.7 U	0.41 U	1.00 U	0.41 UJ	0.41 U	0.32 U	1.00 U	0.41 U	0.32 U	0.41 U	0.32 U	0.41 U	1.00 U	0.41 U	0.32 UJ
1,1-Dichloroethene	5	0.42 UJ	0.67 U	2.2 U	2.2 U	0.42 U	1.00 U	0.42 UJ	0.42 U	0.67 U	1.00 U	0.42 U	0.67 U	0.42 U	0.67 U	0.42 U	1.00 U	0.42 U	0.67 UJ
1,2-Dibromoethane (EDB)	0.6	0.32 U	0.26 U	NS	NS	0.32 U	1.00 U	0.32 R	0.32 R	0.26 U	1.00 U	0.32 R	0.26 U	0.32 UJ	0.26 U	0.32 UJ	1.00 U	0.32 UJ	0.26 UJ
1,2-Dichloroethane	0.6	0.34 U	0.41 U	1.3 U	1.3 U	0.34 U	1.00 U	0.34 UJ	0.34 U	0.41 U	1.00 U	0.34 U	0.41 U	0.34 U	0.41 U	0.34 U	1.00 U	0.34 U	0.41 UJ
1,2-Dichloropropane	1	0.40 U	0.46 U	1.2 U	1.2 U	0.40 U	1.00 U	0.40 UJ	0.40 U	0.46 U	1.00 U	0.40 U	0.46 U	0.40 U	0.46 U	0.40 U	1.00 U	0.40 U	0.46 UJ
2-Butanone (Methyl Ethyl Ketone)	50	1.1 UJ	1.9 U	12 U	12 U	1.1 U	5.00 U	1.1 UJ	1.1 U	1.9 U	5.00 U	1.1 U	1.9 U	1.1 U	1.9 U	81	5.00 U	1.1 U	1.9 UJ
2-Hexanone	50	1.7 U	1.8 U	4.8 U	4.8 U	1.7 U	5.00 U	1.7 UJ	1.7 U	1.8 U	5.00 U	1.7 U	1.8 U	1.7 U	1.8 U	6.9 J	5.00 U	1.7 U	1.8 UJ
Acetone	50	2.3 R	2.2 U	4.8 U	4.8 U	2.3 R	5.00 U	2.3 UJ	2.3 U	2.2 U	5.00 U	2.3 U	2.2 U	2.3 UJ	2.2 U	400 J	5.00 U	2.3 UJ	2.2 UJ
Bromodichloromethane	50	0.33 U	0.23 U	1.8 U	1.8 U	0.33 U	1.00 U	0.33 UJ	0.33 U	0.23 U	1.00 U	0.33 U	0.23 U	0.33 U	0.23 U	0.33 U	1.00 U	0.33 U	0.23 UJ
Bromomethane	5	0.41 U	1.4 U	2.2 U	2.2 U	0.41 UJ	1.00 U	0.41 UJ	0.41 U	1.4 U	1.00 U	0.41 U	1.4 U	0.41 U	1.4 U	0.41 U	1.00 U	0.41 U	1.4 UJ
Carbon Disulfide	60	0.40 UJ	0.20 U	1.2 U	1.2 U	0.40 U	2.00 U	0.40 UJ	0.40 U	0.20 U	2.00 U	0.40 U	0.20 U	0.40 U	0.20 U	0.40 U	1.00 U	0.40 U	12 J
Chlorobenzene	5	0.47 U	0.28 U	0.9 U	0.9 U	0.47 U	1.00 U	0.47 UJ	0.47 U	0.28 U	1.00 U	0.47 U	0.28 U	0.47 U	0.28 U	0.47 U	1.00 U	0.47 U	0.28 UJ
Chloroform	7	0.33 U	0.45 U	1.0 U	1.0 U	0.33 U	1.00 U	0.33 UJ	0.33 U	0.45 U	1.00 U	0.33 U	0.45 U	0.33 U	0.45 U	0.33 U	1.00 U	0.33 U	0.45 UJ
Chloromethane	5	0.34 UJ	0.37 U	2.3 U	2.3 U	0.34 UJ	1.00 U	0.34 UJ	0.34 UJ	0.37 U	1.00 U	0.34 U	0.37 U	0.34 U	0.37 U	0.34 U	1.00 U	0.34 U	0.37 UJ
cis-1,2-Dichloroethene	5	0.29 U	0.72 U	1.2 U	1.2 U	0.29 U	1.00 U	0.29 UJ	0.29 U	0.72 U	5.8	0.29 U	32	0.29 U	0.72 U	5.9	1.00 U	0.29 U	0.72 UJ
cis-1,3-Dichloropropene	0.4	0.36 U	0.29 U	1.2 U	1.2 U	0.36 U	1.00 U	0.36 UJ	0.36 UJ	0.29 U	1.00 U	0.36 UJ	0.29 U	0.36 U	0.29 U	0.36 U	1.00 U	0.36 U	0.29 UJ
Cyclohexane	NA	3.6 J	0.57 U	NS	NS	3.9 J	NS	0.36 UJ	0.36 U	0.57 U	NS	0.36 U	0.57 U	0.36 UJ	0.57 U	0.36 UJ	NS	0.36 UJ	0.57 UJ
Isopropylbenzene	5	5.7	6.2	NS	NS	40 J	1.00 U	0.44 UJ	0.44 U	0.37 U	1.00 U	0.44 U	0.37 U	2.0 J	17 J	31	20	12	4.6 J
Methyl Acetate	NA	0.20 UJ	0.45 U	NS	NS	0.20 UJ	NS	0.20 UJ	0.20 U	0.45 U	NS	0.20 U	0.45 U	0.20 U	0.45 U	0.20 U	NS	0.20 U	0.45 UJ
Methyl tert-butyl ether	10	0.28 U	0.23 U	NS	NS	0.28 U	2.00 U	0.28 UJ	0.28 U	0.23 U	2.00 U	0.28 U	0.23 U	0.28 U	0.23 U	0.28 U	2.00 U	0.28 U	0.23 UJ
Methylcyclohexane	NA	2.2 J	0.47 U	NS	NS	3.0 J	NS	0.34 UJ	0.34 U	0.47 U	NS	0.34 U	0.47 U	4.1 J	0.47 U	0.34 U	NS	1.1 J	1.9 J
Naphthalene	10	NS	NS	NS	NS	NS	2.00 U	NS	NS	NS	2.00 U	NS	NS	NS	NS	NS	6600 D	NS	NS
Styrene	5	0.41 U	0.19 U	1.4 U	1.4 U	0.41 U	1.00 U	0.41 UJ	0.41 U	0.19 U	1.00 U	0.41 U	0.19 U	30	0.19 U	510 D	220 D	110	25 J
Tetrachloroethene	5	0.48 UJ	0.97 U	1.6 U	1.6 U	0.48 U	1.00 U	0.48 UJ	0.48 U	0.97 U	1.00 U	0.48 U	0.97 U	0.48 U	0.97 U	0.48 U	1.00 U	0.48 U	0.97 UJ
trans-1,2-Dichloroethene	5	0.40 UJ	0.44 U	1.2 UJ	1.2 UJ	0.40 U	1.00 U	0.40 UJ	0.40 U	0.44 U	1.00 U	0.40 U	0.44 U	0.40 U	0.44 U	0.40 U	1.00 U	0.40 U	0.44 UJ
trans-1,3-Dichloropropene	0.4	0.32 U	0.31 U	1.0 U	1.0 U	0.32 U	1.00 U	0.32 UJ	0.32 UJ	0.31 U	1.00 U	0.32 UJ	0.31 U	0.32 U	0.31 U	0.32 U	1.00 U	0.32 U	0.31 UJ
Trichloroethene	5	0.46 U	0.34 U	0.9 U	0.9 U	0.46 U	1.00 U	0.46 UJ	0.46 U	0.34 U	1.00 U	0.46 U	0.34 U	0.46 U	0.34 U	0.46 U	1.00 U	0.46 U	0.34 UJ
Vinyl Chloride	2	0.33 UJ	0.30 U	2.6 U	2.6 U	0.33 UJ	1.00 U	0.33 UJ	0.33 U	0.30 U	1.00 U	0.33 U	0.30 U	0.33 U	0.30 U	0.33 U	1.00 U	0.33 U	0.30 UJ
Total VOCs	NA	36.2	19.2	722	696	486.9	0	0	0	0	5.8	0	41.9	614.1	6297	15734.8	11390	981.1	482.5

NYSDEC Groundwater Standards - New York State Department of Environmental Conservation Ambient Water Quality Standards or Guidance Values (AWQSGVs) listed in Technical and Operations Guidance Series (TOGs) 1.1.1 (NYSDEC 1998)

Bold = Detected analytes

Bold and Italics=Not detect exceeds NYSDEC AWQSGVs

Yellow highlighted values exceed NYSDEC AWQSGVs

NA = Not Applicable

NS= Not Sampled

ug/L = micrograms per Liter

mg/L = milligrams per Liter

1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

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

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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.

D = Diluted run

DL = Detection Limit

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Former East 21st Street Works, New York, NY

Location ID Grab Depth (feet) Sample Date	NYSDEC AWQSGVs	OU-1 Monitoring Wells																	
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		N/A 5/18/2006	N/A 9/2/2008	N/A 4/22/2004	N/A 4/22/2004	N/A 5/19/2006	N/A 4/20/2006	N/A 5/25/2006	DUP 5/25/2006	N/A 9/8/2008	N/A 4/20/2006	N/A 5/25/2006	N/A 9/8/2008	N/A 5/22/2006	N/A 9/8/2008	N/A 5/22/2006	N/A 4/12/2006	N/A 5/22/2006	N/A 9/8/2008
Polynuclear Aromatic Hydrocarbons (PAHs) (ug/l)																			
Acenaphthene	20	24	17 J	92	81	61	NS	1.4 U	1.4 U	0.330 U	NS	1.4 U	0.330 U	15	14 J	46 J	NS	34	37 J
Acenaphthylene	NA	1.3 U	1.8 U	1.4 U	0.7 U	2.9 J	NS	1.3 U	1.3 U	0.360 U	NS	1.3 U	0.360 U	28	1.8 U	180 D	NS	79	61
Anthracene	50	6.0 J	7.3 U	11	0.8 U	9.2 J	NS	1.4 U	1.4 U	1.4 U	NS	1.4 U	1.4 U	9.2 J	7.2 U	86 J	NS	12	9.2 J
Benzo(a)anthracene	0.002	2.9 J	6.7 U	3.0 U	1.5 U	1.1 U	NS	1.1 U	1.1 U	1.3 U	NS	1.1 U	1.3 U	2.3 J	6.6 U	15 J	NS	1.1 U	6.6 U
Benzo(a)pyrene	NA	1.9 J	1.1 U	1.6 U	0.8 U	1.2 U	NS	1.2 U	1.2 U	0.220 U	NS	1.2 U	0.220 U	1.3 J	1.1 U	10 J	NS	1.2 U	1.1 U
Benzo(b)fluoranthene	0.002	1.6 J	2.2 U	3.2 U	1.6 U	0.760 U	NS	0.760 U	0.760 U	0.440 U	NS	0.760 U	0.440 U	1.5 J	2.2 U	11 J	NS	0.760 U	2.2 U
Benzo(ghi)perylene	NA	1.1 U	2.0 U	1.2 U	0.6 U	1.1 U	NS	1.1 U	1.1 U	0.400 U	NS	1.1 U	0.400 U	1.1 U	2.0 U	3.2 J	NS	1.1 U	2.0 U
Benzo(k)fluoranthene	0.002	1.9 U	1.5 U	3.2 U	1.6 U	1.9 U	NS	1.9 U	1.9 U	0.310 U	NS	1.9 U	0.310 U	1.9 U	1.5 U	5.1 J	NS	1.9 U	1.5 U
Chrysene	0.002	2.7 J	1.3 U	1.4 U	0.7 U	1.7 U	NS	1.7 U	1.7 U	0.270 U	NS	1.7 U	0.270 U	2.5 J	1.3 U	13 J	NS	1.7 U	1.3 U
Dibenz(a,h)anthracene	NA	0.880 U	2.8 U	0.8 U	0.4 U	0.880 U	NS	0.870 U	0.870 U	0.550 U	NS	0.870 U	0.550 U	0.870 U	2.8 U	0.880 R	NS	0.880 U	2.8 U
Fluoranthene	50	13	7.5 J	12 J	10 J	9.8 J	NS	1.2 U	1.2 U	0.200 U	NS	1.2 U	0.200 U	10	1.0 U	73 J	NS	5.6 J	5.5 J
Fluorene	50	37	30 J	110	99	110 D	NS	1.4 U	1.4 U	0.290 U	NS	1.4 U	0.290 U	25	12 J	89 J	NS	45	51 J
Indeno(1,2,3-cd)pyrene	0.002	0.840 U	3.4 U	1.6 U	0.8 U	0.840 U	NS	0.840 U	0.840 UJ	0.670 U	NS	0.840 U	0.670 U	0.840 UJ	3.4 U	1.3 J	NS	0.840 UJ	3.4 U
Naphthalene	10	9.0 J	1.4 U	2300	2300	390 D	NS	1.4 U	1.4 U	0.290 U	NS	1.4 U	0.290 U	430 D	330	3500 D	NS	1600 D	660
Phenanthrene	50	62	16 J	110 J	100 J	96 JD	NS	1.4 U	1.4 U	1.4 U	NS	1.4 U	1.4 U	30	12 J	120 D	NS	43	55
Pyrene	50	14	7.3 U	12	11	6.6 J	NS	1.5 U	1.5 U	1.4 U	NS	1.5 U	1.4 U	7.5 J	7.2 U	48 J	NS	5.1 J	7.2 U
Semivolatile Organic Compounds (SVOCs) (ug/L)																			
1,1-Biphenyl	5	1.4 U	1.6 U	NS	NS	12	NS	1.4 U	1.4 U	0.330 U	NS	1.4 U	0.330 U	7.6 J	1.6 U	76 J	NS	28	27 J
2,4-Dimethylphenol	50	1.2 U	3.9 U	17 U	8.5 U	3.7 J	NS	1.2 U	1.2 U	0.780 U	NS	1.2 U	0.780 U	61 D	40 J	4100 D	NS	110 D	11 J
2-Methylnaphthalene	NA	1.4 J	1.9 U	230	210	97 JD	NS	1.1 U	1.1 U	0.380 U	NS	1.3 J	0.380 U	53 D	26 J	410 D	NS	220 D	6.2 J
2-Methylphenol	NA	1.5 U	1.9 U	17 U	8.5 U	1.5 U	NS	1.5 U	1.5 U	0.370 U	NS	1.5 U	0.370 U	9.1 J	9.0 J	930 D	NS	15	1.8 U
3+4-Methylphenols	NA	1.3 U	2.0 U	NS	NS	1.3 U	NS	1.3 U	1.3 U	0.400 U	NS	1.3 U	0.400 U	43	12 J	6300 D	NS	84	2.0 U
4-Methylphenol	NA	NS	NS	11 U	5.4 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
bis(2-Ethylhexyl) phthalate	5	1.6 U	6.7 U	11 U	5.6 U	1.6 U	NS	1.5 U	1.5 U	1.3 U	NS	1.5 U	1.3 U	1.5 U	6.6 U	1.6 R	NS	1.6 U	6.6 U
Butyl benzyl phthalate	50	1.5 U	2.2 U	8.0 U	4.0 U	1.5 U	NS	1.4 U	1.4 U	0.430 U	NS	1.4 U	0.430 U	1.4 U	2.1 U	1.5 R	NS	1.5 U	2.1 U
Caprolactam	NA	1.3 R	7.6 R	NS	NS	1.3 R	NS	1.3 UJ	1.3 U	1.5 R	NS	1.3 U	1.5 R	1.3 R	7.6 R	1.3 R	NS	1.3 R	7.6 R
Carbazole	NA	65	32 J	160	150	160 D	NS	1.3 U	1.3 U	0.240 U	NS	1.3 U	0.240 U	65 J	22 J	530 JD	NS	290 D	70
Dibenzofuran	NA	30	23 J	110	100	96 JD	NS	1.3 U	1.3 U	0.320 U	NS	1.3 U	0.320 U	21	9.8 J	64 J	NS	38	43 J
Diethyl phthalate	50	1.4 U	1.6 U	5.0 U	3.5	1.4 U	NS	1.3 U	1.3 U	0.330 U	NS	1.3 U	0.330 U	1.3 U	1.6 U	1.4 R	NS	1.4 U	1.6 U
Phenol	1	1.3 U	2.8 R	10 U	5.2 U	4.3 J	NS	1.3 U	1.3 R	0.560 R	NS	1.3 U	0.560 R	1.3 R	6.1 J	52 J	NS	1.3 R	2.8 R
Total SVOCs	NA	270.5	125.5	3147	3064.5	1058.5	NS	0	0	0	NS	1.3	0	822	492.9	16662.6	NS	2608.7	1035.9
Metals (ug/L)																			
Aluminum	NA	200 U	NS	344	357	200 U	NS	64.8 J	5.310 U	NS	NS	62.4 J	NS	77.4 J-	NS	1140 J-	NS	265 J-	NS
Antimony	3	3.170 U	NS	5.8 U	5.8 U	60 U	NS	3.170 U	3.170 U	NS	NS	3.170 U	NS	3.2 UJ	NS	60 U	NS	3.2 UJ	NS
Arsenic	25	3.320 U	NS	3.2 U	3.2 U	3.320 U	NS	10.8	9.810 J	NS	NS	3.320 U	NS	3.3 U	NS	9.1 J	NS	3.3 U	NS
Barium	1000	250 J	NS	360	360	389 J	NS	243 J-	222 J-	NS	NS	524 J-	NS	332 J-	NS	121 J-	NS	69.7 J-	NS
Beryllium	3	5 U	NS	0.30 U	0.30 U	5 U	NS	0.090 U	0.090 U	NS	NS	0.090 U	NS	5 U	NS	5 U	NS	0.09 UJ	NS
Cadmium	5	5 U	NS	0.40 U	0.40 U	5 U	NS	0.327 UJ	0.327 J	NS	NS	0.327 UJ	NS	0.33 UJ	NS	0.33 UJ	NS	0.33 UJ	NS
Calcium	NA	248000 J	NS	164000	165000	144000 J	NS	184000 J	168000 J	NS	NS	89600 J	NS	281000 J	NS	62900 J	NS	179000 J	NS
Chromium	50	10 U	NS	2.4	3.0	15.9	NS	9.200 J	6.520 J	NS	NS	1.790 J	NS	209 J-	NS	93.0 J-	NS	170 J-	NS
Cobalt	NA	50 U	NS	1.7 U	1.7 U	50 U	NS	0.570 J-	0.370 UJ	NS	NS	1.020 J-	NS	0.37 UJ	NS	50 U	NS	0.37 UJ	NS
Copper	200	3.640 U	NS	3.7 U	3.7 U	7.630 J	NS	3.640 U	3.640 U	NS	NS	3.640 U	NS	7.8 J-	NS	6.8 J-	NS	7.4 J-	NS
Iron	300	1750	NS	7030	7110	4930	NS	2260 J-	2010 J-	NS	NS	4900 J-	NS	10300 J-	NS	29900 J-	NS	6670 J-	NS
Lead	25	2.720 J	NS	4.9	4.3	2.180 U	NS	2.180 U	2.180 U	NS	NS	2.180 U	NS	10.7 J-	NS	20.0 J-	NS	5 U	NS
Magnesium	35000	71400 J	NS	62200	62700	51600 J	NS	23500 J	21200 J	NS	NS	80200 J	NS	32100 J	NS	129000 J	NS	380000 J	NS
Manganese	300	334 J	NS	1090	1090	960 J	NS	585 J-	533 J-	NS	NS	635 J-	NS	1080 J-	NS	805 J-	NS	883 J-	NS
Mercury	0.7	0.0300 UJ	NS	0.10 U	0.10 U	0.0300 UJ	NS	0.0300 UJ	0.2 U	NS	NS	0.2 U	NS	0.2 U	NS	0.2 U	NS	0.2 U	NS
Nickel	100	40 U	NS	3.3	1.9	40 U	NS	5.500 J-	3.290 J-	NS	NS	1.560 UJ	NS	126 J-	NS	40 U	NS	91.7 J-	NS
Potassium	NA	55700 J+	NS	19700	20100	30700 J+	NS	24100	21200	NS	NS	68900	NS	66000 J	NS	88500 J	NS	112000 J	NS
Selenium	10	3.040 U	NS	4.2 U	4.2 U	3.040 U	NS	3.040 U	3.040 U	NS	NS	3.040 U	NS	10 U	NS	10 U	NS	3.0 U	NS
Silver	50	1.640 U	NS	1.4 U	1.4 U	1.640 U	NS	1.640 U	1.640 U	NS	NS	1.640 U	NS	1.6 UJ	NS	1.6 UJ	NS	1.6 UJ	NS
Sodium	20000	465000 J	NS	138000	139000	169000 J	NS	92300	85800	NS	NS	598000	NS	525000 J	NS	866000 J	NS	4790000 JD	NS
Thallium	0.5	3.050 U	NS	4.7 U	4.7 U	10 U	NS	3.050 U	3.050 U	NS	NS	3.050 U	NS	3.1 U	NS	3.1 U	NS	3.1 U	NS
Vanadium	NA	50 U	NS	1.8 U	2.3	50 U	NS	2.640 J	1.720 J	NS	NS	2.190 J	NS	50 U	NS	50 U	NS	0.70 UJ	NS
Zinc	2000	21.2 J	NS	11.0	10.4	53.4 J	NS	12.4 J-	11.2 J-	NS	NS	11.9 J-	NS	39.8 J	NS	50.8 J	NS	25.1 J	NS
Cyanide (ug/L)																			
Available Cyanide	NA	1.5 U	NS	NS	NS	1.5 U	NS	1.8 J	1.9 J	NS	NS	2.1	NS	1.5 U	NS	1.5 U	NS	1.5 U	NS
Cyanide, Total	200	10 U	NS	29	33	29	NS	10 U	10 U	NS	NS	10 U	NS	10 U	NS	29	NS	10 U	NS

NYSDEC Groundwater Standards - New York State Department of Environmental Conservation Ambient Water Quality Standards or Guidance Values (AWQSGVs) listed in Technical and Operations Guidance Series (TOGs) 1.1.1 (NYSDEC 1998)

Bold = Detected analytes

Bold and Italics=Not detect exceeds NYSDEC AWQSGVs

Yellow highlighted values exceed NYSDEC AWQSGVs

NA = Not Applicable

NS= Not Sampled

ug/L = micrograms per Liter

mg/L = milligrams per Liter

1,2,4-Trichlorobenzene,1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Hexachlorobutadiene,Naphthalene were analyzed under methods SW8260 (RETEC) and SW8270(Haley & Aldrich)

U = Non-detected 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

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.

D = Diluted run

DL = Detection Limit

Appendix C

Summary of Indoor Air/Soil Gas Results

Table C-1
Concentrations of Compounds Detected in Soil Gas and Ambient Air Samples
Former East 21st Street Works, New York, NY

Sample Area Sample ID Sampling Date Sampling Depth (ft bgs) Type of Sample	NYSDOH Background Indoor Air Values ³		First Avenue			23rd Street				20th Street		
			FASG101 1/24/2006	FASG102 1/24/2006	FASGamb 1/24/2006	23SG101 2/21/2006	23SG102 2/22/2006	23SG103 2/16/2006	23Amb103 2/15/2006	20SG101 2/21/2006	20SG102 3/1/2006	20SG103 2/24/2006
	75 th Percentile	90 th Percentile	5.5 - 6.0 Soil Gas	4.5 - 5.5 Soil Gas	NA Ambient Air	5.0 - 5.5 Soil Gas	5.0 - 5.5 Soil Gas	4.0 - 4.5 Soil Gas	NA Ambient Air	4.0 - 5.0 Soil Gas	4.0 - 5.0 Soil Gas	4.5 - 5.5 Soil Gas
Possibly MGP Related or Other Sources ¹ (µg/m ³)												
1,2,4-Trimethylbenzene	4.4	11	120	240	0.98	180	3.8	370	2.6	430	29	12
1,3,5-Trimethylbenzene	1.7	3.8	47	98	0.75 U	80	1.2	220	0.80	200	17	8.9 U
2,3-Dimethylpentane	2.1	7.9	3.2 U	5.4 U	3.1 U	5.6 U	3.4 U	30	3.0 U	30 U	3.0 U	37 U
2-Hexanone	NA	NA	3.2 U	5.4 U	3.1 U	5.6 U	3.4 U	20 U	3.0 U	30 U	3.0 U	37 U
2-Methylpentane	NA	NA	2.8 U	18	2.7 U	7.2	3.0 U	17 U	3.8	26 U	2.6 U	32 U
4-Ethyltoluene	NA	NA	88 J	180 J	3.7 U	180 J	4.1 U	580	3.6 U	460 J	32	45 U
4-Methyl-2-pentanone	0.98	3	3.2 U	5.4 U	3.1 U	5.6 U	3.4 U	20 U	3.0 U	30 U	3.0 U	37 U
Benzene	5.7	15	3.8	86	1.9	7.5	0.95	8.3	4.3	6.1	1.8	12
Carbon Disulfide	NA	NA	4.6	83	2.4 U	5.9	2.6 U	15 U	2.3 U	23 U	7.4	28 U
Cyclohexane	2.9	9.1	32	26	2.6 U	60	2.9 U	52	2.5 U	25 U	2.6 U	69
Ethylbenzene	2.8	7.3	45	99	0.69	95	0.73 U	490	2.1	200	7.7	7.9 U
Heptane	7.7	19	68	28	3.1 U	140	3.4 U	230	3.0 U	30	3.0 U	340
Hexane	6.5	19	3.9	25	2.7 U	10	3.0 U	17 U	3.4	26 U	2.6 U	32 U
2,2,4-Trimethylpentane	2.6	7.3	3.7 U	6.1 U	3.6 U	6.4 U	3.9 U	22 U	3.4 U	34 U	3.5 U	42 U
Indan	NA	NA	9.1	24	3.7 U	12	4.1 U	23 U	3.5 U	35 U	3.6 U	44 U
Indene	NA	NA	3.8 U	110	3.6 U	6.5 U	4.0 U	23 U	3.5 U	35 U	3.5 U	43 U
Isopentane	NA	NA	7.2	260 J	7.3	19 J	6.7 J	20 J	18 J	29 J	7.4 J	27 U
Naphthalene	NA	NA	4.1 U	46 J	4.0 U	7.1 U	4.4 U	25 U	3.8 U	38 U	3.9 U	48 U
Styrene	0.68	1.3	0.67 U	110	0.65 U	1.2 U	0.72 U	4.1 U	0.62 U	6.2 U	0.63 U	7.8 U
Thiophene	NA	NA	2.7 U	4.5 U	2.6 U	4.7 U	2.9 U	16 U	2.5 U	25 U	2.6 U	31 U
Toluene	25	59	47	100	4.7	110	1.5	570	12	140	6.2	19
m/p-Xylenes	4.7	12	140	240	2.1	340	1.4	1400	7.2	730	35	13
o-Xylene	3.1	7.9	55	120	0.79	130	0.72 J	570	2.5	300	16	7.9 U
Not MGP Related ² (µg/m ³)												
1,1,1-Trichloroethane	1.4	3.5	0.86 U	6.3	0.83 U	1.5 U	0.92 U	5.2 U	0.80 U	8.0 U	0.81 U	9.9 U
1,1,2,2-Tetrachloroethane	0.2	0.23	1.1 U	1.8 U	1.0 U	1.9 U	1.2 U	6.6 U	1.0 U	10 U	1.0 U	12 U
1,1,2-Trichloroethane	0.2	0.24	0.86 U	1.4 U	0.83 U	1.5 U	0.92 U	5.2 U	0.80 U	8.0 U	0.81 U	9.9 U
1,1-Dichloroethane	0.19	0.23	0.64 U	1.1 U	0.62 U	1.1 U	0.68 U	3.9 U	0.59 U	5.9 U	0.60 U	7.4 U
1,1-Dichloroethene	0.19	0.23	0.63 U	1.6	0.60 U	1.1 U	0.67 U	3.8 U	0.58 U	5.8 U	0.59 U	7.2 U
1,2,4-Trichlorobenzene	0.24	3	5.9 U	9.8 U	5.6 U	10 U	6.2 U	36 U	5.4 U	54 U	5.5 U	68 U
1,2-Dibromoethane (EDB)	0.19	0.23	1.2 U	2.0 U	1.2 U	2.1 U	1.3 U	7.4 U	1.1 U	11 U	1.1 U	14 U
1,2-Dichlorobenzene	0.24	0.78	0.95 U	1.6 U	0.91 U	1.6 U	1.0 U	5.8 U	0.88 U	8.8 U	0.90 U	11 U
1,2-Dichloroethane	0.19	0.22	0.64 U	6.2	0.62 U	1.1 U	0.68 U	3.9 U	0.59 U	5.9 U	0.60 U	7.4 U
1,2-Dichloropropane	0.2	0.24	0.73 U	1.2 U	0.70 U	1.2 U	0.78 U	4.4 U	0.67 U	6.7 U	0.69 U	8.4 U
1,3-Butadiene	NA	NA	3.7	2.9 U	1.7 U	3.5	1.8 U	11 U	1.6 U	16 U	1.7	20 U
1,3-Dichlorobenzene	0.24	0.66	0.95 U	1.6 U	0.91 U	1.6 U	1.0 U	5.8 U	0.88 U	8.8 U	0.90 U	11 U
1,4-Dichlorobenzene	0.54	1.3	0.95 U	1.6 U	0.91 U	1.6 U	1.0 U	5.8 U	0.88 U	8.8 U	0.90 U	11 U
1,4-Dioxane	NA	NA	2.8 U	4.7 U	2.7 U	4.9 U	3.0 U	17 U	2.6 U	26 U	2.7 U	33 U
2-Butanone (MEK)	7.5	14	5.0	61	2.3	4.1	2.5 U	14 U	2.2 U	22 U	7.2	27 U
Acetone	46	110	36	290 J	15	21	5.9	21	10	23	26	63
Benzyl chloride	NA	NA	0.82 U	1.4 U	0.79 U	1.4 U	0.87 U	5.0 U	0.76 U	7.6 U	0.77 U	9.4 U
Bromodichloromethane	NA	NA	5.3 U	8.8 U	5.1 U	9.1 U	5.6 U	32 U	4.9 U	49 U	5.0 U	61 U
Bromoform	NA	NA	8.2 U	14 U	7.8 U	14 U	8.7 U	50 U	7.5 U	75 U	7.7 U	94 U
Bromomethane	0.24	0.58	0.61 U	1.0 U	0.59 U	1.0 U	0.65 U	3.7 U	0.57 U	5.7 U	0.58 U	7.1 U
Carbon Tetrachloride	0.68	0.87	0.99 U	320	0.96 U	1.7 U	1.0 U	6.0 U	0.92 U	9.2 U	0.94 U	11 U
Chlorobenzene	0.19	0.23	0.73 U	1.2 U	0.70 U	1.2 U	0.77 U	4.4 U	0.67 U	6.7 U	0.68 U	8.4 U
Chloroethane	0.2	0.25	0.42 U	1.1 J	0.40 U	0.72 U	0.44 U	2.5 U	0.38 U	3.8 U	0.39 U	4.8 U
Chloroform	0.54	1.4	2.6	510	0.74 U	1.3 U	1.5	4.7 U	0.71 U	7.1 U	0.72 J	8.9 U
Chloromethane	2	3.3	0.95	0.54 U	1.3	0.56 U	0.35 U	2.0 U	1.3	3.0 U	0.36	3.8 U
cis-1,2-Dichloroethene	0.2	0.24	0.63 U	1.0 U	0.60 U	1.1 U	0.67 U	3.8 U	0.58 U	5.8 U	0.59 U	7.2 U
cis-1,3-Dichloropropene	0.2	0.24	0.72 U	1.2 U	0.69 U	1.2 U	0.76 U	4.4 U	0.66 U	6.6 U	0.68 U	8.3 U
Dibromochloromethane	NA	NA	6.7 U	11 U	6.5 U	12 U	7.2 U	41 U	6.2 U	62 U	6.3 U	78 U
Ethanol	610	1600	20	2.5 U	24	3.6	2.5	9.0 U	25	14 U	4.9	17 U
Trichlorofluoromethane (Freon 11)	5.5	17	2.0	17	1.9	2.2	4.6	5.4 U	1.7	8.2 U	1.6	10 U
1,1,2-Trichlorotrifluoroethane (Freon 113)	1.1	1.8	1.2 U	2.0 U	1.2 U	2.1 U	1.3 U	7.4 U	1.1 U	11 U	1.1 U	14 U
1,2-Dichlorotetrafluoroethane	0.21	0.63	1.1 U	1.8 U	1.1 U	1.9 U	1.2 U	6.7 U	1.0 U	10 U	1.0 U	13 U
Dichlorodifluoromethane (Freon 12)	5.6	15	4.2	5.6	3.4	3.7	1.7	4.7 U	5.7	7.2 U	2.9	9.0 U
Helium			0.11	3.3	0.015 U	0.014 U	0.017 U	1.8	0.015 U	0.015 U	0.1	0.047
Hexachlorobutadiene (C-46)	0.25	4.8	8.4 U	14 U	8.1 U	14 U	9.0 U	51 U	7.8 U	78 U	7.9 U	97 U
Methyl tert-Butyl Ether	6.7	27	2.8 U	4.7 U	2.7 U	4.9 U	3.0 U	17 U	2.6 U	26 U	2.7 U	33 U
Methylene Chloride (Dichloromethane)	6.3	22	1.3	11	1.5	1.5	0.58 U	3.3 U	1.5	5.1 U	0.87	6.5
2-Propanol	NA	NA	1.9 U	11	2.5	3.3 U	2.1 U	12 U	3.8	18 U	1.8 U	22 U
Propene	NA	NA	50	2.3 U	1.9	23	4.6	8.3 U	1.2 U	37	1.3 U	56
Tetrachloroethene	1.2	2.9	8.6	180	1.0 U	26	18	40	2.4	16	5.5	12 U
Tetrahydrofuran	0.32	3.3	2.3 U	3.9 U	2.2 U	4.0 U	2.5 U	14 U	2.2 U	22 U	2.2 U	27 U
Trans-1,2-Dichloroethene	NA	NA	3.1 U	5.2 U	3.0 U	5.4 U	3.3 U	19 U	2.9 U	29 U	3.0 U	36 U
Trans-1,3-Dichloropropene	0.18	0.22	0.72 U	1.2 U	0.69 U	1.2 U	0.76 U	4.4 U	0.66 U	6.6 U	0.68 UJ	8.3 U
Trichloroethene	0.23	0.48	1.0	200	0.82 U	2.0	1.5	12	0.78 U	7.8 U	0.80 U	9.8 U
Vinyl Acetate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	0.2	0.23	0.40 U	0.67 U	0.39 U	0.70 U	0.43 U	2.4 U	0.37 U	3.7 U	0.38 U	4.6 U

Notes:

U - Not detected at the detection limit indicated.

J - Estimated Concentration.

NA - Not Available. No data available for background concentrations of these compounds.

DUP - As suffix on Sample ID indicates that the sample is a field duplicate.

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 carburetted water gas process. Non-MGP sources include 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.

Table C-2
Summary Table of Indoor Air Results - 2003 and 2004 Sampling
East 21st Street Works Site

Compound	Building 1				Building 2				Building 3					Building 4				Building 5			Background Values	
Type of Sample	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	DOH 75th percentile	DOH 95th percentile
Sample Location	Basement, Outside Entrance to Pit Room	U-Haul Storage Room	Floor M, Stairwell B	Stair B	Basement, in Carriage Room	U-Haul Storage Room	Floor M, Stairwell B	Building 2	Basement, Center of Steam Room	Steam Room	Basement, at Column Closest to Entrance from Elevator Lobby	U-Haul Storage Room	Floor M, Stairwell B	Basement, Adjacent to Laundry Room	Trunk Room	Floor M, Stairwell B	Stair B	Basement, in storage room	Floor M, Stairwell B	Basement, in Paint Shop		
Sample Date	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	6/23/2003	3/25/2004	6/23/2003	3/25/2004	6/23/2003	6/23/2003	6/23/2003		
Sample ID	PCV-IA1B1	B1-02	PCV-IA2B1	B1-01	PCV-IA1B2	B2-02	PCV-IA2B2	B2-01	PCV-IA1B3	B3-01	PCV-IA2B3	B3-02	PCV-IA3B3	PCV-IA1B4	B4-01	PCV-IA2B4	B4-02	PCV-IA1B5	PCV-IA2B5	PCV-IAPCB5		
Possibly MGP Related or Other Sources ¹																						
1,2,4-Trimethylbenzene	1.2	0.87	1	1.2	0.94	1.4	0.94	1.1	-	-	1	-	1.4	1.7	-	1.6	-	1.4	1	74	7	20
1,3,5-Trimethylbenzene	-	-	1.2	-	-	-	-	-	-	-	1.6	-	-	-	-	-	-	-	-	19	<10	<10
2,3-Dimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-Hexanone	-	-	-	-	-	-	-	-	-	-	-	-	6.3	-	-	-	-	-	-	-	NA	NA
2-Methylpentane	3.4	-	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
4-Ethyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66	NA	NA
4-Methyl-2-pentanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	57	NA	NA
Benzene	2.4	2.3	2.3	2.5	20	2.4	2.3	2.5	2.4	1	2.2	0.97	2.6	1.7	1.6	2	1.5	1.3	0.83	-	5	14
Carbon Disulfide	-	2.8	-	-	48	-	-	-	-	-	-	-	-	-	5.1	-	-	-	-	-	NA	NA
Cyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Ethylbenzene	1.4	0.89	1	0.99	1.8	1.1	0.86	0.94	0.85	-	1	-	1.1	2.6	-	1.8	-	1.5	-	50	4.8	6.5
Heptane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Hexane	-	-	-	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6	14
2,2,4-Trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Indan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Indene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Isopentane	20 J	6.2	23 J	6.2	17 J	6.4	19 J	6.3	8.6 J	-	8.6 J	-	16 J	8.4 J	2.8	11 J	3.3	8.4 J	3.8 J	-	NA	NA
Naphthalene	-	-	-	-	5.8	-	-	-	-	-	-	-	6.4	-	6.6 J	-	-	-	-	-	<10	<10
Styrene	0.86	-	-	-	3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Thiophene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Toluene	8.5	5.4	10	7.8	13	8.5	9.2	6.8	8.6	3.1	7.3	2.9	14	8.6	4.8	14	5	9.2	4.7	63	25	49
m/p-Xylenes	3.6	2.7	3	3.1	3.7	3	2.7	2.7	2.5	1.2	2.8	1.1	3.3	8.3	1.4	6.4	1.3	3.4	2	170	9.5	21
o-Xylene	1.3	0.84	0.96	1	1.4	1.1	1	1.1	0.86	-	1.2	-	1.2	2.2	-	2	-	1.4	-	63	5	7.9
Not MGP Related ²																						
1,1,1-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	28
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<8
1,2,4-Trichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,2-Dibromoethane (EDB)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
1,2-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6	<10
1,2-Dichloroethane	-	-	4.6	-	-	-	-	-	-	-	4.5	-	-	-	-	-	-	-	-	-	<1	<10
1,2-Dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
1,3-Dichlorobenzene	-	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<8	<10
1,4-Dichlorobenzene	1.4	-	5.7	-	1.4	-	1.4	-	-	-	-	3.2	1.7	1.8	2	5.2	0.94 J	6.9	5.3	250	<5	5.1
1,4-Dioxane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	-	NA	NA
2-Butanone (MEK)	-	4.1	10	5.4	-	9.4	3.3	8.4	-	12	2.9	-	12	4.7	-	6.5	4.7	7.7	-	69	NA	NA
Acetone	10	11	21	29	9.5	12	19	30	9.7	14	10	6.8	30	14	28	20	56	12	12	200	NA	NA
Benzyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Bromomethane	-	0.7	-	0.75	-	0.62	-	0.81	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	-	<6.2	<10
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Chloroethane	-	-	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Chloroform	-	-	1.8	0.88	-	-	-	-	-	-	-	-	1.5	3.1	2.1	3.8	-	-	-	-	4.3	<10
Chloromethane	1.5	1.1	1.5	1.1	1.4	1.1	1.6	1.2	1.3	1.1	1.5	1.2	2.3	1.7	1.2	1.6	1.2	1.6	1.7	-	<2	2.6
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Ethanol	22	12 J	69	21 J	18	17 J	31	26 J	23	12 J	20	11 J	130	75	20 J	96	47 J	42	38	5400 J	NA	NA
Trichlorofluoromethane (Freon 11)	2.2	1.7	2	1.6	2	1.6	2.2	1.7	2.1	2.3	2.2	1.9	2.3	2	1.9	2.2	1.8	2.3	2	-	3.8	5.9
1,1,2-Trichlorotrifluoroethane (Freon 113)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
1,2-Dichlorotetrafluoroethane	-	-	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
Dichlorodifluoromethane (Freon 12)	4.8	-	4.5	-	4.6	-	4.5	-	4.6	-	4.6	5	4.6	4.6	-	4.4	-	4.7	4.3	-	<1	<5
Hexachlorobutadiene (C-46)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<6
Methyl tert-Butyl Ether	5.4 J	-	5.1 J	-	4.7 J	-	4.5 J	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Methylene Chloride (Dichloromethane)	2.1	1.6	2	1.5	1.8	1.7	2.3	1.6	2.3	1.1	2.2	1.1	2.2	2.5	0.82	2.8	0.85	3.2	1.9	44	5.6	45
2-Propanol	6.1 J	3.3	16 J	18	3.8 J	3	6.7 J	44	3.8 J	-	8.1 J	-	11 J	14 J	3.1	32	8.5	7.9	5.5	980	NA	NA
Propene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Tetrachloroethene	2.5	-	2.4	-	2.8	-	2.8	1.1 J	4.4	-	3.6	-	3.5	6.2	-	3.8	-	2.5	1.9	-	<10	7.3
Tetrahydrofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
Trichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5.3	<10
Vinyl Acetate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<5

Notes:

Shaded values are greater than the 95th percentile value of background indoor air as provided by the NYSDOH.

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 carburetted water gas process. Non-MGP sources include 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.

NA - Not Available. No data available for background concentrations of these compounds.

- Not Detected.

J - Estimated Concentration.

Table C-2
Summary Table of Indoor Air Results - 2003 and 2004 Sampling
East 21st Street Works Site

Compound	Building 6		Building 7						Building 8		Building 9			Building 10								Background Values	
Type of Sample	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	DOH 75th percentile	DOH 95th percentile
Sample Location	Basement, Cleaning Supply Storage Room	Floor M, Stairwell B	Basement, in Boiler Room	Steam Room	Carriage Room	U-Haul Storage Room	Floor M, Stairwell B	Stair B	Appliance storage room (window open)	Floor M, Stairwell B	Basement, outside pump room (window open)	Field Duplicate Outside pump room	Floor M, Stairwell B	Basement, Center of Glass & Speaker Storage Room	Bike Carriage Room	Basement, Storage Room South of Stairwell B	Stair B Storage Room	Floor M, Stairwell B	Stair B	Basement, in Elevator Lobby			
Sample Date	6/23/2003	6/23/2003	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	6/23/2003	6/23/2003	6/23/2003	6/23/2003	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004		
Sample ID	PCV-IA1B6	PCV-IA2B6	PCV-IA1B7	B7-01	PCV-IA2B7	B7-02	PCV-IA3B7	B7-03	PCV-IA1B8	PCV-IA2B8	PCV-IA1B9	PCV-IA1FDB9	PCV-IA2B9	PCV-IA1B10	B10-01	PCV-IA2B10	B10-02	PCV-IA3B10	B10-03	PCV-IALCB10	B10-04LC		
Possibly MGP Related or Other Sources ¹																							
1,2,4-trimethylbenzene	-	3.1	-	1.9	2	-	-	0.9	1.3 J	1.2	0.99	1.1	-	12	-	270	-	34	-	9.6	2.5	7	20
1,3,5-trimethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	3.2	-	73	-	9.5	-	2.5	-	<10	<10
2,3-Dimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-Hexanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-Methylpentane	-	-	-	-	-	-	-	-	3.5 J	-	2.8	2.9	-	2.9	-	3.9	-	6.6	-	4.7	-	NA	NA
4-Ethyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	260	-	36	-	10	-	NA	NA
4-Methyl-2-pentanone	100	9.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
benzene	-	2.2	1.6	1.2	1	1.2	0.99	1.2	2.4 J	2	2.2	2.3	2.3	2.6	1.1	2.9	0.64	3.9	1.4	3.5	1.7	5	14
carbon disulfide	-	-	-	-	18	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Cyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
ethylbenzene	-	13	-	0.78	1.7	-	-	-	1 J	0.96	1.2	1.2	-	1.5	-	2.3	-	3.4	-	2.2	0.94 J	4.8	6.5
heptane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
hexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6	14
2,2,4-trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Indan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	-	-	-	-	-	NA	NA
Indene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Isopentane	-	13 J	7.6 J	-	5.5 J	-	5.6 J	-	16 J	9 J	10 J	12 J	14 J	17 J	-	22 J	5.1	42 J	4.2	25 J	7.6	NA	NA
naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
styrene	-	-	-	-	-	-	-	-	-	-	0.72	0.72	-	0.68	-	1.8	-	-	-	-	-	<10	<10
Thiophene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
toluene	1000	130	6.6	5.1	11	3.2	5.3	3.4	9.1 J	7.7	8.9	13	12	11	2.5	14	-	30	4.5	23	8.8	25	49
m/p-xylenes	10	32	1.9	2.2	5	1.3	1.6	1.7	3.2 J	3.5	3.1	3.2	2.9	4.8	1	7.5	-	12	1.8	7.8	2.7	9.5	21
o-xylene	-	6.7	-	0.84	1.6	-	-	-	0.92 J	1.1	1.2	1.2	-	2.2	-	20	-	6.1	-	3.2	0.98	5	7.9
Not MGP Related ²																							
1,1,1-trichloroethane	7.1	2	-	-	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	28
1,1,2,2-tetrachloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1,2-trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1-dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,1-dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<8
1,2,4-trichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,2-dibromoethane (EDB)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
1,2-dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6	<10
1,2-dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,2-dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
1,3-dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<8	<10
1,4-dichlorobenzene	-	4.5	-	-	1.1	-	2	-	1.1 J	1	-	-	61	2.3	-	2.1	-	1.6	-	1.1	-	<5	5.1
1,4-Dioxane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-butanone (MEK)	-	38	7.1	-	4.5	4.7	4.8	3	-	3.2	7.2	-	7.8	7.1	3.7	13	6.7	34	4.8	28	6	NA	NA
acetone	46	28	29	9.4	18	24	28	15	9.2	14	24	19	25	18	21	13	12	32	17	37	17	NA	NA
benzyl chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
bromodichloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
bromomethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
carbon tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2 J	-	-	-	-	-	-	-	<6.2	<10
chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
chloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
chloroform	-	-	3.4	-	-	-	-	3.5	2.3 J	-	-	-	-	7.3	-	-	-	-	-	-	-	4.3	<10
chloromethane	-	1.7	1.4	1.2	1.6	1.2	1.5	1	1.6 J	1.8	1.3	1.3	1.5	1.6	1.1	1.6	1.2	2.2	1.5	1.5	1.3	<2	2.6
cis-1,2-dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
cis-1,3-dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
dibromochloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Ethanol	54	160	47	24 J	27	12 J	75	26 J	20 J	18	17	19	170	47	11 J	55	14 J	160	120 J	73	210 J	NA	NA
trichlorofluoromethane (Freon 11)	-	2.2	1.9	1.6	2	1.5	2.2	1.5	2.4	2.2	3	3	3.3	2.2 J	1.7	2.1	1.8	2	1.8	2.3	2.1	3.8	5.9
1,1,2-trichlorotrifluoroethane (Freon 113)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
1,2-dichlorotetrafluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
dichlorodifluoromethane (Freon 12)	-	4.6	4.5	-	4.7	-	4.6	-	4.9 J	3.3	4.5	4.5	4.9	4.4	-	5.1	-	5.1	-	4.7	-	<1	<5
hexachlorobutadiene (C-46)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<6
Methyl tert-Butyl Ether	-	-	-	-	-	-	-	-	5.6 J	3.1	4.3	4.1	-	5.1	-	7	-	14	-	10	-	NA	NA
methylene chloride (dichloromethane)	930	250	1.5	0.97	12	1.1	2.1	1	2.4 J	2.1	2	3.8	2.3	2.3	1.4	3.4	1.6	2.5	1.6	3.2	2	5.6	45
2-Propanol	14 J	30	18	5.6	7.1	-	14	3.9	4.2 J	4.4	5.3	8.7	11	92	-	7.2 J	-	13 J	3.7	10 J	6.1	NA	NA
Propene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
tetrachloroethene	-	-	1.6	-	3.5	-	2.2	7	3 J	2.8	2.5	3.6	2.9	2.2	-	2.2	7.6	2.9	-	2.2	-	<10	7.3
Tetrahydrofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
trans-1,2-dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
trans-1,3-dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
trichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	-	-	-	<5.3	<10
Vinyl Acetate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
vinyl chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<5

Notes:

Shaded values are greater than the 95th percentile value of background indoor air as provided by the NYSDOH.

¹These compounds are likely to be related to MGP coal tar sources. However, these compounds are also found in minute quantities in non-MGP sources, such as diesel engine exhaust.

²These 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 carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.

²These 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.

NA - Not Available. No data available for background concentrations of these compounds.

- Not Detected.

J - Estimated Concentration.

Table C-2
Summary Table of Indoor Air Results - 2003 and 2004 Sampling
East 21st Street Works Site

Compound	Building 11				Building 12						Building 13			Building 14						Background Values		
Type of Sample	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air			
Sample Location	Basement, east side, center	Basement, steam room, center	Floor M, Stairwell B	Lab Dup.	Basement, Air Conditioner Storage Room	Storage Room	Basement, East Side	U-Haul Storage Room	Floor M, Stairwell B	Stair B	U-Haul Storage Room	Trunk Room	Stair B	Storage Room Entrance (window open)	Field Duplicate	U-Haul Storage Room	Field Duplicate	Floor M, Stairwell B	Stair B	DOH 75th percentile	DOH 95th percentile	
Sample Date	6/23/2003	6/23/2003	6/23/2003	6/23/2003	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	3/25/2004	3/25/2004	3/25/2004	6/23/2003	6/23/2003	3/24/2004	3/24/2004	6/23/2003	3/24/2004			
Sample ID	PCV-IA1B11	PCV-IA2B11	PCV-IA3B11	PCV-IA3B11 Dup	PCV-IA1B12	B12-01	PCV-IA2B12	B12-02	PCV-IA3B12	B12-03	B13-01	B13-02	B13-03	PCV-IA1B14	PCV-IA1FDB14	B14-01	B14-01FD	PCV-IA2B14	B14-02			
Possibly MGP Related or Other Sources ¹																						
1,2,4-trimethylbenzene	1.3	-	-	-	-	1.7	0.9	1.8	1.5	-	0.82	1.9	3.6	1	0.98	0.77	0.84	20	1			7
1,3,5-trimethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-	-	-	5.1	-	<10	<10	
2,3-Dimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
2-Hexanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
2-Methylpentane	-	-	-	-	-	-	-	-	-	-	-	4.1	3.6	-	-	3	2.6	-	2.9	NA	NA	
4-Ethyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	NA	NA	
4-Methyl-2-pentanone	-	-	-	-	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	NA	NA	
benzene	1.7	1.2	1	1	1.9	1.6	1.9	1.6	2.2	2.2	2	3.4	4.7	1.9	2.2	2	2	2.7	2.2	5	14	
carbon disulfide	-	-	-	-	-	-	-	-	-	-	2.6	-	-	-	-	-	-	-	-	NA	NA	
Cyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
ethylbenzene	1.1	-	0.82	0.75	3.8	0.82	0.92	0.87	1.5	-	0.88	1.8	3.3	1	1	0.96	1	4.5	1	4.8	6.5	
heptane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	NA	NA	
hexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6	14	
2,2,4-trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	8.8	-	-	-	-	-	-	NA	NA	
Indan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
Indene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
Isopentane	8.8 J	5.5 J	3.8 J	4.4	10 J	3.3	7.9 J	2.6	14 J	-	2.6	16	5.5	8.8 J	9.1 J	7.9	7.8	11 J	8.9	NA	NA	
naphthalene	-	-	-	-	-	5.6 J	-	-	4.7	-	-	-	-	-	-	9 J	12 J	-	6.4 J	<10	<10	
styrene	-	-	-	-	-	-	-	-	-	-	-	0.88	0.89	-	-	-	-	1.5	-	<10	<10	
Thiophene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
toluene	11	6	4.2	4.1	150	6.8	7.3	5.8	10	4.9	7.2	-	19	7.4	7.4	6.3	6.3	15	7.7	25	49	
m/p-xylenes	3.5	1.6	2.8	2.7	3.8	2.7	2.6	2.7	5	2.2	2.4	5.3	-	2.6	2.5	2.7	2.7	20	3.3	9.5	21	
o-xylene	1.1	-	0.93	0.93	1	0.96	1.4	1.3	1.7	-	0.79	1.8	3.2	1.1	0.88	0.77	0.78	8.7	1.1	5	7.9	
Not MGP Related ²																						
1,1,1-trichloroethane	-	-	-	-	-	-	-	-	2.3	-	-	-	-	-	-	-	-	-	-	6.7	28	
1,1,2,2-tetrachloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10	
1,1,2-trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10	
1,1-dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10	
1,1-dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<8	
1,2,4-trichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
1,2-dibromoethane (EDB)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5	
1,2-dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6	<10	
1,2-dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10	
1,2-dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
1,3-dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<8	<10	
1,4-dichlorobenzene	4.1	3	5.5	5.7	-	-	2.6	-	8.4	-	-	-	-	-	-	2.8	2.8	5.2	7.7	<5	5.1	
1,4-Dioxane	-	5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
2-butanone (MEK)	6.1	3.5	4.2	4.5	4.8	7.9	5.9	8.2	12	3.9	-	180 J	3.2	6.5	4.2	3.5	4.7	4.5	4.4	NA	NA	
acetone	15	16	20	22	15	16	27	16	73	39	14	30	31	23	14	9.4	13	23	15	NA	NA	
benzyl chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	
bromodichloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
bromomethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	
carbon tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6.2	<10	
chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
chloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	
chloroform	1.1	0.82	4.3	4.5	4.2	-	-	-	3	-	-	-	-	-	-	-	-	1.2	-	4.3	<10	
chloromethane	1.5	1.6	1.2 J	1.6	1.5	1.3	1.2	1.1	2.2	1.2	1.1	1.2	1.4	1.4	1.5	1.1	1.3	2.4	0.98	<2	2.6	
cis-1,2-dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
cis-1,3-dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10	
dibromochloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
Ethanol	33	23	26	30	35	15 J	51	140 J	1000 J	14 J	12 J	13 J	31 J	76	80	14 J	14 J	81	27 J	NA	NA	
trichlorofluoromethane (Freon 11)	2.2	1.9	2	2.2	2.2 J	1.6	3.4 J	2	3.6 J	1.7	1.6	1.6	1.8	2	2.1	1.6	1.7	2.8	1.8	3.8	5.9	
1,1,2-trichlorotrifluoroethane (Freon 113)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	
1,2-dichlorotetrafluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5	
dichlorodifluoromethane (Freon 12)	4.6	3.3	4	4.8	3.7	-	-	-	8.2	-	-	-	-	4.6	4.6	-	-	4.6	-	<1	<5	
hexachlorobutadiene (C-46)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<6	
Methyl tert-Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	3.7	-	-	-	-	-	-	NA	NA	
methylene chloride (dichloromethane)	1.5	1.3	1.2	1.3	1.9	2	1.5	0.98	3.6	1	2.1	2.8	2.6	2	2.3	1.8	2	2.4	2.1	5.6	45	
2-Propanol	8.6	6.1	4.8	4.9	5.3	2.4	4.9	18	250 J	2.5	-	3.2	6.1	16 J	15 J	2.6	2.5	14 J	2.5	NA	NA	
Propene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
tetrachloroethene	1.8	1.2	1.5	1.4	18	-	1.7	-	3	-	2.8	2.2	3.8	3.2	3.6	1.1	1.2	3.1	1.3	<10	7.3	
Tetrahydrofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA	
trans-1,2-dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10	
trans-1,3-dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10	
trichloroethene	-	-	-	-																		

Notes:
Shaded values are greater than the 95th percentile value of background indoor air as provided by the NYSDOH.
¹These compounds are likely to be related to MGP coal tar sources. However, these compounds are also found in minute quantities in non-MGP sources, such as diesel engine exhaust.
¹These 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 carburetted water gas process. Non-MGP sources include cleaning products, floor wax and polish, vehicle exhaust, construction materials, and cigarette smoke.
²These 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.
NA - Not Available. No data available for background concentrations of these compounds.
- Not Detected.
J - Estimated Concentration.

Table C-2
Summary Table of Indoor Air Results - 2003 and 2004 Sampling
East 21st Street Works Site

Compound	Building 15			Building 16						Building 17								Background Values	
Type of Sample	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	DOH 75th percentile	DOH 95th percentile
Sample Location	U-Haul Storage Room	Storage Room	Stair B	Basement, Storage Room	U-Haul Storage Room	Basement, Pallet Storage Room	Basement, Pallet Storage Room	Floor M, Stairwell B	Stair B	Steam Room	Steam Room	Steam Room	Hallway, outside Steam Room	Laundry Room	U-Haul Storage Room	Stair B	Field Duplicate Stair B		
Sample Date	3/25/2004	3/25/2004	3/25/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	3/25/2004	4/22/2004	5/21/2004	4/22/2004	5/21/2004	3/25/2004	3/25/2004	3/25/2004		
Sample ID	B15-01	B15-02	B15-03	PCV-IA1B16	B16-01	PCV-IA2B16	B16-02	PCV-IA3B16	B16-03	B17-01	PCV-B17-01	B17-01	PCV-B17-04	B17-05	B17-02	B17-03	B17-03FD		
Possibly MGP Related or Other Sources ¹																			
1,2,4-Trimethylbenzene	0.68	-	-	-	-	1.1	-	2.8	-	390	1.4	-	1.4	-	-	-	-	7	20
1,3,5-Trimethylbenzene	-	-	-	-	-	-	-	1	-	220	-	-	-	-	-	-	-	<10	<10
2,3-Dimethylpentane	-	-	-	-	-	-	-	5.2	-	-	-	-	-	-	-	-	-	NA	NA
2-Hexanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-Methylpentane	-	-	-	-	-	-	-	3.8	-	-	3.1	-	4.5	-	-	-	-	NA	NA
4-Ethyltoluene	-	-	-	-	-	-	-	-	-	280	-	-	-	-	-	-	-	NA	NA
4-Methyl-2-pentanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Benzene	2	2	1.8	1.9	1.9	2	2.1	14	2	560	2.0	2.2	2.4	1.8	1.3	1.3	1.3	5	14
Carbon Disulfide	3.7	10	-	-	-	-	-	-	-	-	-	4.6	-	-	-	-	-	NA	NA
Cyclohexane	-	3.6	-	-	-	-	-	4.6	-	54	-	-	5.6	-	-	-	-	NA	NA
Ethylbenzene	0.69	1.2	-	1	0.85	1.1	0.92	6.8	0.81	200	0.94	1.6 J	2.0	1.2 J	-	-	-	4.8	6.5
Heptane	-	-	-	-	-	-	-	20	-	200	-	-	6.0	-	-	-	-	NA	NA
Hexane	-	-	-	-	-	-	-	-	-	51	-	-	3.2	-	-	-	-	3.6	14
2,2,4-Trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Indan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Indene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Isopentane	3.4	2.7	3.2	10 J	7.5	20 J	7.3	17 J	7.2	-	8.5	6.7 J	18	4.7 J	3.4	3.1	3	NA	NA
Naphthalene	5.8 J	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Styrene	-	-	-	0.76	-	-	-	0.98	-	-	-	0.97	-	0.72	-	-	-	<10	<10
Thiophene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Toluene	10	10	7.3	7.6	6.5	19	5.9	58	6.5	1000	9.0	7.0	49	6.4	3.4	3.8	3.6	25	49
m/p-Xylenes	2.2	3.6	2.1	2.6	2.4	3.6	2.8	26	2.4	1000	2.7	3.7	4.7	3.6	1.6	1.7	1.6	9.5	21
o-Xylene	0.65	0.83	-	0.92	0.94	1.2	0.85	7.7	0.78	450	0.93	1.6 J	2.3	1.5 J	-	0.76	-	5	7.9
Not MGP Related ²																			
1,1,1-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	28
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-	-	1.6	-	-	-	-	-	<9	<10
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<8
1,2,4-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,2-Dibromoethane (EDB)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
1,2-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6	<10
1,2-Dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,2-Dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<8	<10
1,4-Dichlorobenzene	1.2	-	-	3.1	-	6.8	-	35	-	-	-	1.6	0.97	-	-	-	-	<5	5.1
1,4-Dioxane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-Butanone (MEK)	-	4.4	11	3.5	4.3	4.1	10	17	3.6	120	-	2.9	3.6	3.6	-	5.3	-	NA	NA
Acetone	45	62	35	11	14	12	40	27	13	260	13	20	38	25	18	37	22	NA	NA
Benzyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Bromomethane	-	-	-	-	-	-	-	-	-	-	-	0.77	-	0.94	-	-	-	<1	<1
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6.2	<10
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Chloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Chloroform	0.82	-	-	-	-	1	-	4.2	-	-	1.6	2.4	1.2	4.5	-	-	-	4.3	<10
Chloromethane	1.3	1.3	1.2	1.3	1	1.8	1.2	1.8	1.2	-	1.1	1.2	1.1	1.1	1.1	1	1.2	<2	2.6
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Ethanol	13 J	15 J	24 J	24	15 J	31	34 J	94	24 J	400 J	22	8.6 J	-	31 J	9.8 J	25 J	28 J	NA	NA
Trichlorofluoromethane (Freon 11)	1.5	1.8	1.6	2.1	1.6	2.2	1.8	2.9	1.8	-	2.1	1.8	1.9	1.7	1.6	1.6	1.7	3.8	5.9
1,1,2-Trichlorotrifluoroethane (Freon 113)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
1,2-Dichlorotetrafluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
Dichlorodifluoromethane (Freon 12)	-	-	-	4.6	-	4.9	-	4.8	-	-	2.8	-	3.2	-	-	-	-	<1	<5
Hexachlorobutadiene (C-46)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<6
Methyl tert-Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Methylene Chloride (Dichloromethane)	1.5	1.6	1.4	2.4	1.9	3.3	1.8	2.5	2	-	4.0	2.6	6.0	3.6	3	2.2	2.1	5.6	45
2-Propanol	2.7	12	5.2	6	2.7	6.3	2.6	12	2.6	1000	2.5	2.5	-	6.1	5.1	14	15	NA	NA
Propene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Tetrachloroethene	1.2	1.5	1.3	2.6	1	5.3	1.2 J	2.7	-	-	1.6	2.1	1.4	1.8	-	-	-	<10	7.3
Tetrahydrofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
Trichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5.3	<10
Vinyl Acetate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<5

Notes:

Shaded values are greater than the 95th percentile value of background indoor air as provided by the NYSDOH.

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 carburetted water gas process. Non-MGP sources include 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.

NA - Not Available. No data available for background concentrations of these compounds.

- Not Detected.

J - Estimated Concentration.

Table C-2
Summary Table of Indoor Air Results - 2003 and 2004 Sampling
East 21st Street Works Site

Compound	Building 18				Building 19			Building 20						Building 21			Background Values	
Type of Sample	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air		
Sample Location	Basement, Elevator Lobby	Basement, in Outside Appliance Storage Room	Floor M, Stairwell B	Basement, Trunk Storage Room	Storage Room	U-Haul Storage Room	Stairwell B	Basement, in Vacuum Pump Room	Steam Room	Basement, West of Stairwell B	Storage Room	Stairwell B, Floor M	Stair B	Trunk Storage Storage Room	U-Haul Storage Room	Stairwell B 530 E. 23rd St.		
Sample Date	6/23/2003	6/23/2003	6/23/2003	6/23/2003	3/25/2004	3/25/2004	3/25/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	6/23/2003	3/24/2004	3/25/2004	3/25/2004	3/25/2004		
Sample ID	PCV-IA1B18	PCV-IA2B18	PCV-IA3B18	PCV-IATCB18	B19-01	B19-02	B19-03	PCV-IA1B20	B20-01	PCV-IA2B20	B20-02	PCV-IA3B20	B20-03	B21-01	B21-02	B21-03		
Possibly MGP Related or Other Sources ¹																		
1,2,4-Trimethylbenzene	1.7	1.2	1.8	2.8	0.74 J	-	0.87	0.78	-	0.77	-	1.2	-	-	-	1.3	7	20
1,3,5-Trimethylbenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
2,3-Dimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	6.5	-	-	-	NA	NA
2-Hexanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
2-Methylpentane	-	-	3.1	-	-	-	-	-	-	-	-	-	4.2	-	-	2.6	NA	NA
4-Ethyltoluene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
4-Methyl-2-pentanone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Benzene	2	2.1	2.4	2	1.8	1.2	1.4	1.7	1.5	1.7	1.7	2.5	2.1	1.8	2.4	3.3	5	14
Carbon Disulfide	-	-	-	-	-	-	3.1	2.7	-	-	-	-	-	-	-	-	NA	NA
Cyclohexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Ethylbenzene	1.2	1.1	1.8	1.8	0.65 J	-	0.73	0.78	-	0.8	-	1.1	-	-	1.1	1.2	4.8	6.5
Heptane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Hexane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.6	14
2,2,4-Trimethylpentane	-	-	-	-	-	-	-	-	-	-	-	-	20	-	-	-	NA	NA
Indan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Indene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Isopentane	16 J	13 J	18 J	18 J	4.3	-	-	6.8 J	-	6.6 J	-	19 J	13	-	6.7	5.8	NA	NA
Naphthalene	14	-	6.8	61	-	52 J	6.2 J	-	-	-	-	5.7	-	-	-	-	<10	<10
Styrene	0.74	5.9	1.8	0.75	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Thiophene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Toluene	8.6	6.6	15	8.8	5.3	2.8	7.8	6.8	4.2	6.7	8.7	12	6.3	4.1	24	9.1	25	49
m/p-Xylenes	3.8	3.7	5.8	5.7	1.8	1.2	2	2.4	1.4	2.4	1.6	3.7	1.8	1.4	2.7	4	9.5	21
o-Xylene	1.3	1.5	1.8	1.8	-	-	-	0.82	-	0.7	-	1.1	-	-	0.71 J	1.3	5	7.9
Not MGP Related ²																		
1,1,1-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	28
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<8
1,2,4-Trichlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,2-Dibromoethane (EDB)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
1,2-Dichlorobenzene	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6	<10
1,2-Dichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<10
1,2-Dichloropropane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
1,3-Butadiene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
1,3-Dichlorobenzene	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<8	<10
1,4-Dichlorobenzene	23	1.2	8.5	35	-	-	-	3.1	-	1.1	-	47	-	-	-	-	<5	5.1
1,4-Dioxane	-	-	-	-	-	-	-	-	-	-	3.4	-	-	-	-	-	NA	NA
2-Butanone (MEK)	3.8	7.2	11	6.2	6.1	-	-	5.2	-	2.6	4.6	16	2.6	2.6	-	-	NA	NA
Acetone	14	34	24	20	7.6	11	15	24	12	8.9	18	32	11	11	10	9.6	NA	NA
Benzyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Bromodichloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Bromomethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<6.2	<10
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Chloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
Chloroform	-	-	0.9	-	-	-	-	-	-	-	-	1.3	-	-	-	-	4.3	<10
Chloromethane	1.3	1.4	1.7	1.6	1	1.2	1.1	1.4	1.1	1.2	1	2	1.1	1	1.1	1.1	<2	2.6
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
cis-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
Dibromochloromethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
Ethanol	40	17	41	63	10 J	16 J	26 J	17	15 J	14	9.3 J	130	21 J	13 J	22 J	15 J	NA	NA
Trichlorofluoromethane (Freon 11)	2.2	2.3	2.5	1.9	1.7	2	1.8	2	1.6	1.9	1.6	2.5	1.5	1.7	1.6	2.2	3.8	5.9
1,1,2-Trichlorotrifluoroethane (Freon 113)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1
1,2-Dichlorotetrafluoroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.5	<1.5
Dichlorodifluoromethane (Freon 12)	3.4	4.9	5.7	4.3	-	-	-	4.8	-	4.6	-	6.5	-	-	-	-	<1	<5
Hexachlorobutadiene (C-46)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<6
Methyl tert-Butyl Ether	3.8 J	3.8 J	4.3 J	4	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Methylene Chloride (Dichloromethane)	1.8	2	2.2	2.1	0.75	0.56	0.89	2.1	0.91	7.5	0.93	3	0.98	0.59	-	3.9	5.6	45
2-Propanol	12 J	9 J	12 J	17	-	-	49	5 J	3.3	3.8 J	-	100 J	4.9	-	4.9	-	NA	NA
Propene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Tetrachloroethene	4.5	2.1	3.4	4	-	-	-	2.6	-	2.6	-	2.6	-	-	-	-	<10	7.3
Tetrahydrofuran	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<10	<10
trans-1,3-Dichloropropene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<9	<10
Trichloroethene	7.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5.3	<10
Vinyl Acetate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NA	NA
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<5

Notes:

Shaded values are greater than the 95th percentile value of background indoor air as provided by the NYSDOH.

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 carburetted water gas process. Non-MGP sources include 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.

NA - Not Available. No data available for background concentrations of these compounds.

- Not Detected.

J - Estimated Concentration.

Table C-3
Indoor and Ambient Air Results - 2009
East 21st Street Works, Manhattan, NY

Sample Location		Building 1		Building 2		Building 3			Building 4		Building 5			Building 6		Building 7			Building 8		NYSDOH Background Indoor Air Values ¹	
Type of Sample	CAS No.	Stairwell B	Storage Room	Stairwell B	Storage Room	Steam room	Storage room/ bike room	Stairwell B	Trunk room	Stairwell B	Storage Room	Stairwell B	Paint room	Storage Room	Stairwell B	Steam room	Trunk room	Stairwell B	Storage Room with Sump in hallway before entrance	Stairwell B		
Sample ID		PCV-IA1 B1	PCV-IA2 B1	PCV-IA1 B2	PCV-IA2 B2	PCV-IA1 B3	PCV-IA2 B3	PCV-IA3 B3	PCV-IA1 B4	PCV-IA2 B4	PCV-IA1 B5	PCV-IA2 B5	PCV-IAPC B5	PCV-IA1 B6	PCV-IA2 B6	PCV-IA1 B7	PCV-IA2 B7	PCV-IA3 B7	PCV-IA1 B8	PCV-IA2 B8		
Sampling Date		2/19/2009	2/19/2009	2/20/2009	2/20/2009	2/19/2009	2/19/2009	2/19/2009	2/23/2009	2/23/2009	2/19/2009	2/19/2009	2/19/2009	2/23/2009	2/23/2009	2/19/2009	2/19/2009	2/19/2009	2/20/2009	2/20/2009	75th Percentile	90th Percentile
Compound (µg/m³)																						
Benzene	71-43-2	1.7	1.5	0.98	1.0	1.4	1.5	1.5	0.86	0.90	1.4	1.5	1.4	0.83	0.83	1.7	1.4	1.4	1.1	1.1	5.9	15
Toluene	108-88-3	3.6	3.2	1.7	1.7	2.3	2.6	2.5	1.2	1.3	3.4	4.1	10	1.3	3.1	2.6	2.5	2.5	2.6	8.8	24.8	58
Ethylbenzene	100-41-4	0.75	0.81	0.74 U	0.70 U	0.70 U	0.76 U	0.74 U	0.71 U	0.68 U	1.6	4.4	38	0.73 U	0.64 U	0.76 U	0.70 U	0.71 U	0.78 U	0.74 U	2.8	7.4
m/p-Xylenes	136777-61-2	2.1	2.4	0.74 U	0.70 U	1.4	1.5	1.4	0.77	0.68 U	5.2	16	130	0.98	0.93	1.6	1.4	1.4	0.78 U	0.80	4.6	12
o-Xylene	95-47-6	0.79	0.79 U	0.74 U	0.70 U	0.70 U	0.76 U	0.74 U	0.71 U	0.68 U	2.0	5.7	49	0.73 U	0.64 U	0.76 U	0.70 U	0.71 U	0.78 U	0.74 U	3.1	7.6
Naphthalene	91-20-3	4.4 U	4.8 U	4.5 U	4.2 U	4.2 U	4.6 U	4.5 U	4.3 U	4.1 U	7.5	4.4 U	4.1 U	4.4 U	3.8 U	4.6 U	4.2 U	4.3 U	4.7 U	4.5 U	NL	NL
Indane	496-11-7	4.1 U	4.4 U	4.1 U	3.9 U	3.9 U	4.2 U	4.1 U	3.9 U	3.8 U	4.1 U	4.1 U	9.5	4.1 U	3.6 U	4.2 U	3.9 U	4.0 U	4.3 U	4.1 U	NL	NL
Indene	95-13-6	4.0 U	4.3 U	4.1 U	3.8 U	3.8 U	4.2 U	4.1 U	3.9 U	3.7 U	4.0 U	4.0 U	3.8 U	4.0 U	3.5 U	4.2 U	3.8 U	3.9 U	4.2 U	4.1 U	NL	NL
Thiophene	110-02-1	2.9 U	3.1 U	2.9 U	2.8 U	2.8 U	3.0 U	2.9 U	2.8 U	2.7 U	2.9 U	2.9 U	2.7 U	2.9 U	2.5 U	3.0 U	2.8 U	2.8 U	3.1 U	2.9 U	NL	NL
1,2,4-Trimethylbenzene	95-63-6	0.82 U	0.90 U	0.84 U	0.79 U	0.79 U	0.86 U	0.84 U	0.80 U	0.77 U	1.6	3.8	53	0.82 U	0.72 U	0.86 U	0.79 U	0.81 U	0.88 U	0.84 U	4.3	9.5
1,3,5-Trimethylbenzene	108-67-8	0.82 U	0.90 U	0.84 U	0.79 U	0.79 U	0.86 U	0.84 U	0.80 U	0.77 U	0.79 U	0.82 U	14	0.82 U	0.72 U	0.86 U	0.79 U	0.81 U	0.88 U	0.84 U	1.7	3.6
2,2,4-Trimethylpentane	540-84-1	3.9 U	4.3 U	4.0 U	3.8 U	3.8 U	4.1 U	4.0 U	3.8 U	3.7 U	3.9 U	3.9 U	3.7 U	3.9 U	3.4 U	4.1 U	3.8 U	3.8 U	4.2 U	4.0 U	NL	NL
2,3-Dimethylpentane	565-59-3	3.4 U	3.8 U	3.5 U	3.3 U	3.3 U	3.6 U	3.5 U	3.3 U	3.2 U	3.4 U	3.4 U	3.2 U	3.4 U	3.0 U	3.6 U	3.3 U	3.4 U	3.7 U	3.5 U	2.2	7.5
2-Methylpentane	107-83-5	3.0 U	3.2 U	3.0 U	2.8 U	2.8 U	3.1 U	3.0 U	29	2.8 U	3.0 U	5.6	13	3.0 U	2.6 U	3.1 U	2.8 U	2.9 U	3.2 U	3.0 U	NL	NL
4-Ethyltoluene	622-96-8	4.1 U	4.5 U	4.2 U	4.0 U	4.0 U	4.3 U	4.2 U	4.0 U	3.8 U	4.1 U	4.1 U	39	4.1 U	3.6 U	4.3 U	4.0 U	4.0 U	4.4 U	4.2 U	NL	NL
Carbon Disulfide	75-15-0	2.6 U	2.8 U	2.7 U	2.5 U	2.5 U	2.7 U	2.7 U	2.5 U	2.4 U	2.6 U	2.6 U	2.5 U	2.6 U	2.3 U	2.7 U	2.5 U	2.6 U	2.8 U	2.7 U	NL	NL
Cyclohexane	110-82-7	2.9 U	3.1 U	2.9 U	2.8 U	2.8 U	3.0 U	2.9 U	2.8 U	2.7 U	2.9 U	3.5	8.4	2.9 U	2.5 U	3.0 U	2.8 U	2.8 U	3.1 U	2.9 U	2.6	8.1
Heptane	142-82-5	3.4 U	3.7 U	3.5 U	3.3 U	3.3 U	3.6 U	3.5 U	3.3 U	3.2 U	3.4 U	3.4 U	3.2 U	3.4 U	3.0 U	3.6 U	3.3 U	3.4 U	3.7 U	3.5 U	7.6	19
Hexane	110-54-3	3.0 U	3.2 U	3.0 U	2.8 U	2.8 U	3.1 U	3.0 U	2.9 U	2.8 U	3.0 U	3.0 U	2.8 U	3.0 U	2.6 U	3.1 U	2.8 U	2.9 U	3.2 U	3.0 U	6	18
Isopentane	78-78-4	6.0	4.5	2.5 U	2.4 U	3.1	4.0	3.9	2.4 U	2.3 U	3.7	3.3	3.4	2.5 U	2.5	3.4	3.6	4.0	2.6 U	3.3	NL	NL
Styrene	100-42-5	0.72 U	0.78 U	0.73 U	0.68 U	0.68 U	0.74 U	0.73 U	0.69 U	0.67 U	0.72 U	0.72 U	0.67 U	0.72 U	0.63 U	0.74 U	0.68 U	0.70 U	0.76 U	0.73 U	0.64	1.3
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.92 U	1.0 U	0.93 U	0.88 U	0.88 U	0.95 U	0.93 U	0.89 U	0.86 U	0.92 U	0.92 U	0.86 U	0.92 U	0.80 U	0.95 U	0.88 U	0.89 U	0.98 U	0.93 U	1.1	3.1
1,1,2,2-Tetrachloroethane	79-34-5	1.2 U	1.2 U	1.2 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.1 U	1.2 U	1.2 U	1.1 U	1.2 U	1.0 U	1.2 U	1.1 U	1.1 U	1.2 U	1.2 U	<0.25	<0.25
1,1,2-Trichloroethane	79-00-5	0.92 U	1.0 U	0.93 U	0.88 U	0.88 U	0.95 U	0.93 U	0.89 U	0.86 U	0.92 U	0.92 U	0.86 U	0.92 U	0.80 U	0.95 U	0.88 U	0.89 U	0.98 U	0.93 U	<0.25	<0.25
1,1-Dichloroethane	75-34-3	0.68 U	0.74 U	0.69 U	0.65 U	0.65 U	0.71 U	0.69 U	0.66 U	0.64 U	0.68 U	0.68 U	0.64 U	0.68 U	0.60 U	0.71 U	0.65 U	0.66 U	0.72 U	0.69 U	<0.25	<0.25
1,1-Dichloroethene	75-35-4	0.67 U	0.72 U	0.68 U	0.64 U	0.64 U	0.69 U	0.68 U	0.65 U	0.62 U	0.67 U	0.67 U	0.63 U	0.67 U	0.58 U	0.69 U	0.64 U	0.65 U	0.71 U	0.68 U	<0.25	<0.25
1,2,4-Trichlorobenzene	120-82-1	6.2 U	6.8 U	6.3 U	6.0 U	6.0 U	6.5 U	6.3 U	6.0 U	5.8 U	6.2 U	6.2 U	5.9 U	6.2 U	5.4 U	6.5 U	6.0 U	6.1 U	6.6 U	6.3 U	<0.25	3.4
1,2-Dibromoethane (EDB)	106-93-4	1.3 U	1.4 U	1.3 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	1.1 U	1.3 U	1.2 U	1.3 U	1.4 U	1.3 U	<0.25	<0.25
1,2-Dichlorobenzene	95-50-1	1.0 U	1.1 U	1.0 U	0.98 U	0.97 U	1.0 U	1.0 U	0.98 U	0.94 U	1.0 U	1.0 U	0.95 U	1.0 U	0.88 U	1.0 U	0.97 U	0.99 U	1.1 U	1.0 U	<0.25	0.72
1,2-Dichloroethane	107-06-2	0.68 U	0.74 U	0.69 U	0.65 U	0.65 U	0.71 U	0.69 U	0.66 U	0.64 U	0.68 U	0.68 U	0.64 U	0.68 U	0.59 U	0.71 U	0.65 U	0.66 U	0.72 U	0.69 U	<0.25	<0.25
1,2-Dichloropropane	78-87-5	0.78 U	0.84 U	0.79 U	0.74 U	0.74 U	0.81 U	0.79 U	0.75 U	0.72 U	0.78 U	0.78 U	0.73 U	0.78 U	0.68 U	0.81 U	0.74 U	0.76 U	0.83 U	0.79 U	<0.25	<0.25
1,3-Butadiene	106-99-0	1.8 U	2.0 U	1.9 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.7 U	1.8 U	1.8 U	1.7 U	1.8 U	1.6 U	1.9 U	1.8 U	1.8 U	2.0 U	1.9 U	NL	NL
1,3-Dichlorobenzene	541-73-1	1.0 U	1.1 U	1.0 U	0.97 U	0.97 U	1.0 U	1.0 U	0.98 U	0.94 U	1.0 U	1.0 U	0.95 U	1.0 U	0.88 U	1.0 U	0.97 U	0.99 U	1.1 U	1.0 U	<0.25	0.6
1,4-Dichlorobenzene	106-46-7	1.0 U	1.1 U	1.0 U	0.97 U	0.97 U	1.0 U	1.0 U	0.98 U	0.94 U	1.0 U	1.0 U	0.95 U	1.0 U	0.88 U	1.0 U	0.97 U	0.99 U	1.1 U	1.0 U	0.54	1.3
1,4-Dioxane	123-91-1	3.0 U	3.3 U	3.1 U	2.9 U	2.9 U	3.2 U	3.1 U	2.9 U	2.8 U	3.0 U	3.0 U	2.8 U	3.0 U	2.6 U	3.2 U	2.9 U					

Table C-3
Indoor and Ambient Air Results - 2009
East 21st Street Works, Manhattan, NY

Sample Location		Building 9			Building 10					Building 11			Building 12			Building 13			NYSDOH Background Indoor Air Values ¹	
Type of Sample	CAS No.	Storage/bike room	Storage/bike room	Stairwell B	Storage room with with windows stored in it		Main lobby	Storage room/bike room	Stairwell B	Storage room/bike room	Steam room	Stairwell B	Storage area	Storage area/bike room	Stairwell B	Crawl space behind laundry room	Trunk room crawl space	Stairwell B		
Sample ID		PCV-IA1 B9	PVV-IA1FD B9	PCV-IA2 B9	PCV-IA1 B10	PCV-IA1 B1 DUP	PCV-IALC B10	PCV-IA2 B10	PCV-IA3 B10	PCV-IA1 B11	PCV-IA2 B11	PCV-IA3 B11	PCV-IA1 B12	PCV-IA2 B12	PCV-IA3 B12	PCV-IA1 B13	PCV-IA2 B13	PCV-IA3 B13	75th Percentile	90th Percentile
Sampling Date		2/19/2009	2/19/2009	2/19/2009	2/20/2009	3/26/2009	2/20/2009	2/20/2009	2/20/2009	2/19/2009	2/19/2009	2/19/2009	2/20/2009	2/20/2009	2/20/2009	2/24/2009	2/24/2009	2/24/2009		
Compound (µg/m³)																				
Benzene	71-43-2	1.4	1.6	1.4	1.4	0.92	0.99	0.97	1.0	1.5	1.7	1.3	0.88	0.98	1.0	1.0	1.2	1.3	5.9	15
Toluene	108-88-3	2.7	3.2	2.7	24	2.4	2.0	1.4	3.5	12	9.0	2.8	1.2	1.7	1.7	1.8	2.4	4.6	24.8	58
Ethylbenzene	100-41-4	1.0	1.1	0.73 U	1.0	0.70 U	0.83 U	0.83 U	0.67 U	1.2	0.74	0.70 U	0.73 U	0.69 U	0.71 U	0.70 U	0.70 U	0.74 U	2.8	7.4
m/p-Xylenes	136777-61-2	3.4	3.8	1.9	1.9	1.7	1.1	0.83 U	0.76	3.1	1.8	1.4	0.73 U	0.84	0.91	0.70 U	1.1	1.7	4.6	12
o-Xylene	95-47-6	1.2	1.3	0.73 U	0.69	0.70 U	0.83 U	0.83 U	0.67 U	1.1	0.73 U	0.70 U	0.73 U	0.69 U	0.71 U	0.70 U	0.70 U	0.74 U	3.1	7.6
Naphthalene	91-20-3	5.3	4.5 U	4.4 U	3.5 U	4.2 U	8.0	5.0 U	4.1 U	4.0 U	4.4 U	4.2 U	4.4 U	4.1 U	4.3 U	4.2 U	4.2 U	4.5 U	NL	NL
Indane	496-11-7	4.4 U	4.1 U	4.1 U	3.2 U	3.9 U	4.6 U	4.6 U	3.7 U	3.7 U	4.1 U	3.9 U	4.1 U	3.8 U	4.0 U	3.9 U	3.9 U	4.1 U	NL	NL
Indene	95-13-6	4.3 U	4.1 U	4.0 U	3.2 U	3.8 U	4.5 U	4.5 U	3.7 U	3.6 U	4.0 U	3.8 U	4.0 U	3.8 U	3.9 U	3.8 U	3.8 U	4.1 U	NL	NL
Thiophene	110-02-1	3.1 U	2.9 U	2.9 U	2.3 U	2.8 U	3.3 U	3.3 U	2.7 U	2.6 U	2.9 U	2.8 U	2.9 U	2.7 U	2.8 U	2.8 U	2.8 U	2.9 U	NL	NL
1,2,4-Trimethylbenzene	95-63-6	1.0	1.1	0.82 U	0.98	0.86	2.0	0.94 U	0.76 U	2.6	0.82 U	0.79 U	0.82 U	0.78 U	0.81 U	0.79 U	0.79 U	0.84 U	4.3	9.5
1,3,5-Trimethylbenzene	108-67-8	0.90 U	0.84 U	0.82 U	0.66 U	0.79 U	0.94 U	0.94 U	0.76 U	1.4	0.82 U	0.79 U	0.82 U	0.78 U	0.81 U	0.79 U	0.79 U	0.84 U	1.7	3.6
2,2,4-Trimethylpentane	540-84-1	4.3 U	4.0 U	3.9 U	3.1 U	3.8 U	4.5 U	4.5 U	3.6 U	3.6 U	3.9 U	3.8 U	3.9 U	3.7 U	3.8 U	3.8 U	3.8 U	4.0 U	NL	NL
2,3-Dimethylpentane	565-59-3	3.8 U	3.5 U	3.4 U	2.7 U	3.3 U	3.9 U	3.9 U	3.2 U	3.1 U	3.4 U	3.3 U	3.4 U	3.2 U	3.4 U	3.3 U	3.3 U	3.5 U	2.2	7.5
2-Methylpentane	107-83-5	3.2 U	3.0 U	3.0 U	3.3	2.8 U	3.4 U	3.4 U	2.7 U	2.7 U	3.0 U	2.8 U	3.0 U	2.8 U	2.9 U	2.8 U	2.8 U	3.0 U	NL	NL
4-Ethyltoluene	622-96-8	4.5 U	4.2 U	4.1 U	3.3 U	4.0 U	4.7 U	4.7 U	3.8 U	3.8	4.1 U	4.0 U	4.1 U	3.9 U	4.0 U	4.0 U	4.0 U	4.2 U	NL	NL
Carbon Disulfide	75-15-0	2.8 U	2.7 U	2.6 U	2.1 U	2.5 U	3.0 U	3.0 U	2.4 U	2.4 U	2.6 U	2.5 U	2.6 U	2.5 U	2.6 U	2.5 U	2.5 U	2.7 U	NL	NL
Cyclohexane	110-82-7	3.1 U	2.9 U	2.9 U	14	2.8 U	3.3 U	3.3 U	2.7 U	2.8	2.9 U	2.8 U	2.9 U	2.7 U	2.8 U	2.8 U	2.8 U	2.9 U	2.6	8.1
Heptane	142-82-5	3.7 U	3.5 U	3.4 U	2.7 U	0.70 U	3.9 U	3.9 U	3.2 U	3.1 U	3.4 U	3.3 U	3.4 U	3.2 U	3.4 U	3.3 U	3.3 U	3.5 U	7.6	19
Hexane	110-54-3	3.2 U	3.0 U	3.0 U	2.4 U	3.3 U	3.4 U	3.4 U	2.7 U	2.7 U	3.0 U	2.8 U	3.0 U	2.8 U	2.9 U	2.8 U	2.8 U	3.0 U	6	18
Isopentane	78-784	4.4	4.1	3.6	25	2.8 U	3.1	2.8 U	6.7	19	14	5.1	2.5 U	2.5	2.6	2.4 U	3.8	4.4	NL	NL
Styrene	100-42-5	0.78 U	0.73 U	0.72 U	0.57 U	0.68 U	0.81 U	0.81 U	0.66 U	0.65	0.72 U	0.68 U	0.72 U	0.67 U	0.70 U	0.68 U	0.68 U	0.73 U	0.64	1.3
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	1.0 U	0.93 U	0.92 U	0.73 U	0.88 U	1.0 U	1.0 U	0.84 U	0.83 U	0.92 U	0.88 U	0.92 U	0.86 U	0.89 U	0.88 U	0.88 U	0.93 U	1.1	3.1
1,1,2,2-Tetrachloroethane	79-34-5	1.2 U	1.2 U	1.2 U	0.92 U	1.1 U	1.3 U	1.3 U	1.1 U	1.0 U	1.2 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	<0.25	<0.25
1,1,2-Trichloroethane	79-00-5	1.0 U	0.93 U	0.92 U	0.73 U	0.88 U	1.0 U	1.0 U	0.84 U	0.83 U	0.92 U	0.88 U	0.92 U	0.86 U	0.89 U	0.88 U	0.88 U	0.93 U	<0.25	<0.25
1,1-Dichloroethane	75-34-3	0.74 U	0.69 U	0.68 U	0.54 U	0.65 U	0.77 U	0.77 U	0.63 U	0.62 U	0.68 U	0.65 U	0.68 U	0.64 U	0.66 U	0.65 U	0.65 U	0.69 U	<0.25	<0.25
1,1-Dichloroethene	75-35-4	0.72 U	0.68 U	0.67 U	0.53 U	0.64 U	0.76 U	0.76 U	0.61 U	0.60 U	0.67 U	0.64 U	0.67 U	0.63 U	0.65 U	0.64 U	0.64 U	0.68 U	<0.25	<0.25
1,2,4-Trichlorobenzene	120-82-1	6.8 U	6.3 U	6.2 U	5.0 U	6.0 U	7.1 U	7.1 U	5.8 U	5.6 U	6.2 U	6.0 U	6.2 U	5.9 U	6.1 U	6.0 U	6.0 U	6.3 U	<0.25	3.4
1,2-Dibromoethane (EDB)	106-93-4	1.4 U	1.3 U	1.3 U	1.0 U	1.2 U	1.5 U	1.5 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.2 U	1.3 U	1.2 U	1.2 U	1.3 U	<0.25	<0.25
1,2-Dichlorobenzene	95-50-1	1.1 U	1.0 U	1.0 U	0.80 U	0.97 U	1.1 U	1.1 U	0.93 U	0.91 U	1.0 U	0.97 U	1.0 U	0.95 U	0.99 U	0.97 U	0.97 U	1.0 U	<0.25	0.72
1,2-Dichloroethane	107-06-2	0.74 U	0.69 U	0.68 U	1.1	0.65 U	0.77 U	0.77 U	0.63 U	0.62 U	0.68 U	0.65 U	0.68 U	0.64 U	0.66 U	0.65 U	0.65 U	0.69 U	<0.25	<0.25
1,2-Dichloropropane	78-87-5	0.84 U	0.79 U	0.78 U	0.62 U	0.74 U	0.88 U	0.88 U	0.72 U	0.70 U	0.78 U	0.74 U	0.78 U	0.73 U	0.76 U	0.74 U	0.74 U	0.79 U	<0.25	<0.25
1,3-Butadiene	106-99-0	2.0 U	1.9 U	1.8 U	1.5 U	1.8 U	2.1 U	2.1 U	1.7 U	1.7 U	1.8 U	1.8 U	1.8 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	NL	NL
1,3-Dichlorobenzene	541-73-1	1.1 U	1.0 U	1.0 U	0.80 U	0.97 U	1.1 U	1.1 U	0.93 U	0.91 U	1.0 U	0.97 U	1.0 U	0.95 U	0.99 U	0.97 U	0.97 U	1.0 U	<0.25	0.6
1,4-Dichlorobenzene	106-46-7	1.1 U	1.0 U	1.0 U	0.80 U	0.97 U	63	1.1 U	0.93 U	9.9	1.0 U	6.3	1.0 U	0.95 U	0.99 U	0.97 U	0.97 U	1.0 U	0.54	1.3
1,4-Dioxane	123-91-1	3.3 U	3.1 U	3.0 U	2.4 U	2.9 U	3.4 U	3.4 U	2.8 U	2.7 U	3.0 U	2.9 U	3.0 U	2.8 U	3.0 U	2.9 U	2.9 U	3.1 U	NL	NL
2-Butanone (MEK)	78-93-3	2.7 U	2.5 U	2.5 U	2.0 U	2.4 U	2.8 U	2.8 U	2.3 U	2.2 U	2.5 U	2.4 U	2.5 U	2.3 U	2.6	2.4 U	2.4 U	2.5 U	7.3	16
2-Hexanone	591-78-6	3.7 U	3.5 U	3.4 U	2.7 U	3.3 U	3.9 U	3.9 U	3.2 U	3.1 U	3.4 U	3.3 U	3.4 U	3.2 U	3.4 U	3.3 U	3.3 U	3.5 U	NL	NL
4-Methyl-2-pentanone	108-10-1	3.7 U	3.5 U	3.4 U	2.7 U	3.3 U	3.9 U	3.9 U	3.2 U	3.1 U	3.4 U	3.3 U	3.4 U	3.2 U	3.4 U	3.3 U	3.3 U	3.5 U	0.86	2.2
Acetone	67-64-1	6.0	17	7.2	7.4	6.8	9.2	4.4	8.9	28	11	100	3.2	6.8	12	6.0	11	6.2	52	110

Table C-3
Indoor and Ambient Air Results - 2009
East 21st Street Works, Manhattan, NY

Sample Location		Building 14			Building 15			Building 16			Building 17						Building 18				NYSDOH Background Indoor Air Values ¹	
Type of Sample	CAS No.	Storage room/bike room	Storage room/bike room	Stairwell B	Storage Room	Gardening Room	Stairwell B	Trunk room	Storage room/ bike room	Stairwell B	Steam room	Storage room	Stairwell B	Stairwell B	Lobby near elevator in basement	Laundry room	Storage/ bike room	Locker room	Stairwell B	Trunk room		
Sample ID		PCV-IA1 B14	PCV-IAFD B14	PCV-IA2 B14	PCV-IA1 B15	PCV-IA2 B15	PCV-IA3 B15	PCV-IA1 B16	PCV-IA2 B16	PCV-IA3 B16	PCV-IA1 B17	PCV-IA2 B17	PCV-IA3 B17	PCV-IA3FD B17	PCV-IA4 B17	PCV-IA5 B17	PCV-IA B18	PCV-IA2 B18	PCV-IA3 B18	PCV-IATC B18	75th Percentile	90th Percentile
Sampling Date		2/23/2009	2/23/2009	2/23/2009	2/24/2009	2/24/2009	2/24/2009	2/23/2009	2/23/2009	2/23/2009	2/24/2009	2/24/2009	2/24/2009	2/24/2009	2/24/2009	2/24/2009	2/23/2009	2/23/2009	2/23/2009	2/23/2009		
Compound (µg/m³)																						
Benzene	71-43-2	0.84	0.87	0.87	24	1.1	11	0.54 U	1.0	1.0	1.0	1.0	0.88	0.90	0.89	0.93	0.82	1.1	0.91	0.84	5.9	15
Toluene	108-88-3	1.2	1.2	1.4	170	2.2	74	0.64 U	2.2	2.2	1.9	1.7	2.2	2.3	1.7	1.4	1.9	3.0	2.6	1.5	24.8	58
Ethylbenzene	100-41-4	0.67 U	0.70 U	0.70 U	29	0.74 U	13	0.74 U	0.75 U	0.81 U	0.74 U	0.76 U	0.73 U	0.74 U	0.66 U	0.71 U	0.69 U	0.74 U	0.73 U	0.66 U	2.8	7.4
m/p-Xylenes	136777-61-2	0.67 U	0.70 U	0.70 U	100	0.90	44	0.74 U	0.75 U	0.81 U	0.76	0.76 U	0.73 U	0.74 U	0.66 U	0.71 U	0.69 U	1.1	0.75	0.66 U	4.6	12
o-Xylene	95-47-6	0.67 U	0.70 U	0.70 U	38	0.74 U	16	0.74 U	0.75 U	0.81 U	0.74 U	0.76 U	0.73 U	0.74 U	0.66 U	0.71 U	0.69 U	0.74 U	0.73 U	0.66 U	3.1	7.6
Naphthalene	91-20-3	8.6	4.2 U	4.2 U	6.0 U	4.5 U	4.5 U	4.4 U	4.5 U	4.9 U	4.5 U	4.6 U	4.4 U	4.5 U	4.0 U	4.3 U	4.1 U	4.5 U	4.4 U	4.0 U	NL	NL
Indane	496-11-7	3.7 U	3.9 U	3.9 U	7.9	4.1 U	4.1 U	4.1 U	4.2 U	4.5 U	4.1 U	4.2 U	4.1 U	4.1 U	3.7 U	4.0 U	3.8 U	4.1 U	4.1 U	3.6 U	NL	NL
Indene	95-13-6	3.7 U	3.8 U	3.8 U	5.5 U	4.1 U	4.1 U	4.0 U	4.1 U	4.4 U	4.1 U	4.2 U	4.0 U	4.1 U	3.6 U	3.9 U	3.8 U	4.1 U	4.0 U	3.6 U	NL	NL
Thiophene	110-02-1	2.7 U	2.8 U	2.8 U	4.0 U	2.9 U	2.9 U	2.9 U	3.0 U	3.2 U	2.9 U	3.0 U	2.9 U	2.9 U	2.6 U	2.8 U	2.7 U	2.9 U	2.9 U	2.6 U	NL	NL
1,2,4-Trimethylbenzene	95-63-6	0.76 U	0.79 U	0.79 U	30	0.84 U	13	0.84 U	0.84 U	0.91 U	0.84 U	0.86 U	0.82 U	0.84 U	0.75 U	0.81 U	0.78 U	0.84 U	0.82 U	0.74 U	4.3	9.5
1,3,5-Trimethylbenzene	108-67-8	0.76 U	0.79 U	0.79 U	9.9	0.84 U	4.3	0.84 U	0.84 U	0.91 U	0.84 U	0.86 U	0.82 U	0.84 U	0.75 U	0.81 U	0.78 U	0.84 U	0.82 U	0.74 U	1.7	3.6
2,2,4-Trimethylpentane	540-84-1	3.6 U	3.8 U	3.8 U	41	4.0 U	18	4.0 U	4.0 U	4.3 U	4.0 U	4.1 U	3.9 U	4.0 U	3.6 U	3.8 U	3.7 U	4.0 U	3.9 U	3.5 U	NL	NL
2,3-Dimethylpentane	565-59-3	3.2 U	3.3 U	3.3 U	22	3.5 U	8.7	3.5 U	3.5 U	3.8 U	3.5 U	3.6 U	3.4 U	3.5 U	3.1 U	3.4 U	3.2 U	3.5 U	3.4 U	3.1 U	2.2	7.5
2-Methylpentane	107-83-5	2.7 U	2.8 U	2.8 U	120	3.0 U	61	3.0 U	3.0 U	3.3 U	3.0 U	3.1 U	3.0 U	3.0 U	2.7 U	2.9 U	2.8 U	3.0 U	3.0 U	2.7 U	NL	NL
4-Ethyltoluene	622-96-8	3.8 U	4.0 U	4.0 U	29	4.2 U	12	4.2 U	4.2 U	4.6 U	4.2 U	4.3 U	4.1 U	4.2 U	3.7 U	4.0 U	3.9 U	4.2 U	4.1 U	3.7 U	NL	NL
Carbon Disulfide	75-15-0	2.4 U	2.5 U	2.5 U	3.6 U	2.7 U	2.7 U	2.6 U	2.7 U	2.9 U	2.7 U	2.7 U	2.6 U	2.7 U	2.4 U	2.6 U	2.5 U	2.7 U	2.6 U	2.4 U	NL	NL
Cyclohexane	110-82-7	2.7 U	2.8 U	2.8 U	35	2.9 U	15	2.9 U	3.0 U	3.2 U	2.9 U	3.0 U	2.9 U	2.9 U	2.6 U	2.8 U	2.7 U	2.9 U	2.9 U	2.6 U	2.6	8.1
Heptane	142-82-5	3.2 U	3.3 U	3.3 U	48	3.5 U	19	3.5 U	3.5 U	3.8 U	3.5 U	3.6 U	3.4 U	3.5 U	3.1 U	3.4 U	3.2 U	3.5 U	3.4 U	3.1 U	7.6	19
Hexane	110-54-3	2.7 U	2.8 U	2.8 U	76	3.0 U	34	3.0 U	3.0 U	3.3 U	3.0 U	3.1 U	3.0 U	3.0 U	2.7 U	2.9 U	2.8 U	3.0 U	3.0 U	2.7 U	6	18
Isopentane	78-784	2.3 U	2.4 U	2.4 U	210	2.8	110	2.5 U	3.6	2.9	2.5 U	2.6 U	2.5 U	2.5 U	2.2 U	2.4 U	2.3 U	5.3	3.0	2.2 U	NL	NL
Styrene	100-42-5	0.66 U	0.68 U	0.68 U	0.98 U	0.73 U	0.73 U	0.72 U	0.73 U	0.79 U	0.73 U	0.74 U	0.72 U	0.73 U	0.65 U	0.70 U	0.67 U	0.73 U	0.72 U	0.64 U	0.64	1.3
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.84 U	0.88 U	0.88 U	1.2 U	0.93 U	0.93 U	0.93 U	0.94 U	1.0 U	0.93 U	0.95 U	0.92 U	0.93 U	0.83 U	0.89 U	0.86 U	0.93 U	0.92 U	0.82 U	1.1	3.1
1,1,2,2-Tetrachloroethane	79-34-5	1.1 U	1.1 U	1.1 U	1.6 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.0 U	1.1 U	1.1 U	1.2 U	1.2 U	1.0 U	<0.25	<0.25
1,1,2-Trichloroethane	79-00-5	0.84 U	0.88 U	0.88 U	1.2 U	0.93 U	0.93 U	0.93 U	0.94 U	1.0 U	0.93 U	0.95 U	0.92 U	0.93 U	0.83 U	0.89 U	0.86 U	0.93 U	0.92 U	0.82 U	<0.25	<0.25
1,1-Dichloroethane	75-34-3	0.63 U	0.65 U	0.65 U	0.93 U	0.69 U	0.69 U	0.69 U	0.70 U	0.75 U	0.69 U	0.71 U	0.68 U	0.69 U	0.62 U	0.66 U	0.64 U	0.69 U	0.68 U	0.61 U	<0.25	<0.25
1,1-Dichloroethene	75-35-4	0.61 U	0.64 U	0.64 U	0.91 U	0.68 U	0.68 U	0.67 U	0.68 U	0.74 U	0.68 U	0.69 U	0.67 U	0.68 U	0.60 U	0.65 U	0.63 U	0.68 U	0.67 U	0.60 U	<0.25	<0.25
1,2,4-Trichlorobenzene	120-82-1	5.8 U	6.0 U	6.0 U	8.5 U	6.3 U	6.3 U	6.3 U	6.4 U	6.9 U	6.3 U	6.5 U	6.2 U	6.3 U	5.6 U	6.1 U	5.9 U	6.3 U	6.2 U	5.6 U	<0.25	3.4
1,2-Dibromoethane (EDB)	106-93-4	1.2 U	1.2 U	1.2 U	1.8 U	1.3 U	1.3 U	1.3 U	1.3 U	1.4 U	1.3 U	1.3 U	1.3 U	1.3 U	1.2 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U	<0.25	<0.25
1,2-Dichlorobenzene	95-50-1	0.93 U	0.97 U	0.97 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	0.91 U	0.99 U	0.95 U	1.0 U	1.0 U	0.91 U	<0.25	0.72
1,2-Dichloroethane	107-06-2	0.63 U	0.65 U	0.65 U	0.93 U	0.69 U	0.69 U	0.69 U	0.70 U	0.75 U	0.69 U	0.71 U	0.68 U	0.69 U	0.62 U	0.66 U	0.64 U	0.69 U	0.68 U	0.61 U	<0.25	<0.25
1,2-Dichloropropane	78-87-5	0.72 U	0.74 U	0.74 U	1.1 U	0.79 U	0.79 U	0.78 U	0.79 U	0.86 U	0.79 U	0.81 U	0.78 U	0.79 U	0.70 U	0.76 U	0.73 U	0.79 U	0.78 U	0.70 U	<0.25	<0.25
1,3-Butadiene	106-99-0	1.7 U	1.8 U	1.8 U	2.5 U	1.9 U	1.9 U	1.9 U	1.9 U	2.0 U	1.9 U	1.9 U	1.8 U	1.9 U	1.7 U	1.8 U	1.7 U	1.9 U	1.8 U	1.7 U	NL	NL
1,3-Dichlorobenzene	541-73-1	0.93 U	0.97 U	0.97 U	1.4 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	0.91 U	0.99 U	0.95 U	1.0 U	1.0 U	0.91 U	<0.25	0.6
1,4-Dichlorobenzene	106-46-7	0.93 U	0.97 U	0.97 U	1.4 U	6.6	3.0	1.0 U	1.0 U	1.1 U	1.0 U	1.										

Table C-3
Indoor and Ambient Air Results - 2009
East 21st Street Works, Manhattan, NY

Sample Location		Building 19			Building 20			Building 21				Outside Building 2		Outside Building 12		Outside Building 13		Outside Building 21		NYSDOH Background Indoor Air Values ¹	
Type of Sample	CAS No.	Maintenance storage room	Trunk room	Stairwell B	Storage room/bike room	Trunk room	Stairwell B	Storage room	Trunk room	Stairwell B	--	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air	Ambient Air		
Sample ID		PCV-IA1 B19	PCV-IA2 B19	PCV-IA3 B19	PCV-IA1 B20	PCV-IA2 B20	PCV-IA3 B20	PCV-IA1 B21	PCV-IA2 B21	PCV-IA3 B21	PCV-Trip Blank	AMB-01	AMB-03	AMB-02	AMB-04	AMB-05	AMB-07	AMB-06	AMB-08	75th Percentile	90th Percentile
Sampling Date		2/24/2009	2/24/2009	2/24/2009	2/23/2009	2/23/2009	2/23/2009	2/24/2009	2/24/2009	2/24/2009	--	2/20/2009	2/20/2009	2/20/2009	2/20/2009	2/24/2009	2/24/2009	2/24/2009	2/24/2009		
Compound (µg/m³)																					
Benzene	71-43-2	2.9	0.90	0.96	0.83	0.73	0.96	1.1	1.0	0.92	0.32 U	0.95	1.3	0.91	0.89	0.87	1.1	0.93	0.81	5.9	15
Toluene	108-88-3	12	1.5	1.9	1.0	1.1	1.3	3.1	4.4	1.4	0.38 U	1.5	2.7	1.2	1.2	1.5	1.6	2.5	2.2	24.8	58
Ethylbenzene	100-41-4	1.0	0.69 U	0.70 U	0.68 U	0.70 U	0.75 U	0.71 U	0.67 U	0.66 U	0.43 U	0.70 U	0.70 U	0.67 U	0.70 U	0.63 U	0.66 U	0.66 U	0.69 U	2.8	7.4
m/p-Xylenes	136777-61-2	4.1	0.69 U	0.70 U	0.68 U	0.70 U	0.75 U	1.1	0.94	0.66 U	0.43 U	0.70 U	1.3	0.67 U	0.70 U	0.63 U	0.66 U	0.66 U	0.69 U	4.6	12
o-Xylene	95-47-6	1.1	0.69 U	0.70 U	0.68 U	0.70 U	0.75 U	0.71 U	0.67 U	0.66 U	0.43 U	0.70 U	0.70 U	0.67 U	0.70 U	0.63 U	0.66 U	0.66 U	0.69 U	3.1	7.6
Naphthalene	91-20-3	4.4 U	4.1 U	4.2 U	4.4 U	4.2 U	4.5 U	4.3 U	4.1 U	4.0 U	2.6 U	4.2 U	4.2 U	4.1 U	4.2 U	3.8 U	4.0 U	4.0 U	4.1 U	NL	NL
Indane	496-11-7	4.1 U	3.8 U	3.9 U	3.8 U	3.9 U	4.2 U	4.0 U	3.7 U	3.7 U	2.4 U	3.9 U	3.9 U	3.7 U	3.9 U	3.5 U	3.7 U	3.7 U	3.8 U	NL	NL
Indene	95-13-6	4.0 U	3.8 U	3.8 U	3.7 U	3.8 U	4.1 U	3.9 U	3.7 U	3.6 U	2.4 U	3.8 U	3.8 U	3.7 U	3.8 U	3.5 U	3.6 U	3.6 U	3.8 U	NL	NL
Thiophene	110-02-1	2.9 U	2.7 U	2.8 U	2.7 U	2.8 U	3.0 U	2.8 U	2.7 U	2.6 U	1.7 U	2.8 U	2.8 U	2.7 U	2.8 U	2.5 U	2.6 U	2.6 U	2.7 U	NL	NL
1,2,4-Trimethylbenzene	95-63-6	1.2	0.78 U	0.79 U	0.77 U	0.79 U	0.84 U	4.1	0.76 U	0.75 U	0.49 U	0.79 U	0.79 U	0.76 U	0.79 U	0.72 U	0.75 U	0.75 U	0.78 U	4.3	9.5
1,3,5-Trimethylbenzene	108-67-8	0.82 U	0.78 U	0.79 U	0.77 U	0.79 U	0.84 U	2.3	0.76 U	0.75 U	0.49 U	0.79 U	0.79 U	0.76 U	0.79 U	0.72 U	0.75 U	0.75 U	0.78 U	1.7	3.6
2,2,4-Trimethylpentane	540-84-1	3.9 U	3.7 U	3.8 U	3.6 U	3.8 U	4.0 U	3.8 U	3.6 U	3.6 U	2.3 U	3.8 U	3.8 U	3.6 U	3.8 U	3.4 U	3.6 U	3.6 U	3.7 U	NL	NL
2,3-Dimethylpentane	565-59-3	3.4 U	3.2 U	3.3 U	3.2 U	3.3 U	3.5 U	3.4 U	3.2 U	3.1 U	2.0 U	3.3 U	3.3 U	3.2 U	3.3 U	3.0 U	3.1 U	3.1 U	3.2 U	2.2	7.5
2-Methylpentane	107-83-5	11	2.8 U	2.8 U	2.7 U	2.8 U	3.0 U	2.9 U	2.7 U	2.7 U	1.8 U	2.8 U	2.8 U	2.7 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	NL	NL
4-Ethyltoluene	622-96-8	4.1 U	3.9 U	4.0 U	3.8 U	4.0 U	4.2 U	5.8	3.8 U	3.7 U	2.4 U	4.0 U	4.0 U	3.8 U	4.0 U	3.6 U	3.7 U	3.7 U	3.9 U	NL	NL
Carbon Disulfide	75-15-0	2.6 U	2.5 U	2.5 U	2.4 U	2.5 U	2.7 U	2.6 U	2.4 U	2.4 U	1.6 U	2.5 U	2.5 U	2.4 U	2.5 U	2.3 U	2.4 U	2.4 U	2.5 U	NL	NL
Cyclohexane	110-82-7	2.9 U	2.7 U	2.8 U	2.7 U	2.8 U	3.0 U	2.8 U	2.7 U	2.6 U	1.7 U	2.8 U	2.8 U	2.7 U	2.8 U	2.5 U	2.6 U	2.6 U	2.7 U	2.6	8.1
Heptane	142-82-5	3.4 U	3.2 U	3.3 U	3.2 U	3.3 U	3.5 U	3.4 U	3.2 U	3.1 U	2.0 U	3.3 U	3.3 U	3.2 U	3.3 U	3.0 U	3.1 U	3.1 U	3.2 U	7.6	19
Hexane	110-54-3	5.6	2.8 U	2.8 U	2.7 U	2.8 U	3.0 U	2.9 U	2.7 U	2.7 U	1.8 U	2.8 U	2.8 U	2.7 U	2.8 U	2.6 U	2.7 U	2.7 U	2.8 U	6	18
Isopentane	78-784	49	2.3 U	3.0	2.3 U	2.4 U	2.5 U	3.2	4.3	2.2 U	1.5 U	2.4 U	2.4 U	2.3 U	2.4 U	2.2 U	2.2 U	4.1	2.3 U	NL	NL
Styrene	100-42-5	0.72 U	0.67 U	0.68 U	0.66 U	0.68 U	0.73 U	0.70 U	0.66 U	0.65 U	0.42 U	0.68 U	0.68 U	0.66 U	0.68 U	0.62 U	0.65 U	0.65 U	0.67 U	0.64	1.3
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.92 U	0.86 U	0.88 U	0.85 U	0.88 U	2.4	0.89 U	0.84 U	0.83 U	0.54 U	0.88 U	0.88 U	0.84 U	0.88 U	0.80 U	0.83 U	0.83 U	0.86 U	1.1	3.1
1,1,2,2-Tetrachloroethane	79-34-5	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.0 U	0.69 U	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.0 U	1.0 U	1.1 U	<0.25	<0.25
1,1,2-Trichloroethane	79-00-5	0.92 U	0.86 U	0.88 U	0.85 U	0.88 U	0.94 U	0.89 U	0.84 U	0.83 U	0.54 U	0.88 U	0.88 U	0.84 U	0.88 U	0.80 U	0.83 U	0.83 U	0.86 U	<0.25	<0.25
1,1-Dichloroethane	75-34-3	0.68 U	0.64 U	0.65 U	0.63 U	0.65 U	0.70 U	0.66 U	0.63 U	0.62 U	0.40 U	0.65 U	0.65 U	0.63 U	0.65 U	0.59 U	0.62 U	0.62 U	0.64 U	<0.25	<0.25
1,1-Dichloroethene	75-35-4	0.67 U	0.63 U	0.64 U	0.62 U	0.64 U	0.68 U	0.65 U	0.61 U	0.60 U	0.40 U	0.64 U	0.64 U	0.61 U	0.64 U	0.58 U	0.60 U	0.60 U	0.63 U	<0.25	<0.25
1,2,4-Trichlorobenzene	120-82-1	6.2 U	5.9 U	6.0 U	5.8 U	6.0 U	6.4 U	6.1 U	5.8 U	5.6 U	3.7 U	6.0 U	6.0 U	5.8 U	6.0 U	5.4 U	5.6 U	5.6 U	5.9 U	<0.25	3.4
1,2-Dibromoethane (EDB)	106-93-4	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.2 U	0.77 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U	1.2 U	1.2 U	<0.25	<0.25
1,2-Dichlorobenzene	95-50-1	1.0 U	0.95 U	0.97 U	0.94 U	0.97 U	1.0 U	0.99 U	0.93 U	0.91 U	0.60 U	0.97 U	0.97 U	0.93 U	0.97 U	0.88 U	0.91 U	0.91 U	0.95 U	<0.25	0.72
1,2-Dichloroethane	107-06-2	0.68 U	0.64 U	0.65 U	0.63 U	0.65 U	0.70 U	0.66 U	0.63 U	0.62 U	0.40 U	0.65 U	0.65 U	0.63 U	0.65 U	0.59 U	0.62 U	0.62 U	0.64 U	<0.25	<0.25
1,2-Dichloropropane	78-87-5	0.78 U	0.73 U	0.74 U	0.72 U	0.74 U	0.79 U	0.76 U	0.72 U	0.70 U	0.46 U	0.74 U	0.74 U	0.72 U	0.74 U	0.67 U	0.70 U	0.70 U	0.73 U	<0.25	<0.25
1,3-Butadiene	106-99-0	1.8 U	1.7 U	1.8 U	1.7 U	1.8 U	1.9 U	1.8 U	1.7 U	1.7 U	1.1 U	1.8 U	1.8 U	1.7 U	1.8 U	1.6 U	1.7 U	1.7 U	1.7 U	NL	NL
1,3-Dichlorobenzene	541-73-1	1.0 U	0.95 U	0.97 U	0.94 U	0.97 U	1.0 U	0.99 U	0.93 U	0.91 U	0.60 U	0.97 U	0.97 U	0.93 U	0.97 U	0.88 U	0.91 U	0.91 U	0.95 U	<0.25	0.6
1,4-Dichlorobenzene	106-46-7	1.0 U	0.95 U	3.9	0.94 U	0.97 U	1.0 U	0.99 U	0.93 U	0.91 U	0.60 U	0.97 U	0.97 U	0.93 U	0.97 U	0.88 U	0.91 U	0.91 U	0.95 U	0.54	1.3
1,4-Dioxane	123-91-1	3.0 U	2.8 U	2.9 U	2.8 U	2.9 U	3.1 U	3.0 U	2.8 U	2.7 U	1.8 U	2.9 U	2.9 U	2.8 U	2.9 U	2.6 U	2.7 U	2.7 U	2.8 U	NL	NL
2-Butanone (MEK)	78-93-3	7.3	2.3 U	2.4 U	2.3 U	2.4 U	2.5 U	2.4 U	2.3 U	2.2 U	1.5 U	2.4 U	2.4 U	2.3 U	2.4 U	2.2 U	2.2 U	2.2 U	2.3 U	7.3	16
2-Hexanone	591-78-6	3.4 U	3.2 U	3.3 U	3.2 U	3.3 U	3.5 U	3.4 U	3.2 U	3.1 U	2.0 U	3.3 U	3.3 U	3.2 U	3.3 U	3.0 U	3.1 U				

Table C-4
2010 Indoor and Ambient Air Sample Results
E. 21st Street Works Former MGP Site, Manhattan, New York

Sample Location			Building 1				Building 2		Building 3			Building 4		Building 5			Building 6		Building 7			Building 8	
Type of Sample	CAS No.	--	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	
Sample ID		PCV-Trip Blank	PCV-IA1 B1	PCV-IA1FD B1	PCV-IA2 B1	PCV-IA1 B2	PCV-IA2 B2	PCV-IA1 B3	PCV-IA2 B3	PCV-IA3 B3	PCV-IA1 B4	PCV-IA2 B4	PCV-IA1 B5	PCV-IA2 B5	PCV-IAPC B5	PCV-IA1 B6	PCV-IA2 B6	PCV-IA1 B7	PCV-IA2 B7	PCV-IA3 B7	PCV-IA1 B8	PCV-IA2 B8	
Laboratory ID		1001240A-10A	1001300A-04A	1001300A-02A	1001300A-03A	1001288-01A	1001288-02A	1001300A-01A	1001300A-05A	1001300A-06A	1001288-03A	1001288-04A	1001300A-10A	1001300A-11A	1001300A-12A	1001289-05A	1001289-06A	1001300A-13A	1001300A-14A	1001300A-15A	1001289-07A	1001289-08A	
Sampling Date	--	1/14/2010	1/14/2010	1/14/2010	1/12/2010	1/12/2010	1/14/2010	1/14/2010	1/14/2010	1/12/2010	1/12/2010	1/14/2010	1/14/2010	1/14/2010	1/13/2010	1/13/2010	1/14/2010	1/14/2010	1/14/2010	1/13/2010	1/13/2010		
Compound (µg/m³)																							
Possibly MGP Related or Other Sources ¹																							
1,2,4-Trimethylbenzene	95-63-6	0.49 U	0.84 U	0.82 U	0.76 U	0.80 U	0.74 U	0.78 U	0.76 U	0.78 U	0.82 U	0.75 U	0.81 U	0.92	8.8	0.81 U	0.79 U	0.81 U	0.76 U	0.78 U	0.99	0.81 U	
1,3,5-Trimethylbenzene	108-67-8	0.49 U	0.84 U	0.82 U	0.76 U	0.80 U	0.74 U	0.78 U	0.76 U	0.78 U	0.82 U	0.75 U	0.81 U	0.82 U	2.2	0.81 U	0.79 U	0.81 U	0.76 U	0.78 U	0.94 U	0.81 U	
2,2,4-Trimethylpentane	540-84-1	2.3 U	4.0 U	3.9 U	3.6 U	3.8 U	3.5 U	3.7 U	3.6 U	3.7 U	3.9 U	3.6 U	3.8 U	3.9 U	3.6 U	3.8 U	3.8 U	3.8 U	3.6 U	3.7 U	4.5 U	3.8 U	
2,3-Dimethylpentane	565-59-3	2.0 U	3.5 U	3.4 U	3.2 U	3.3 U	3.1 U	3.2 U	3.2 U	3.2 U	3.4 U	3.1 U	3.4 U	3.4 U	3.2 U	3.4 U	3.3 U	3.4 U	3.2 U	3.2 U	3.9 U	3.4 U	
2-Methylpentane	107-83-5	1.8 U	3.0 U	3.0 U	2.7 U	2.8 U	2.7 U	2.8 U	2.7 U	2.8 U	3.0 U	2.7 U	2.9 U	3.0 U	2.7 U	2.9 U	2.8 U	2.9 U	2.7 U	2.8 U	3.4 U	2.9 U	
4-Ethyltoluene	622-96-8	2.4 U	4.2 U	4.1 U	3.8 U	4.0 U	3.7 U	3.9 U	3.8 U	3.9 U	4.1 U	3.7 U	4.0 U	4.1 U	5.9	4.0 U	4.0 U	4.0 U	3.8 U	3.9 U	4.7 U	4.0 U	
Benzene	71-43-2	0.32 U	1.4	1.5	1.5	0.85	0.84	1.5	1.3	1.3	0.83	0.76	1.6	1.4	1.4	0.68	0.75	1.5	1.3	1.6	0.85	0.70	
Carbon Disulfide	75-15-0	1.6 U	2.7 U	2.6 U	2.4 U	2.5 U	2.4 U	2.5 U	2.4 U	2.5 U	2.6 U	2.4 U	2.6 U	2.6 U	2.4 U	2.6 U	2.5 U	2.6 U	2.4 U	2.5 U	3.0 U	2.6 U	
Cyclohexane	110-82-7	1.7 U	2.9 U	2.9 U	2.7 U	2.8 U	2.6 U	2.7 U	2.7 U	2.7 U	2.9 U	2.6 U	2.8 U	2.9 U	2.7 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U	3.3 U	2.8 U	
Ethylbenzene	100-41-4	0.43 U	0.74 U	0.73 U	0.67 U	0.70 U	0.66 U	0.69 U	0.67 U	0.69 U	0.73 U	0.66 U	0.71 U	0.81	8.9	0.71 U	0.70 U	0.71 U	0.67 U	0.69 U	0.83 U	0.71 U	
Heptane	142-82-5	2.0 U	3.5 U	3.4 U	3.2 U	3.3 U	3.1 U	3.2 U	3.2 U	3.2 U	3.4 U	3.1 U	3.4 U	3.4 U	3.2 U	3.4 U	3.3 U	3.4 U	3.2 U	3.2 U	3.9 U	3.4 U	
Hexane	110-54-3	1.8 U	3.0 U	3.0 U	2.7 U	2.8 U	2.7 U	2.8 U	2.7 U	2.8 U	3.0 U	2.7 U	2.9 U	3.0 U	2.7 U	2.9 U	2.8 U	2.9 U	2.7 U	2.8 U	3.4 U	2.9 U	
Indan	496-11-7	2.4 U	4.1 U	4.1 U	3.7 U	3.9 U	3.6 U	3.8 U	3.7 U	3.8 U	4.1 U	3.7 U	4.0 U	4.1 U	3.7 U	4.0 U	3.9 U	4.0 U	3.7 U	3.8 U	4.6 U	4.0 U	
Indene	95-13-6	2.4 U	4.1 U	4.0 U	3.7 U	3.8 U	3.6 U	3.8 U	3.7 U	3.8 U	4.0 U	3.6 U	3.9 U	4.0 U	3.7 U	3.9 U	3.8 U	3.9 U	3.7 U	3.8 U	4.5 U	3.9 U	
Isopentane	78-784	1.5 U	4.9	5.1	9.9	2.4 U	2.2 U	3.0	3.5	3.3	2.5 U	4.2	3.6	3.2	3.6	2.4 U	2.4 U	3.7	4.4	3.3	3.3 J	2.4 U	
Naphthalene	91-20-3	2.6 U	4.5 U	4.4 U	4.1 U	4.2 U	4.0 U	4.1 U	4.1 U	4.1 U	4.4 U	4.0 U	4.3 U	4.4 U	4.1 U	4.3 U	4.2 U	4.3 U	4.1 U	4.1 U	5.0 U	4.3 U	
Styrene	100-42-5	0.42 U	0.73 U	0.72 U	0.66 U	0.69 U	0.64 U	0.67 U	0.66 U	0.67 U	0.72 U	0.65 U	0.70 U	0.72 U	0.66 U	0.70 U	0.68 U	0.70 U	0.66 U	0.67 U	0.81 U	0.70 U	
Thiophene	110-02-1	1.7 U	2.9 U	2.9 U	2.7 U	2.8 U	2.6 U	2.7 U	2.7 U	2.7 U	2.9 U	2.6 U	2.8 U	2.9 U	2.7 U	2.8 U	2.8 U	2.8 U	2.7 U	2.7 U	3.3 U	2.8 U	
Toluene	108-88-3	0.38 U	3.1	3.1	13	1.4	1.3	2.8	2.6	2.6	1.2	2.5	2.8	3.0	8.3	1.6	2.9	3.3	3.6	3.2	2.6	2.0	
m/p-Xylenes	136777-61-2	0.43 U	1.3	1.4	1.4	0.77	0.74	1.4	1.3	1.2	0.73 U	0.66 U	1.4	2.4	31	0.71 U	0.70 U	1.6	0.87	1.3	1.5	0.71 U	
o-Xylene	95-47-6	0.43 U	0.74 U	0.73 U	0.67 U	0.70 U	0.66 U	0.69 U	0.67 U	0.69 U	0.73 U	0.66 U	0.71 U	0.84	10	0.71 U	0.70 U	0.71 U	0.67 U	0.69 U	0.83 U	0.71 U	
Not MGP Related ²																							
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.54 U	0.93 U	0.92 U	0.84 U	0.88 U	0.82 U	0.86 U	0.84 U	0.86 U	0.92 U	0.83 U	0.89 U	0.92 U	0.84 U	0.89 U	0.88 U	0.89 U	0.84 U	0.86 U	1.0 U	0.89 U	
1,1,2,2-Tetrachloroethane	79-34-5	0.69 U	1.2 U	1.2 U	1.1 U	1.1 U	1.0 U	1.1 U	1.1 U	1.1 U	1.2 U	1.0 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.1 U	
1,1,2-Trichloroethane	79-00-5	0.54 U	0.93 U	0.92 U	0.84 U	0.88 U	0.82 U	0.86 U	0.84 U	0.86 U	0.92 U	0.83 U	0.89 U	0.92 U	0.84 U	0.89 U	0.88 U	0.89 U	0.84 U	0.86 U	1.0 U	0.89 U	
1,1-Dichloroethane	75-34-3	0.40 U	0.69 U	0.68 U	0.63 U	0.66 U	0.61 U	0.64 U	0.63 U	0.64 U	0.68 U	0.62 U	0.66 U	0.68 U	0.63 U	0.66 U	0.65 U	0.66 U	0.63 U	0.64 U	0.77 U	0.66 U	
1,1-Dichloroethene	75-35-4	0.40 U	0.68 U	0.67 U	0.61 U	0.64 UJ	0.60 UJ	0.63 U	0.61 U	0.63 U	0.67 UJ	0.60 UJ	0.65 U	0.67 U	0.61 U	0.65 U	0.64 U	0.65 U	0.61 U	0.63 U	0.76 U	0.65 U	
1,2,4-Trichlorobenzene	120-82-1	3.7 U	6.3 U	6.2 U	5.8 U	6.0 U	5.6 U	5.9 U	5.8 U	5.9 U	6.2 U	5.6 U	6.1 U	6.2 U	5.8 U	6.1 U	6.0 U	6.1 U	5.8 U	5.9 U	7.1 U	6.1 U	
1,2-Dibromoethane (EDB)	106-93-4	0.77 U	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	1.2 U	1.3 U	1.2 U	1.2 U	1.5 U	1.3 U	
1,2-Dichlorobenzene	95-50-1	0.60 U	1.0 U	1.0 U	0.93 U	0.97 U	0.91 U	0.95 U	0.93 U	0.95 U	1.0 U	0.91 U	0.99 U	1.0 U	0.93 U	0.99 U	0.97 U	0.99 U	0.93 U	0.95 U	1.1 U	0.99 U	
1,2-Dichloroethane	107-06-2	0.40 U	0.69 U	0.68 U	0.63 U	0.66 U	0.61 U	0.64 U	0.63 U	0.64 U	0.68 U	0.62 U	0.66 U	0.68 U	0.63 U	0.66 U	0.65 U	0.66 U	0.63 U	0.64 U	0.77 U	0.66 U	
1,2-Dichloropropane	78-87-5	0.46 U	0.79 U	0.78 U	0.72 U	0.75 U	0.70 U	0.73 U	0.72 U	0.73 U	0.78 U	0.70 U	0.76 U	0.78 U	0.72 U	0.76 U	0.74 U	0.76 U	0.72 U	0.73 U	0.88 U	0.76 U	
1,3-Butadiene	106-99-0	1.1 U	1.9 U	1.8 U	1.7 U	1.8 UJ	1.7 UJ	1.7 U	1.7 U	1.7 U	1.8 UJ	1.7 UJ	1.8 U	1.8 U	1.7 U	1.8 U	1.8 U	1.8 U	1.7 U	1.7 U	2.1 U	1.8 U	
1,3-Dichlorobenzene	541-73-1	0.60 U	1.0 U	1.0 U	0.93 U	0.97 U	0.91 U	0.95 U	0.93 U	0.95 U	1.0 U	0.91 U	0.99 U	1.0 U	0.93 U	0.99 U	0.97 U	0.99 U	0.93 U	0.95 U	1.1 U	0.99 U	
1,4-Dichlorobenzene																							

Table C-4
2010 Indoor and Ambient Air Sample Results
E. 21st Street Works Former MGP Site, Manhattan, New York

Sample Location		Building 9			Building 10				Building 11			Building 12			Building 13			Building 14			Building 15		
Type of Sample		Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	
Sample ID	CAS No.	PCV-IA1 B9	PCV-IA1FD B9	PCV-IA2 B9	PCV-IA1 B10	PCV-IALC B10	PCV-IA2 B10	PCV-IA3 B10	PCV-IA1 B11	PCV-IA2 B11	PCV-IA3 B11	PCV-IA1 B12	PCV-IA2 B12	PCV-IA3 B12	PCV-IA1 B13	PCV-IA2 B13	PCV-IA3 B13	PCV-IA1 B14	PCV-IA1FD B14	PCV-IA2 B14	PCV-IA1 B15	PCV-IA2 B15	PCV-IA3 B15
Laboratory ID		1001300A-16A	1001300A-17A	1001300A-18A	1001289-09A	1001289-12A	1001289-10A	1001289-11A	1001300A-19A	1001300B-20A	1001300B-21A	1001300A-07A	1001300A-08A	1001300A-09A	1001240A-01A	1001240A-02A	1001240A-03A	1001288-09A	1001288-10A	1001288-11A	1001240A-04A	1001240A-05A	1001240A-06A
Sampling Date		1/14/2010	1/14/2010	1/14/2010	1/13/2010	1/13/2010	1/13/2010	1/13/2010	1/14/2010	1/14/2010	1/14/2010	1/14/2010	1/14/2010	1/14/2010	1/11/2010	1/11/2010	1/11/2010	1/12/2010	1/12/2010	1/12/2010	1/11/2010	1/11/2010	1/11/2010
Compound (µg/m³)																							
Possibly MGP Related or Other Sources ¹																							
1,2,4-Trimethylbenzene	95-63-6	0.78 U	0.76 U	0.99 U	0.76 U	0.75 U	0.79 U	0.79 U	0.96 U	0.78 U	0.76 U	0.81 U	0.76 U	0.79 U	0.81 U	0.82 U	0.79 U	0.81 U	0.79 U	0.77 U	0.84	0.78 U	0.84 U
1,3,5-Trimethylbenzene	108-67-8	0.78 U	0.76 U	0.99 U	0.76 U	0.75 U	0.79 U	0.79 U	0.96 U	0.78 U	0.76 U	0.81 U	0.76 U	0.79 U	0.81 U	0.82 U	0.79 U	0.81 U	0.79 U	0.77 U	0.84 U	0.78 U	0.84 U
2,2,4-Trimethylpentane	540-84-1	3.7 U	3.6 U	4.7 U	3.6 U	3.6 U	3.8 U	3.8 U	4.6 U	3.7 U	3.6 U	3.8 U	3.6 U	3.8 U	3.8 U	3.9 U	3.8 U	3.8 U	3.7 U	3.6 U	4.0 U	3.7 U	4.0 U
2,3-Dimethylpentane	565-59-3	3.2 U	3.2 U	4.1 U	3.2 U	3.1 U	3.3 U	3.3 U	4.0 U	3.2 U	3.2 U	3.4 U	3.2 U	3.3 U	3.4 U	3.4 U	3.3 U	3.4 U	3.3 U	3.2 U	3.5 U	3.2 U	3.5 U
2-Methylpentane	107-83-5	2.8 U	2.7 U	3.5 U	2.7 U	2.7 U	2.8 U	2.8 U	3.4 U	2.8 U	2.7 U	2.9 U	2.7 U	2.8 U	2.9 U	3.0 U	2.8 U	2.9 U	2.8 U	2.7 U	3.0	2.8 U	3.0 U
4-Ethyltoluene	622-96-8	3.9 U	3.8 U	4.9 U	3.8 U	3.7 U	4.0 U	4.0 U	4.8 U	3.9 U	3.8 U	4.0 U	3.8 U	4.0 U	4.0 U	4.1 U	4.0 U	4.0 U	3.9 U	3.8 U	4.2 U	3.9 U	4.2 U
Benzene	71-43-2	1.6	1.4	1.3	0.66	0.72	0.68	0.68	1.2	1.4	1.5	1.4	1.5	1.5	0.66	0.87	0.75	0.80	0.88	0.95	1.1	0.91	1.1
Carbon Disulfide	75-15-0	2.5 U	2.4 U	3.1 U	2.4 U	2.4 U	2.5 U	2.5 U	3.0 U	2.5 U	2.4 U	2.6 U	2.4 U	2.5 U	2.6 U	2.6 U	2.5 U	2.6 U	2.5 U	2.4 U	2.7 U	2.5 U	2.7 U
Cyclohexane	110-82-7	2.7 U	2.7 U	3.4 U	2.7 U	2.6 U	2.8 U	2.7 U	3.4 U	2.7 U	2.7 U	2.8 U	2.7 U	2.8 U	2.8 U	2.9 U	2.8 U	2.8 U	2.8 U	2.7 U	2.9 U	2.7 U	2.9 U
Ethylbenzene	100-41-4	1.1 J	0.67 UJ	0.87 U	0.67 U	0.66 U	0.70 U	0.70 U	0.85 U	0.69 U	0.67 U	0.71 U	0.67 U	0.70 U	0.71 U	0.73 U	0.70 U	0.72 U	0.69 U	0.68 U	0.74 U	0.69 U	0.74 U
Heptane	142-82-5	3.2 U	3.2 U	4.1 U	3.2 U	3.1 U	3.3 U	3.3 U	4.0 U	3.2 U	3.2 U	3.4 U	3.2 U	3.3 U	3.4 U	3.4 U	3.3 U	3.4 U	3.3 U	3.2 U	3.5 U	3.2 U	3.5 U
Hexane	110-54-3	2.8 U	2.7 U	3.5 U	2.7 U	2.7 U	2.8 U	2.8 U	3.4 U	2.8 U	2.7 U	2.9 U	2.7 U	2.8 U	2.9 U	3.0 U	2.8 U	2.9 U	2.8 U	2.7 U	3.0 U	2.8 U	3.0 U
Indan	496-11-7	3.8 U	3.7 U	4.8 U	3.7 U	3.7 U	3.9 U	3.9 U	4.7 U	3.8 U	3.7 U	4.0 U	3.7 U	3.9 U	4.0 U	4.1 U	3.9 U	4.0 U	3.9 U	3.8 U	4.1 U	3.8 U	4.1 U
Indene	95-13-6	3.8 U	3.7 U	4.8 U	3.7 U	3.6 U	3.8 U	3.7 U	4.6 U	3.8 U	3.7 U	4.0 U	3.7 U	3.8 U	3.9 U	4.0 U	3.8 U	3.9 U	3.8 U	3.7 U	4.1 U	3.8 U	4.1 U
Isopentane	78-784	18 J	3.4 J	3.4	2.3 U	2.2 U	2.4 U	3.5	4.8	3.3	3.6	4.1	3.6	3.4	4.4	2.5 U	2.4 U	2.4 UJ	5.9 J	2.3 U	8.8	2.3 U	4.4
Naphthalene	91-20-3	4.1 U	4.1 U	5.3 U	4.1 U	4.0 U	4.2 U	4.2 U	5.1 U	4.1 U	4.1 U	4.3 U	4.1 U	4.2 U	4.3 U	4.4 U	4.2 U	4.3 U	4.2 U	4.1 U	4.5 U	4.1 U	4.5 U
Styrene	100-42-5	0.67 U	0.66 U	0.86 U	0.66 U	0.65 U	0.68 U	0.68 U	0.83 U	0.67 U	0.66 U	0.70 U	0.66 U	0.68 U	0.70 U	0.72 U	0.68 U	0.70 U	0.68 U	0.66 U	0.73 U	0.67 U	0.73 U
Thiophene	110-02-1	2.7 U	2.7 U	3.4 U	2.7 U	2.6 U	2.8 U	2.8 U	3.4 U	2.7 U	2.7 U	2.8 U	2.7 U	2.8 U	2.8 U	2.9 U	2.8 U	2.8 U	2.8 U	2.7 U	2.9 U	2.7 U	2.9 U
Toluene	108-88-3	8.2 J	2.9 J	3.0	1.1	7.4	1.2	1.3	2.8	2.8	2.5	3.4	2.8	2.6	1.4	1.6	1.6	1.3 J	6.7 J	1.4	3.7	1.6	2.5
m/p-Xylenes	136777-61-2	2.0	1.4	1.5	0.67 U	0.87	0.70 U	0.70 U	1.2	1.2	0.93	1.2	1.4	1.2	0.71 U	0.85	0.70 U	0.72 U	0.71	0.68 U	1.8	0.69 U	1.1
o-Xylene	95-47-6	0.70	0.67 U	0.87 U	0.67 U	0.66 U	0.70 U	0.70 U	0.85 U	0.69 U	0.67 U	0.71 U	0.67 U	0.70 U	0.71 U	0.73 U	0.70 U	0.72 U	0.69 U	0.68 U	0.74 U	0.69 U	0.74 U
Not MGP Related ²																							
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.86 U	0.84 U	1.1 U	0.84 U	0.83 U	0.88 U	0.88 U	1.1 U	0.86 U	5.9	0.89 U	0.84 U	0.88 U	0.89 U	0.92 U	0.88 U	0.90 U	0.87 U	0.85 U	0.93 U	0.86 U	0.93 U
1,1,2,2-Tetrachloroethane	79-34-5	1.1 U	1.1 U	1.4 U	1.1 U	1.0 U	1.1 U	1.1 U	1.3 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	1.2 U	
1,1,2-Trichloroethane	79-00-5	0.86 U	0.84 U	1.1 U	0.84 U	0.83 U	0.88 U	0.88 U	1.1 U	0.86 U	0.84 U	0.89 U	0.84 U	0.88 U	0.89 U	0.92 U	0.88 U	0.90 U	0.87 U	0.85 U	0.93 U	0.86 U	0.93 U
1,1-Dichloroethane	75-34-3	0.64 U	0.63 U	0.81 U	0.63 U	0.62 U	0.65 U	0.65 U	0.79 U	0.64 U	0.63 U	0.66 U	0.63 U	0.65 U	0.66 U	0.68 U	0.65 U	0.67 U	0.65 U	0.63 U	0.69 U	0.64 U	0.69 U
1,1-Dichloroethene	75-35-4	0.63 U	0.61 U	0.80 U	0.61 U	0.60 U	0.64 U	0.64 U	0.78 U	0.63 U	1.2	0.65 U	0.61 U	0.64 U	0.65 U	0.67 U	0.64 U	0.65 U	0.63 U	0.62 U	0.68 U	0.63 U	0.68 U
1,2,4-Trichlorobenzene	120-82-1	5.9 U	5.8 U	7.4 U	5.8 U	5.6 U	6.0 U	6.0 U	7.3 U	5.9 U	5.8 U	6.1 U	5.8 U	6.0 U	6.1 U	6.2 U	6.0 U	6.1 U	5.9 U	5.8 U	6.3 U	5.9 U	6.3 U
1,2-Dibromothane (EDB)	106-93-4	1.2 U	1.2 U	1.5 U	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U
1,2-Dichlorobenzene (EDB)	95-50-1	0.95 U	0.93 U	1.2 U	0.93 U	0.91 U	0.97 U	0.97 U	1.2 U	0.95 U	0.93 U	0.99 U	0.93 U	0.97 U	0.99 U	1.0 U	0.97 U	0.99 U	0.96 U	0.94 U	1.0 U	0.95 U	1.0 U
1,2-Dichloroethane	107-06-2	0.64 U	0.63 U	0.81 U	0.63 U	0.62 U	0.65 U	0.65 U	0.79 U	0.64 U	0.63 U	0.66 U	0.63 U	0.65 U	0.66 U	0.68 U	0.65 U	0.67 U	0.65 U	0.63 U	0.69 U	0.64 U	0.69 U
1,2-Dichloropropane	78-87-5	0.73 U	0.72 U	0.93 U	0.72 U	0.70 U	0.74 U	0.74 U	0.90 U	0.73 U	0.72 U	0.76 U	0.72 U	0.74 U	0.76 U	0.78 U	0.74 U	0.76 U	0.74 U	0.72 U	0.79 U	0.73 U	0.79 U
1,3-Butadiene	106-99-0	1.7 U	1.7 U	2.2 U	1.7 U	1.7 U	1.8 U	1.8 U	2.2 U	1.7 U	1.7 U	1.8 U	1.7 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.7 U	1.9 U	1.7 U	1.9 U	
1,3-Dichlorobenzene	541-73-1	0.95 U	0.93 U	1.2 U																			

Table C-4
2010 Indoor and Ambient Air Sample Results
E. 21st Street Works Former MGP Site, Manhattan, New York

Sample Location		Building 16				Building 17				Building 18				Building 19			Building 20			Building 21			Outside Building 2	Outside Building 12	Outside Building 2	Outside Building 12	
Type of Sample		Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Outdoor Air	Outdoor Air	Outdoor Air	Outdoor Air	
Sample ID	CAS No.	PCV-IA1 B16	PCV-IA2 B16	PCV-IA3 B16	PCV-IA1 B17	PCV-IA2 B17	PCV-IA3 B17	PCV-IA4 B17	PCV-IA5 B17	PCV-IA B18	PCV-IA2 B18	PCV-IA3 B18	PCV-IATC B18	PCV-IA1 B19	PCV-IA2 B19	PCV-IA3 B19	PCV-IA1 B20	PCV-IA2 B20	PCV-IA3 B20	PCV-IA1 B21	PCV-IA2 B21	PCV-IA3 B21	AMB-01	AMB-02	AMB-03	AMB-04	
Laboratory ID		1001288-12A	1001288-13A	1001288-14A	1001240A-11A	1001240A-12A	1001240A-14A	1001240A-15A	1001240A-16A	1001288-05A	1001288-06A	1001288-07A	1001288-08A	1001240A-07A	1001240A-08A	1001240A-09A	1001289-13A	1001289-14A	1001289-15A	1001240A-17A	1001240A-18A	1001240A-19A	1001289-01A	1001289-02A	1001289-03A	1001289-04A	
Sampling Date		1/12/2010	1/12/2010	1/12/2010	1/11/2010	1/11/2010	1/11/2010	1/11/2010	1/11/2010	1/12/2010	1/12/2010	1/12/2010	1/12/2010	1/11/2010	1/11/2010	1/11/2010	1/13/2010	1/13/2010	1/13/2010	1/11/2010	1/11/2010	1/11/2010	1/13/2010	1/13/2010	1/13/2010	1/13/2010	
Compound (µg/m³)																											
Possibly MGP Related or Other Sources ¹																											
1,2,4-Trimethylbenzene	95-63-6	0.77 U	0.77 U	1.2	0.81 U	0.72 U	0.79 U	0.81 U	0.81 U	0.82 U	0.77 U	0.79 U	0.79 U	1.4	0.79 U	0.79 U	0.82 U	0.78 U	0.79 U	0.90	0.76 U	0.81 U	0.75 U	0.75 U	0.71 U	0.73 U	
1,3,5-Trimethylbenzene	108-67-8	0.77 U	0.77 U	0.79 U	0.81 U	0.72 U	0.79 U	0.81 U	0.81 U	0.82 U	0.77 U	0.79 U	0.79 U	0.84 U	0.79 U	0.79 U	0.82 U	0.78 U	0.79 U	0.82 U	0.76 U	0.81 U	0.75 U	0.75 U	0.71 U	0.73 U	
2,2,4-Trimethylpentane	540-84-1	3.6 U	3.6 U	3.8 U	3.8 U	3.4 U	3.8 U	3.8 U	3.8 U	3.9 U	3.8 U	3.7 U	3.7 U	4.0 U	3.8 U	3.8 U	3.9 U	3.7 U	3.8 U	3.9 U	3.6 U	3.8 U	3.6 U	3.6 U	3.4 U	3.5 U	
2,3-Dimethylpentane	565-59-3	3.2 U	3.2 U	3.3 U	3.4 U	3.0 U	3.3 U	3.4 U	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.5 U	3.3 U	3.3 U	3.4 U	3.2 U	3.3 U	3.4 U	3.2 U	3.4 U	3.1 U	3.1 U	3.0 U	3.0 U	
2-Methylpentane	107-83-5	2.7 U	2.7 U	2.8 U	2.9 U	2.6 U	2.8 U	2.9 U	2.9 U	3.0 U	12 J	2.8 U	2.8 U	3.0 U	2.8 U	2.8 U	3.0 U	2.8 U	2.8 U	3.0 U	2.7 U	2.9 U	2.7 U	2.5 U	2.6 U	2.6 U	
4-Ethyltoluene	622-96-8	3.8 U	3.8 U	4.0 U	4.0 U	3.6 U	4.0 U	4.0 U	4.0 U	4.1 U	3.8 U	3.9 U	3.9 U	4.2 U	4.0 U	4.0 U	4.1 U	3.9 U	4.0 U	4.1 U	3.8 U	4.0 U	3.7 U	3.7 U	3.5 U	3.7 U	
Benzene	71-43-2	0.81	0.87	0.88	0.95	0.74	0.79	0.87	0.81	0.74	0.73	0.80	1.0	0.96	0.73	0.51 U	0.77	0.87	0.74	0.88	0.71	0.81	0.72	0.84	0.75	0.84	
Carbon Disulfide	75-15-0	2.4 U	2.4 U	2.5 U	2.6 U	2.3 U	2.5 U	2.6 U	2.6 U	2.4 U	2.5 U	2.5 U	2.5 U	2.7 U	2.5 U	2.5 U	2.6 U	2.5 U	2.5 U	2.6 U	2.4 U	2.6 U	2.4 U	2.4	2.2 U	2.3 U	
Cyclohexane	110-82-7	2.7 U	2.7 U	2.8 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.9 U	2.7 U	2.8 U	2.8 U	2.9 U	2.8 U	2.8 U	2.9 U	2.7 U	2.8 U	2.9 U	2.7 U	2.8 U	2.6 U	2.6 U	2.5 U	2.6 U	
Ethylbenzene	100-41-4	0.68 U	0.68 U	0.70 U	0.71 U	0.63 U	0.70 U	0.71 U	0.71 U	0.73 U	0.68 U	0.69 U	0.69 U	0.81	0.70 U	0.70 U	0.73 U	0.69 U	0.70 U	0.73 U	0.67 U	0.71 U	0.66 U	0.66 U	0.62 U	0.65 U	
Heptane	142-82-5	3.2 U	3.2 U	3.3 U	3.4 U	3.0 U	3.3 U	3.4 U	3.4 U	3.4 U	3.2 U	3.3 U	3.3 U	3.5 U	3.3 U	3.3 U	3.4 U	3.2 U	3.3 U	3.4 U	3.2 U	3.4 U	3.1 U	3.1 U	3.0 U	3.0 U	
Hexane	110-54-3	2.7 U	2.7 U	2.8 U	2.9 U	2.6 U	2.8 U	2.9 U	2.9 U	3.0 U	2.8 U	2.8 U	2.8 U	3.0 U	2.8 U	2.8 U	3.0 U	2.8 U	2.8 U	3.0 U	2.7 U	2.9 U	2.7 U	2.5 U	2.6 U	2.6 U	
Indan	496-11-7	3.8 U	3.8 U	3.9 U	4.0 U	3.5 U	3.9 U	4.0 U	4.0 U	4.1 U	3.8 U	3.9 U	3.9 U	4.1 U	3.9 U	3.9 U	4.1 U	3.8 U	3.9 U	4.1 U	3.7 U	4.0 U	3.7 U	3.7 U	3.5 U	3.6 U	
Indene	95-13-6	3.7 U	3.7 U	3.8 U	3.9 U	3.5 U	3.8 U	3.9 U	3.9 U	4.0 U	3.7 U	3.8 U	3.8 U	4.1 U	3.8 U	3.8 U	4.0 U	3.8 U	3.8 U	4.0 U	3.7 U	3.9 U	3.6 U	3.6 U	3.4 U	3.5 U	
Isopentane	78-784	2.3 U	2.3 U	4.9	2.4 U	2.2 U	2.4 U	2.4 U	2.4 U	2.5 U	2.3 U	2.4 U	2.4 U	2.7	2.4 U	2.4 U	2.5 U	2.3 U	2.4 U	2.5 U	2.3 U	2.4 U	2.2 U	2.2 U	2.1 U	2.2 U	
Naphthalene	91-20-3	4.1 U	4.1 U	4.2 U	4.3 U	3.8 U	4.2 U	4.3 U	4.3 U	4.4 U	4.1 U	4.2 U	4.2 U	4.5 U	4.2 U	4.2 U	4.4 U	4.1 U	4.2 U	4.4 U	4.1 U	4.3 U	4.0 U	4.0 U	3.8 U	3.9 U	
Styrene	100-42-5	0.66 U	0.66 U	0.68 U	0.70 U	0.62 U	0.68 U	0.68 U	0.70 U	0.72 U	0.67 U	0.68 U	0.68 U	0.73 U	0.68 U	0.68 U	0.72 U	0.67 U	0.68 U	0.72 U	0.66 U	0.70 U	0.65 U	0.65 U	0.61 U	0.63 U	
Thiophene	110-02-1	2.7 U	2.7 U	2.8 U	2.8 U	2.5 U	2.8 U	2.8 U	2.8 U	2.9 U	2.7 U	2.8 U	2.8 U	2.9 U	2.8 U	2.8 U	2.9 U	2.7 U	2.8 U	2.9 U	2.7 U	2.8 U	2.6 U	2.6 U	2.5 U	2.6 U	
Toluene	108-88-3	1.6	1.2	4.2	1.8	1.8	2.2	1.8	1.7	1.6	2.4	1.6	1.8	6.8	1.4	0.61 U	1.4	1.6	1.6	1.9	1.3	1.4	1.2	1.4	1.3	1.6	
m/p-Xylenes	136777-61-2	0.68 U	0.68 U	0.84	0.80	0.81	1.0	0.71 U	0.71 U	0.73 U	0.68 U	0.69 U	0.80	2.2	0.70 U	0.70 U	0.73 U	0.83	0.70	1.3	0.67 U	0.76	0.66 U	0.66 U	0.62 U	0.68	
o-Xylene	95-47-6	0.68 U	0.68 U	0.70 U	0.71 U	0.63 U	0.70 U	0.71 U	0.71 U	0.73 U	0.68 U	0.69 U	0.69 U	1.0	0.70 U	0.70 U	0.73 U	0.69 U	0.70 U	0.73 U	0.67 U	0.71 U	0.66 U	0.66 U	0.62 U	0.65 U	
Not MGP Related ²																											
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.85 U	0.85 U	0.88 U	0.89 U	0.80 U	0.88 U	0.89 U	0.89 U	0.92 U	0.86 U	0.87 U	0.87 U	0.93 U	0.88 U	0.88 U	0.92 U	0.86 U	0.88 U	0.92 U	0.84 U	0.89 U	0.83 U	0.83 U	0.78 U	0.81 U	
1,1,2,2-Tetrachloroethane	79-34-5	1.1 U	1.1 U	1.1 U	1.1 U	1.0 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.2 U	1.1 U	1.1 U	1.0 U	1.0 U	0.99 U	1.0 U	
1,1,2-Trichloroethane	79-00-5	0.85 U	0.85 U	0.88 U	0.89 U	0.80 U	0.88 U	0.89 U	0.89 U	0.92 U	0.86 U	0.87 U	0.87 U	0.93 U	0.88 U	0.88 U	0.92 U	0.86 U	0.88 U	0.92 U	0.84 U	0.89 U	0.83 U	0.83 U	0.79 U	0.81 U	
1,1-Dichloroethane	75-34-3	0.63 U	0.63 U	0.65 U	0.66 U	0.59 U	0.65 U	0.66 U	0.66 U	0.68 U	0.64 U	0.65 U	0.65 U	0.69 U	0.65 U	0.65 U	0.68 U	0.64 U	0.65 U	0.68 U	0.63 U	0.66 U	0.62 U	0.62 U	0.58 U	0.60 U	
1,1-Dichloroethene	75-35-4	0.62 U	0.62 U	0.64 U	0.65 U	0.58 U	0.64 U	0.65 U	0.65 U	0.67 UJ	0.62 UJ	0.63 UJ	0.63 U	0.68 U	0.64 U	0.64 U	0.67 U	0.63 U	0.64 U	0.67 U	0.61 U	0.65 U	0.60 U	0.60 U	0.57 U	0.59 U	
1,2,4-Trichlorobenzene	120-82-1	5.8 U	5.8 U	6.0 U	6.1 U	5.4 U	6.0 U	6.1 U	6.1 U	6.2 U	5.8 U	5.9 U	5.9 U	6.3 U	6.0 U	6.0 U	6.2 U	5.9 U	6.0 U	6.2 U	5.8 U	6.1 U	5.6 U	5.6 U	5.3 U	5.5 U	
1,2-Dibromomethane (EDB)	106-93-4	1.2 U	1.2 U	1.2 U	1.3 U	1																					

Table C-4
2010 Indoor and Ambient Air Sample Results
E. 21st Street Works Former MGP Site, Manhattan, New York

Sample Location		Outside Building 13	Outside Building 21	Outside Building 13	Outside Building 21	NYSDOH Background Indoor	
Type of Sample	CAS No.	Outdoor Air	Outdoor Air	Outdoor Air	Outdoor Air	Air Values ³	
Sample ID		AMB-05	AMB-06	AMB-07	AMB-08	75th Percentile	90th Percentile
Laboratory ID		1001240B-20A	1001240B-21A	1001240B-22A	1001240B-23A		
Sampling Date		1/11/2010	1/11/2010	1/11/2010	1/11/2010		
Compound (µg/m ³)							
Possibly MGP Related or Other Sources ¹							
1,2,4-Trimethylbenzene	95-63-6	0.78 U	0.72 UJ	0.71 U	0.75 U	4.3	9.5
1,3,5-Trimethylbenzene	108-67-8	0.78 U	0.72 UJ	0.71 U	0.75 U	1.7	3.6
2,2,4-Trimethylpentane	540-84-1	3.7 U	3.4 UJ	3.4 U	3.6 U	NL	NL
2,3-Dimethylpentane	565-59-3	3.2 U	3.0 UJ	3.0 U	3.1 U	2.2	7.5
2-Methylpentane	107-83-5	2.8 U	2.6 UJ	2.5 U	2.7 U	NL	NL
4-Ethyltoluene	622-96-8	3.9 U	3.6 UJ	3.5 U	3.7 U	NL	NL
Benzene	71-43-2	0.78	0.69 J	0.85	0.72	5.9	15
Carbon Disulfide	75-15-0	2.5 U	2.3 UJ	2.2 U	2.4 U	NL	NL
Cyclohexane	110-82-7	2.7 U	2.5 UJ	2.5 U	2.6 U	2.6	8.1
Ethylbenzene	100-41-4	0.69 U	0.63 UJ	0.62 U	0.66 U	2.8	7.4
Heptane	142-82-5	3.2 U	3.0 UJ	3.0 U	3.1 U	7.6	19
Hexane	110-54-3	2.8 U	2.6 UJ	2.5 U	2.7 U	6	18
Indan	496-11-7	3.8 U	3.5 UJ	3.5 U	3.7 U	NL	NL
Indene	95-13-6	3.8 U	3.5 UJ	3.4 U	3.6 U	NL	NL
Isopentane	78-784	2.3 U	2.2 UJ	2.1 U	2.2 U	NL	NL
Naphthalene	91-20-3	4.1 U	3.8 UJ	3.8 U	4.0 U	NL	NL
Styrene	100-42-5	0.67 U	0.62 UJ	0.61 U	0.65 U	0.64	1.3
Thiophene	110-02-1	2.7 U	2.5 UJ	2.5 U	2.6 U	NL	NL
Toluene	108-88-3	1.4	1.3	1.5	1.3	24.8	58
m/p-Xylenes	136777-61-2	0.69 U	0.63 UJ	0.68	0.66 U	4.6	12
o-Xylene	95-47-6	0.69 U	0.63 UJ	0.62 U	0.66 U	3.1	7.6
Not MGP Related ²							
1,1,1-Trichloroethane (1,1,1-TCA)	71-55-6	0.86 U	0.80 UJ	0.78 U	0.83 U	1.1	3.1
1,1,2,2-Tetrachloroethane	79-34-5	1.1 U	1.0 UJ	0.99 U	1.0 U	<0.25	<0.25
1,1,2-Trichloroethane	79-00-5	0.86 U	0.80 UJ	0.78 U	0.83 U	<0.25	<0.25
1,1-Dichloroethane	75-34-3	0.64 U	0.59 UJ	0.58 U	0.62 U	<0.25	<0.25
1,1-Dichloroethene	75-35-4	0.63 U	0.58 UJ	0.57 U	0.60 U	<0.25	<0.25
1,2,4-Trichlorobenzene	120-82-1	5.9 U	5.4 UJ	5.3 U	5.6 U	<0.25	3.4
1,2-Dibromoethane (EDB)	106-93-4	1.2 U	1.1 UJ	1.1 U	1.2 U	<0.25	<0.25
1,2-Dichlorobenzene	95-50-1	0.95 U	0.88 UJ	0.86 U	0.91 U	<0.25	0.72
1,2-Dichloroethane	107-06-2	0.64 U	0.59 UJ	0.58 U	0.62 U	<0.25	<0.25
1,2-Dichloropropane	78-87-5	0.73 U	0.67 UJ	0.66 U	0.70 U	<0.25	<0.25
1,3-Butadiene	106-99-0	1.7 U	1.6 UJ	1.6 U	1.7 U	NL	NL
1,3-Dichlorobenzene	541-73-1	0.95 U	0.88 UJ	0.86 U	0.91 U	<0.25	0.6
1,4-Dichlorobenzene	106-46-7	0.95 U	0.88 UJ	0.86 U	0.91 U	0.54	1.3
1,4-Dioxane	123-91-1	2.8 U	2.6 UJ	2.6 U	2.7 U	NL	NL
2-Butanone (MEK)	78-93-3	2.3 U	2.2 UJ	2.1 U	2.2 U	7.3	16
2-Hexanone	591-78-6	3.2 U	3.0 UJ	2.9 U	3.1 U	NL	NL
4-Methyl-2-pentanone	108-10-1	3.2 U	3.0 UJ	2.9 U	3.1 U	0.86	2.2
Acetone	67-64-1	3.8	5.3	3.8	5.8	52	110
Benzyl chloride	100-44-7	0.82 U	0.76 UJ	0.74 U	0.79 U	NL	NL
Bromodichloromethane	75-27-4	5.3 U	4.9 UJ	4.8 U	5.1 U	NL	NL
Bromoform	75-25-2	8.2 U	7.5 UJ	7.4 U	7.8 U	NL	NL
Bromomethane	74-83-9	0.61 U	0.61 J	0.56 U	0.59 U	<0.25	0.6
Carbon Tetrachloride	56-23-5	0.99 U	0.92 UJ	0.91 U	0.96 U	0.59	0.81
Chlorobenzene	108-90-7	0.73 U	0.67 UJ	0.66 U	0.70 U	<0.25	<0.25
Chloroethane	75-00-3	0.42 U	0.38 UJ	0.38 U	0.40 U	<0.25	<0.25
Chloroform	67-66-3	0.77 U	0.71 UJ	0.70 U	0.74 U	0.54	1.4
Chloromethane	74-87-3	0.65 J	0.64 J	0.66 J	0.62 J	1.8	3.3
cis-1,2-Dichloroethene	156-59-2	0.63 U	0.58 UJ	0.57 U	0.60 U	<0.25	<0.25
cis-1,3-Dichloropropene	10061-01-5	0.72 U	0.66 UJ	0.65 U	0.69 U	<0.25	<0.25
Dibromochloromethane	124-48-1	6.7 U	6.2 UJ	6.1 U	6.5 U	NL	NL
Ethanol	64-17-5	5.9	4.9 J	6.2	4.8	540	1400
Trichlorofluoromethane (Freon 11)	75-69-4	0.96	0.98 J	0.99	1.0	5.4	17
1,1,2-Trichlorotrifluoroethane (Freon 113)	76-13-1	1.2 U	1.1 UJ	1.1 U	1.2 U	1.1	1.8
1,2-Dichlorotetrafluoroethane	76-14-2	1.1 U	1.0 UJ	1.0 U	1.1 U	<0.25	0.52
Dichlorodifluoromethane (Freon 12)	75-71-8	1.9	2.0 J	1.9	2.0	4.1	15
Hexachlorobutadiene (C-46)	87-68-3	8.4 U	7.8 UJ	7.7 U	8.1 U	<0.25	4.6
Methyl tert-Butyl Ether (MTBE)	1634-04-4	2.8 U	2.6 UJ	2.6 U	2.7 U	5.6	27
Methylene Chloride (Dichloromethane)	75-09-2	0.55 UJ	0.51 UJ	0.50 UJ	0.53 UJ	6.6	22
2-Propanol	67-63-0	1.9 U	1.8 UJ	1.8 U	1.9 U	NL	NL
Propene	115-07-1	1.4 U	1.2 UJ	1.2 U	1.3 U	NL	NL
Tetrachloroethene (PCE)	127-18-4	1.1 U	0.99 UJ	1.1	1.0 U	1.1	2.9
Tetrahydrofuran	109-99-9	2.3 U	2.2 UJ	2.1 U	2.2 U	0.35	3.3
trans-1,2-Dichloroethene	156-60-5	3.1 U	2.9 UJ	2.8 U	3.0 U	NA	NA
trans-1,3-Dichloropropene	10061-02-6	0.72 U	0.66 UJ	0.65 U	0.69 U	<0.25	<0.25
Trichloroethene (TCE)	79-01-6	0.85 U	0.78 UJ	0.77 U	0.82 U	<0.25	0.48
Vinyl Chloride	75-01-4	0.40 U	0.37 UJ	0.37 U	0.39 U	<0.25	<0.25

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 carburetted water gas process. Non-MGP sources include 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 - New York State Department of Health, November 14, 2005.
Bold - Compound detected in a concentration greater than the method reporting limits.
Exceeds NYSDOH Background Indoor Air Values 90th Percentile
Dup - As suffix on Sample ID indicates that the sample is a field duplicate.
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.
R - The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.
N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ - The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.
J - The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
UJ - The analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be UJ - inaccurate or imprecise.

Appendix D

Summary of Product Recovery Results

Table D-1
Summary of NAPL Monitoring/Recovery Results
OU1 Locations

Site Area	Monitoring Well	Parameter	2009			
			Q1	Q2	Q3	Q4
Center	21MWD03	Depth Encountered (ft. bgs)	30	31.5	37	36.5
		Thickness (ft.)	7	stringer	stringer	Trace
		Quantity Recovered (gal.)	5.2	NA	NA	NA
		24 hr.Recharge Rate (gal/day)	0.24	NA	NA	NA
		Viscosity (centipoise)	46			
North East Corner	21MWD12	Depth Encountered (ft. bgs)	32.6	34.6	27.7	30.3
		Thickness (ft.)	0.7	1.1	stringer	stringer
		Quantity Recovered (gal.)	0.6	0.3	NA	NA
		24 hr.Recharge Rate (gal/day)	0.1	0.001	NA	NA
		Viscosity (centipoise)	5,100			
East Center	21MWS10	Depth Encountered (ft. bgs)	NE	8.4	8.5	8.1
		Thickness (ft.)	NA	1.6	0.7	0.1
		Quantity Recovered (gal.)	NA	0.2	0.09	0.07
		24 hr.Recharge Rate (gal/day)	NA	0.1	0.01	0.03
		Viscosity (centipoise)				
	21MWD10	Depth Encountered (ft. bgs)	35.4	36	36.7	36.5
		Thickness (ft.)	0.4	0.5	stringer	trace
		Quantity Recovered (gal.)	0.2	0.1	NA	NA
		24 hr.Recharge Rate (gal/day)	NE	NE	NA	NA
		Viscosity (centipoise)	67,200			
	21MWD04	Depth Encountered (ft. bgs)	34.7	36	36	34.8
		Thickness (ft.)	2.2	0.9	0.9	trace
		Quantity Recovered (gal.)	0.4	0.1	0.2	NA
		24 hr.Recharge Rate (gal/day)	0.4	NE	NE	NA
		Viscosity (centipoise)				
	21MWDD04	Depth Encountered (ft. bgs)	59	64.7	61.7	60.3
		Thickness (ft.)	14	9	11.4	12.8
		Quantity Recovered (gal.)	2.7	2.2	5.6	4
		24 hr.Recharge Rate (gal/day)	--	0.3	0.65	4.8
		Viscosity (centipoise)	136			

NE - NAPL not encountered

NA - not applicable

-- data not collected

Appendix E

Summary of Capital Cost Estimates for Alternatives

Table E-1

Project Name: Peter Cooper Village OU-1
Cost Estimate No.: Alternative 2 Institutional Controls
Client Con-Ed
Location NYC, NY

Project Element: AAR

Type of Estimate: Feasibility/Conceptual

Revision No.: 0
Date: 1/27/10
Status: Draft
Author: CCD
Office: WES
Reviewed By:

Project Details

Project Location:
Project Start Date:
Project Duration:
Type of Contract: Direct Owner
Level of Accuracy: -30% to +50%
Contingency: 20%

Scope Summary

Summarize scope of work and provide project specific details with reference to source

Document Source: _____ **Rev. Date:** _____ **Site Visit?** _____
Document Source: _____ **Rev. Date:** _____
Document Source: _____ **Rev. Date:** _____

Cost Summary

Prime Contractor Costs	\$	1,088,250		
Other Contracts & Purchases	\$	3,240		
Design Costs	\$	370,329		
30 Year O&M NPV	\$	4,998,113		
			-30%	+50%
Project Total Estimated Cost	\$	6,460,000	\$ 4,500,000	\$ 9,700,000

Notes:

- Note intended use and audience
- List major project assumptions
- Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type	Accuracy Range
Preliminary	-50% to +100%
Feasibility/Conceptual	-30% to +50%
Engineering	
30%	-20% to +30%
60%	-15% to +20%
90%	-10% to +15%

4. Contingency values are based on information provided in 'USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	Scope Contingency
Soil Excavation	15% to 55%
Groundwater Treatment (Multiple Wells)	15% to 35%
On-site Incineration	15% to 35%
Extraction Wells	10% to 30%
Vertical Barriers	10% to 30%
Synthetic Cap	10% to 20%
Off-site Disposal	5% to 15%
Off-site Incineration	5% to 15%
Bulk Liquid Processing	5% to 15%
Clay Cap	5% to 10%
Surface Grading/Diking	5% to 10%
Revegetation	5% to 10%

- Values and costs are for informational purposes only. Values are not true costs because they represent a combination of fixed capital and quantity-proportional components.

Peter Cooper Village OU-1
Alternative 2 Institutional Controls
Con-Ed
NYC, NY

AAR

By: CCD Rev Date: 1/27/2010

Prime Contractor Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Mobilization	LS	1	\$350,000	\$0	\$70,000	\$420,000	\$420,000	39%
2	NAPL Collection Well	LF	350	\$556,875	\$0	\$111,375	\$668,250	\$1,909	61%
				\$906,875	\$0	\$181,375	\$1,088,250		100%
Other Contracts & Purchases									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Waste Disposal	TON	18	\$2,700	\$0	\$540	\$3,240	\$180	100%
				\$2,700	\$0	\$540	\$3,240		100%
Design Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Construction Oversight	LS	1	\$217,650	\$0	\$43,530	\$261,180	\$261,180	71%
2	Engineering Design	LS	1	\$90,958	\$0	\$18,192	\$109,149	\$109,149	29%
				\$308,608	\$0	\$61,722	\$370,329		100%
Grand Total							\$1,461,819		

AAR

Rev Date: 1/27/10

6/18/2010 12:28 PM J:\Rem Eng\MMcCabe\ConEO\CONFIDENTIAL\209\Revised AAR 0610\Appendices\Appendix E\Revised E-1 Cost Estimate Alternative 2.xls

Item	Annual Cost	NPV	Duration
Air Monitoring	\$105,000 Year	\$2,058,046.34	30 years
NAPL Collection	\$150,000 Year	\$2,940,066.20	30 years
Total	\$255,000	\$4,998,113	

Table E-2

Project Name: Peter Cooper Village OU-1
Cost Estimate No.: Alternative 3 Institutional Controls and Soil Removal
Client Con-Ed
Location NYC, NY

Project Element: AAR

Type of Estimate: Feasibility/Conceptual

Revision No.: 0
Date: 1/27/10
Status: Draft
Author: CCD
Office: WES
Reviewed By:

Project Details

Project Location:
Project Start Date:
Project Duration:
Type of Contract: Direct Owner
Level of Accuracy: -30% to +50%
Contingency: 20%

Scope Summary

Summarize scope of work and provide project specific details with reference to source

Document Source: _____ Rev. Date: _____ Site Visit? _____
 Document Source: _____ Rev. Date: _____
 Document Source: _____ Rev. Date: _____

Cost Summary

Prime Contractor Costs	\$	8,245,049		
Other Contracts & Purchases	\$	3,838,349		
Design Costs	\$	3,536,442		
30 Year O&M NPV	\$	4,998,113		
			-30%	+50%
Project Total Estimated Cost	\$	20,620,000	\$	14,000,000
			\$	31,000,000

Notes:

1. Note intended use and audience
2. List major project assumptions
3. Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type	Accuracy Range
Preliminary	-50% to +100%
Feasibility/Conceptual Engineering	-30% to +50%
30%	-20% to +30%
60%	-15% to +20%
90%	-10% to +15%

4. Contingency values are based on information provided in "USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	Scope Contingency
Soil Excavation	15% to 55%
Groundwater Treatment (Multiple Wells)	15% to 35%
On-site Incineration	15% to 35%
Extraction Wells	10% to 30%
Vertical Barriers	10% to 30%
Synthetic Cap	10% to 20%
Off-site Disposal	5% to 15%
Off-site Incineration	5% to 15%
Bulk Liquid Processing	5% to 15%
Clay Cap	5% to 10%
Surface Grading/Diking	5% to 10%
Revegetation	5% to 10%

5. Values and costs are for informational purposes only. Values are not true costs because they represent a combination of fixed capital and quantity-proportional components

Peter Cooper Village OU-1
Alternative 3 Institutional Controls and Soil Removal
Con-Ed
NYC, NY

AAR

By: CCD Rev Date: 1/27/2010

Prime Contractor Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Mobilization	LS	1	\$850,000	\$0	\$170,000	\$1,020,000	\$1,020,000	12%
2	NAPL Collection Well	LF	350	\$556,875	\$0	\$111,375	\$668,250	\$1,909	8%
3	Excavation	CY	21,300	\$2,345,175	\$0	\$469,035	\$2,814,210	\$132	34%
4	Excavation Shoring	SF	43,317	\$3,118,824	\$0	\$623,765	\$3,742,589	\$86	45%
				\$6,870,874	\$0	\$1,374,175	\$8,245,049		100%
Other Contracts & Purchases									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	10% MU	20% Contingency	Total Cost	Unit Rate	%
1	Waste Disposal	TON	19,684	\$2,952,576	\$295,258	\$590,515	\$3,838,349	\$195	100%
				\$2,952,576	\$295,258	\$590,515	\$3,838,349		100%
Design Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Construction Oversight and Air Monitorin	LS	1	\$1,964,690	\$0	\$392,938	\$2,357,628	\$2,357,628	67%
2	Engineering Design	LS	1	\$982,345	\$0	\$196,469	\$1,178,814	\$1,178,814	33%
				\$2,947,035	\$0	\$589,407	\$3,536,442		100%
Grand Total							\$15,619,840		

Peter Cooper Village OU-1
Alternative 3 Institutional Controls and Soil Removal
Con-Ed
NYC, NY

AAR

Add Task

Delete Row

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By: CCD

Rev Date: 1/27/10

Task/Sub Task	Description	Unit	Qty	Rate	Total Cost	
Prime Contractor Costs		NOTE- All costs include contractor Overhead and Profit				
1	Mobilization	LS	1		\$850,000.00	
	Mobilization	LS	1	100000	\$100,000.00	
	Site Preparation and Temporary Facilities	LS	1	500000	\$500,000.00	
	Utility Re-Route	LS	1	250000	\$250,000.00	
2	NAPL Collection Well	LF	350		\$556,875.00	
	NAPL Collection Well	LF	350	162.5	\$56,875.00	
	NAPL Collection Infrastructure	EA	10	50000	\$500,000.00	
					\$0.00	
3	Excavation	CY	21300		\$2,345,175.00	
	Excavation	CY	21300	87	\$1,853,100.00	
	Clean Fill Material	CY	11160	13.5	\$150,660.00	
	Place and Compact	CY	25560	9	\$230,040.00	
	Compaction Testing	EA	51	125	\$6,375.00	
	Landscaping and Restoration	Acre	1.4	75000	\$105,000.00	
					\$0.00	
4	Excavation Shoring	SF	43317		\$3,118,824.00	
	Excavation Shoring	SF	43317	72	\$3,118,824.00	
		0	0	0	\$0.00	
SUB-TOTAL CONTRACTOR					\$6,870,874.00	\$6,870,874.00
Mark-up					0%	\$0.00
Contingency					20%	\$1,374,174.80
Total Subcontractor						\$8,245,048.80
Other Contracts & Purchases						
1	Waste Disposal	TON	19683.84		\$2,952,576.00	
	Transportation and Disposal (RCRA - C Non-Haz)	TON	19683.84	150	\$2,952,576.00	
		0	0	0	\$0.00	
SUB-TOTAL OTHER CONTRACTS					\$2,952,576.00	\$2,952,576.00
Mark-up					10%	\$295,257.60
Contingency					20%	\$590,515.20
Total Subcontractor						\$3,838,348.80
Design Costs						
1	Construction Oversight and Air Monitoring	LS	1		\$1,964,690.00	
	Construction Oversight and Air Monitoring	LS	1	\$1,964,690.00	\$1,964,690.00	
					\$0.00	
2	Engineering Design	LS	1		\$982,345.00	
	Engineering Design	LS	1	\$982,345.00	\$982,345.00	
					\$0.00	
SUB-TOTAL Design COSTS					\$2,947,035.00	\$2,947,035.00
Mark-up					0%	\$0.00
Contingency					20%	\$589,407.00
Total Design						\$3,536,442.00
GRAND TOTAL						\$15,619,839.60

Item	Annual Cost	NPV	Duration
Indoor Air Monitoring	\$105,000 Year	\$2,058,046.34	30 years
NAPL Collection	\$150,000 Year	\$2,940,066.20	30 years
Total	\$255,000	\$4,998,113	

Table E-3

Project Name:	Peter Cooper Village OU-1	Revision No.:	2
Cost Estimate No.:	Alternative 4 Institutional Controls, Soil Removal and Source Material Control	Date:	1/27/10
Client	Con-Ed	Status:	Draft
Location	NYC, NY	Author:	CCD
		Office:	WES
Project Element:	AAR	Reviewed By:	
Type of Estimate:	Feasibility/Conceptual		

Project Details

Project Location:
Project Start Date:
Project Duration:
Type of Contract: Direct Owner
Level of Accuracy: -30% to +50%
Contingency: 20%

Scope Summary

Summarize scope of work and provide project specific details with reference to source

Document Source: _____	Rev. Date: _____	Site Visit? _____
Document Source: _____	Rev. Date: _____	
Document Source: _____	Rev. Date: _____	

Cost Summary

Prime Contractor Costs	\$	77,410,074	
Other Contracts & Purchases	\$	53,333,280	
Design Costs	\$	37,992,238	
30 Year O&M NPV	\$	4,998,113	
			-30% +50%
Project Total Estimated Cost	\$	173,730,000	\$ 121,600,000 \$ 260,600,000

Notes:

1. Note intended use and audience
2. List major project assumptions
3. Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type	Accuracy Range
Preliminary	-50% to +100%
Feasibility/Conceptual	-30% to +50%
Engineering	
30%	-20% to +30%
60%	-15% to +20%
90%	-10% to +15%

4. Contingency values are based on information provided in "USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	Scope Contingency
Soil Excavation	15% to 55%
Groundwater Treatment (Multiple Wells)	15% to 35%
On-site Incineration	15% to 35%
Extraction Wells	10% to 30%
Vertical Barriers	10% to 30%
Synthetic Cap	10% to 20%
Off-site Disposal	5% to 15%
Off-site Incineration	5% to 15%
Bulk Liquid Processing	5% to 15%
Clay Cap	5% to 10%
Surface Grading/Diking	5% to 10%
Revegetation	5% to 10%

5. Values and costs are for informational purposes only. Values are not true costs because they represent a combination of fixed capital and quantity-proportional components

Peter Cooper Village OU-1

Alternative 4 Institutional Controls, Soil Removal and Source Material Control

Con-Ed

NYC, NY

AAR

By: CCD Rev Date: 1/27/2010

Prime Contractor Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Mobilization	LS	1	\$1,350,000	\$0	\$270,000	\$1,620,000	\$1,620,000	2%
2	NAPL Collection Well	LF	350	\$556,875	\$0	\$111,375	\$668,250	\$1,909	1%
3	Excavation	CY	226,200	\$24,820,020	\$0	\$4,964,004	\$29,784,024	\$132	38%
4	Excavation De-watering	LS	1	\$5,237,500	\$0	\$1,047,500	\$6,285,000	\$6,285,000	8%
5	Excavation Shoring	SF	2,920	\$23,544,000	\$0	\$4,708,800	\$28,252,800	\$9,676	36%
6	In-Situ Chemical Oxidation	CY	6,361	\$9,000,000	\$0	\$1,800,000	\$10,800,000	\$1,698	14%
				\$64,508,395	\$0	\$12,901,679	\$77,410,074		100%
Other Contracts & Purchases									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	10% MU	20% Contingency	Total Cost	Unit Rate	%
1	Waste Disposal	TON	273,504	\$41,025,600	\$4,102,560	\$8,205,120	\$53,333,280	\$195	100%
				\$41,025,600	\$4,102,560	\$8,205,120	\$53,333,280		100%
Design Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Construction Oversight and Air Monitorin	LS	1	\$21,106,799	\$0	\$4,221,360	\$25,328,159	\$25,328,159	67%
2	Engineering Design	LS	1	\$10,553,400	\$0	\$2,110,680	\$12,664,079	\$12,664,079	33%
				\$31,660,199	\$0	\$6,332,040	\$37,992,238		100%
Grand Total							\$168,735,592		

Peter Cooper Village OU-1
Alternative 4 Institutional Controls, Soil Removal and Source Material Control
Con-Ed
NYC, NY

AAR

Add Task

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By: CCD

Rev Date: 1/27/10

Task/Sub Task	Description	Unit	Qty	Rate	Total Cost	
Prime Contractor Costs		NOTE- All costs include contractor Overhead and Profit				
1	Mobilization	LS	1		\$1,350,000.00	
	Mobilization	LS	1	100000	\$100,000.00	
	Site Preparation and Temporary Facilities	LS	1	1000000	\$1,000,000.00	
	Utility Re-Route	LS	1	\$250,000.00	\$250,000.00	
2	NAPL Collection Well	LF	350		\$556,875.00	
	NAPL Collection Well	LF	350	162.5	\$56,875.00	
	NAPL Collection Infrastructure	EA	10	50000	\$500,000.00	
					\$0.00	
3	Excavation	CY	226200		\$24,820,020.00	
	Excavation	CY	226200	87	\$19,679,400.00	
	Clean Fill Material	CY	154800	13.5	\$2,089,800.00	
	Place and Compact	CY	271440	9	\$2,442,960.00	
	Compaction Testing	EA	543	125	\$67,860.00	
	Landscaping and Restoration	Acrer	7.2	75000	\$540,000.00	
4	Excavation De-watering	LS	1		\$5,237,500.00	
	Dewatering Plant	LS	1	1000000	\$1,000,000.00	
	Dewatering Operation	DY	565	7500	\$4,237,500.00	
					\$0.00	
5	Excavation Shoring	SF	2920		\$23,544,000.00	
	Sheet pile shoring	SF	218000	108	\$23,544,000.00	
6	In-Situ Chemical Oxidation	CY	6361		\$9,000,000.00	
	ISCO Injection	CY	120000	75	\$9,000,000.00	
					\$0.00	
SUB-TOTAL CONTRACTOR					\$64,508,395.00	\$64,508,395.00
Mark-up					0%	\$0.00
Contingency					20%	\$12,901,679.00
Total Subcontractor						\$77,410,074.00
Other Contracts & Purchases						
1	Waste Disposal	TON	273504		\$41,025,600.00	
	Transportation and Disposal (RCRA - C Non-Haz)	TON	273504	150	\$41,025,600.00	
		0	0	0	\$0.00	
SUB-TOTAL OTHER CONTRACTS					\$41,025,600.00	\$41,025,600.00
Mark-up					10%	\$4,102,560.00
Contingency					20%	\$8,205,120.00
Total Subcontractor						\$53,333,280.00
Design Costs						
1	Construction Oversight and Air Monitoring	LS	1		\$21,106,799.00	
	Construction Oversight and Air Monitoring	LS	1	\$21,106,799.00	\$21,106,799.00	
					\$0.00	
2	Engineering Design	LS	1		\$10,553,399.50	
	Engineering Design	LS	1	\$10,553,399.50	\$10,553,399.50	
					\$0.00	
SUB-TOTAL Design COSTS					\$31,660,198.50	\$31,660,198.50
Mark-up					0%	\$0.00
Contingency					20%	\$6,332,039.70
Total Design						\$37,992,238.20
GRAND TOTAL						\$168,735,592.20

Item	Annual Cost	NPV	Duration
Indoor Air Monitoring	\$105,000 Year	\$2,058,046.34	30 years
NAPL Collection	\$150,000 Year	\$2,940,066.20	30 years
Total	\$255,000	\$4,998,113	

Table E-4

Project Name: Peter Cooper Village OU-1
Cost Estimate No.: Alternative 5 Complete Site Restoration
Client Con-Ed
Location NYC, NY

Project Element: AAR

Type of Estimate: Feasibility/Conceptual

Revision No.: 6
Date: 12/22/09
Status: Draft
Author: CCD
Office: WES
Reviewed By:

Project Details

Project Location:
Project Start Date:
Project Duration:
Type of Contract: Direct Owner
Level of Accuracy: -30% to +50%
Contingency: 20%

Scope Summary

Summarize scope of work and provide project specific details with reference to source

Document Source: _____ Rev. Date: _____ Site Visit? _____
 Document Source: _____ Rev. Date: _____
 Document Source: _____ Rev. Date: _____

Cost Summary

Prime Contractor Costs \$ 219,740,007
Other Contracts & Purchases \$ 194,008,320
Design Costs \$ 65,922,002

 -30% +50%
Project Total Estimated Cost \$ 480,000,000 \$ 340,000,000 \$ 720,000,000

Notes:

1. Note intended use and audience
2. List major project assumptions
3. Accuracy ranges are based on information provided in "Association for Advancement of Cost Engineering (AACE), International Cost Estimating Classifications, 18R-97"

Estimate Type	Accuracy Range
Preliminary	-50% to +100%
Feasibility/Conceptual	-30% to +50%
Engineering	30% -20% to +30%
	60% -15% to +20%
	90% -10% to +15%

4. Contingency values are based on information provided in "USEPA, Guide to Developing Cost Estimates, July 2000

Remediation Technology	Scope Contingency
Soil Excavation	15% to 55%
Groundwater Treatment (Multiple Wells)	15% to 35%
On-site Incineration	15% to 35%
Extraction Wells	10% to 30%
Vertical Barriers	10% to 30%
Synthetic Cap	10% to 20%
Off-site Disposal	5% to 15%
Off-site Incineration	5% to 15%
Bulk Liquid Processing	5% to 15%
Clay Cap	5% to 10%
Surface Grading/Diking	5% to 10%
Revegetation	5% to 10%

5. Values and costs are for informational purposes only. Values are not true costs because they represent a combination of fixed capital and quantity-proportional components

Peter Cooper Village OU-1
Alternative 5 Complete Site Restoration
Con-Ed
NYC, NY

AAR

By: CCD Rev Date: 12/22/2009

Prime Contractor Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Mobilization	LS	1	\$1,750,000	\$0	\$350,000	\$2,100,000	\$2,100,000	1%
2	Demolition	CF	31,500,000	\$33,425,172	\$0	\$6,685,034	\$40,110,207	\$1	18%
3	Excavation	CY	757,000	\$82,021,500	\$0	\$16,404,300	\$98,425,800	\$130	45%
4	Excavation Shoring	SF	216,000	\$48,320,000	\$0	\$9,664,000	\$57,984,000	\$268	26%
5	Excavation De-watering	LS	1	\$17,600,000	\$0	\$3,520,000	\$21,120,000	\$21,120,000	10%
				\$183,116,672	\$0	\$36,623,334	\$219,740,007		100%
Other Contracts & Purchases									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Waste Disposal	TON	1,011,648	\$161,673,600	\$0	\$32,334,720	\$194,008,320	\$192	100%
				\$161,673,600	\$0	\$32,334,720	\$194,008,320		100%
Design Costs									
Task ID	Task Descr.	Unit	Quantity	Bare Cost	0% MU	20% Contingency	Total Cost	Unit Rate	%
1	Construction Oversight and Air Monitorin	LS	1	\$36,623,334	\$0	\$7,324,667	\$43,948,001	\$43,948,001	67%
2	Engineering Design	LS	1	\$18,311,667	\$0	\$3,662,333	\$21,974,001	\$21,974,001	33%
				\$54,935,002	\$0	\$10,987,000	\$65,922,002		100%
Grand Total							\$479,670,329		

Peter Cooper Village OU-1
Alternative 5 Complete Site Restoration
Con-Ed
NYC, NY

AAR

Add Task

Delete Row

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By: CCD

Rev Date: 12/22/09

Task/Sub Task	Description	Unit	Qty	Rate	Total Cost	
Prime Contractor Costs		NOTE- All costs include contractor Overhead and Profit				
1	Mobilization	LS	1		\$1,750,000.00	
	Mobilization	LS	1	750000	\$750,000.00	
	Site Preparation and Temporary Facilities	LS	1	1000000	\$1,000,000.00	
2	Demolition	CF	31500000		\$33,425,172.30	
	Explosive/Implosive Demolition	CF	31500000	0.39	\$12,285,000.00	
	Disposal of Material	CY	1166667	16.9	\$19,716,672.30	
	Demolition of Footings and Foundations	SF	150000	9.49	\$1,423,500.00	
					\$0.00	
3	Excavation	CY	757000		\$82,021,500.00	
	Excavation	CY	757000	87	\$65,859,000.00	
	Clean Fill Material	CY	574800	13.5	\$7,759,800.00	
	Place and Compact	CY	908400	9	\$8,175,600.00	
	Compaction Testing	EA	1817	125	\$227,100.00	
					\$0.00	
4	Excavation Shoring	SF	216000		\$48,320,000.00	
	Sheet pile wall to 20' bgs	SF	40000	108	\$4,320,000.00	
	Jet Grout Wall to 50' bgs	SF	176000	250	\$44,000,000.00	
5	Excavation De-watering	LS	1		\$17,600,000.00	
	De-watering plant	LS	1	2000000	\$2,000,000.00	
	De-watering operation	DY	1040	15000	\$15,600,000.00	
					\$0.00	
SUB-TOTAL CONTRACTOR					\$183,116,672.30	\$183,116,672.30
Mark-up					0%	\$0.00
Contingency					20%	\$36,623,334.46
Total Subcontractor						\$219,740,006.76
Other Contracts & Purchases						
1	Waste Disposal	TON	1011648		\$161,673,600.00	
	Transportation and Disposal (RCRA - C Non-Haz)	TON	912384	150	\$136,857,600.00	
	Transportation and Disposal (RCRA - D Haz)	TON	99264	250	\$24,816,000.00	
SUB-TOTAL OTHER CONTRACTS					\$161,673,600.00	\$161,673,600.00
Mark-up					0%	\$0.00
Contingency					20%	\$32,334,720.00
Total Subcontractor						\$194,008,320.00
Design Costs						
1	Construction Oversight and Air Monitoring	LS	1		\$36,623,334.46	
	Construction Oversight and Air Monitoring	LS	1	\$36,623,334.46	\$36,623,334.46	
					\$0.00	
2	Engineering Design	LS	1		\$18,311,667.23	
	Engineering Design	LS	1	\$18,311,667.23	\$18,311,667.23	
					\$0.00	
SUB-TOTAL Design COSTS					\$54,935,001.69	\$54,935,001.69
Mark-up					0%	\$0.00
Contingency					20%	\$10,987,000.34
Total						\$65,922,002.03
GRAND TOTAL						\$479,670,328.79

